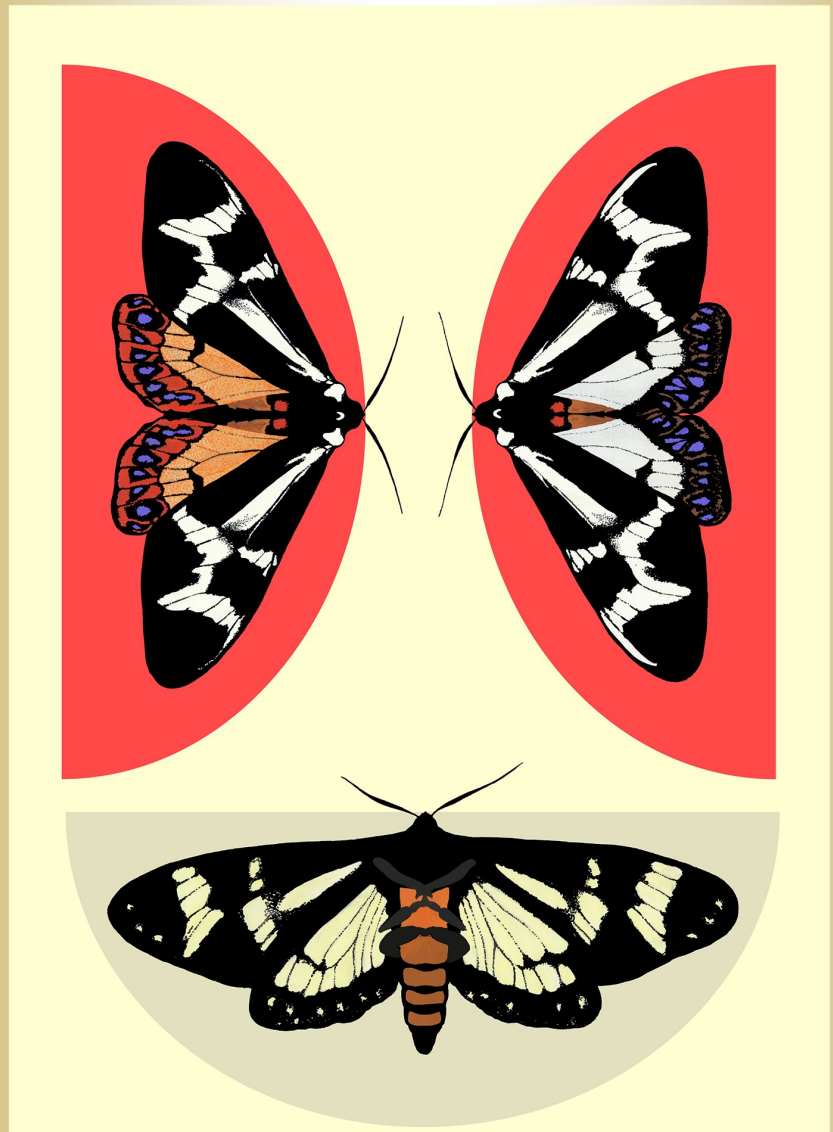
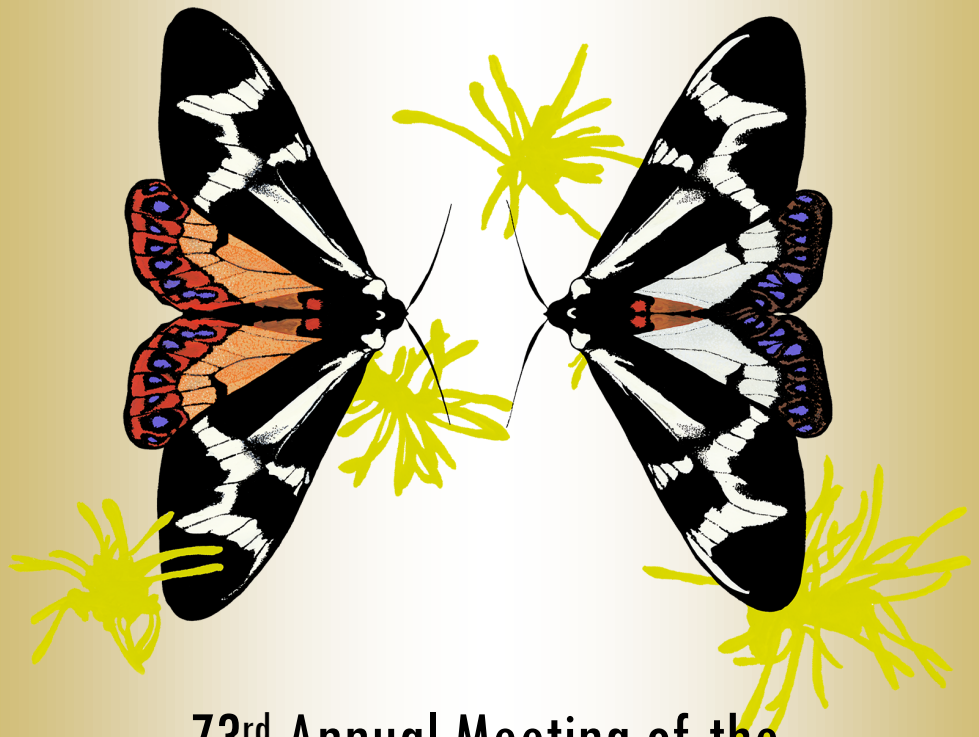


73rd Annual Meeting of the Lepidopterists' Society

Sierra Vista, Arizona July 30th — August 3rd 2025



73rd Annual Meeting of the Lepidopterists' Society

Sierra Vista, Arizona

July 30th to August 3rd 2025

Hosts

Kelly Richers
Chuck Harp
Christopher Grinter
Todd Gilligan

Volunteer Assistants

Laura Franzel
Olivia Lucas and Nathan Orwick
Christina Nimmo
Chase Coiner

Meeting Location

Clarion Inn Sierra Suites Boutique Hotel
391 East Fry Boulevard, Sierra Vista, AZ, 85635

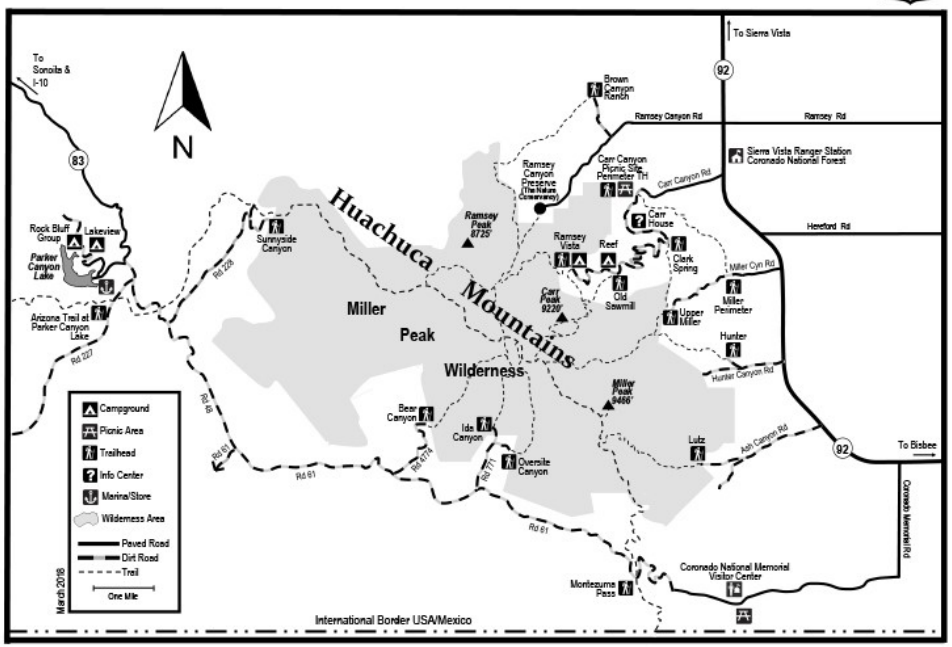
Barbeque

5:30 p.m. to 8:00 p.m.
Bam Bam BBQ
Veterans Memorial Park
3105 East Fry Boulevard, Sierra Vista, AZ, 85635

Banquet

Orient Express Restaurant
391 East Fry Boulevard, Sierra Vista, AZ, 85635

Coronado National Forest *Sierra Vista Ranger District*



Thanks to the California Academy of Science, Colorado State University, and the Lepidopterists' Society for sponsoring and facilitating this meeting!

THE LEPIDOPTERISTS' SOCIETY EST. 1947

CALIFORNIA ACADEMY OF SCIENCES

Vendors either attending or donating merchandise

JMS Plastics medium density Plastozote and signage/cards/ pricing for a place at our vending tables.

H-H Elements (Harris Haynie) a CalAcad and Cornell drawer with signage/cards/pricing also for the table and raffle.

millermoth.com samples of their new LED bucket light traps for a spot and for giveaway.

Here are some GPS coordinates for collecting locations:

N31°24.14’ W111°05.35’ Pena Blanca

N31°21.69’ W110°18.05’ Copper Canyon

N31°42.76’ W110°52.42’ Madera Canyon

N31°47.95’ W110°47.95’ Box Canyon

N31°22.79’ W110°21.82’ Bear Creek

N31°23.64’ W111°08.55’ Sycamore Canyon

N31°27.259' W111°14.822' California Gulch

N31°21.535’ W110°17.587’ W Montezuma Pass

These are approximate so don't set your GPS and blindly drive or walk to these spots!

Schedule of Events:

Tuesday, July 29

10:00am-3:00pm	Wedge Foundation Board meeting
8:00pm-late	Moth field trip

Wednesday, July 30

9:00am-3:00pm	Executive Council meeting
3:00pm-8:00pm	Registration
5:00pm-7:30pm	Informal Opening Reception

Thursday, July 31

9:00am-8:00pm	Registration
10:00am-Noon	Talks (Session 1)
Noon-1:30pm	Lunch (on own)
1:30pm-4:00pm	Talks (Session 2)
4:30pm	Dinner (on own)
8:30pm-late	Moth field trip

Friday, August 1

9:00am-Noon	Registration
10:00am-Noon	Talks (Session 3)
Noon-4:00pm	Field Trip to Carr Canyon
5:00pm	Group Picture at Clarion Sierra Suites
5:30pm-8:00pm	Barbeque at Veterans Memorial Park

Saturday, August 2

9:00am-noon	Registration
10:00-11:30am	Talks (Session 4)
11:30am-Noon	Student poster judging
5:30pm-9:00pm	Banquet by Orient Express

Tuesday, July 29

10:00am-3:00pm

Wedge Entomological Research
Foundation Board meeting
Vernadero Room, Clarion Sierra Suites,
39 E. Fry Boulevard
Sierra Vista AZ (520) 459-4221

8:00pm

Moth Collecting Field Trip

Wednesday, July 30

9:00am-3:00pm

Lepidopterists' Society Executive Council meeting
Vernadero Room, Clarion Sierra Suites,
39 E. Fry Boulevard
Sierra Vista, AZ (520) 459-4221

3:00pm-8:00pm

Registration

5:00pm-7:30pm

Informal Opening Reception
La Casita Mexican Restaurant & Cantina
465 E. Fry Boulevard
Sierra Vista, AZ

Saturday, August 2, continued

11:30 to Noon

Student Poster Viewing, continued

Chase Coiner
student at Colorado State University and student intern at the C.P. Gillette Museum.

A New Mountain Research Center for the Native American Cultural Center at Colorado State University

A property near Livermore, Colorado will potentially become a new mountain research center for the Native American Cultural Center at Colorado State University. To begin biological research at the site, baseline data for species diversity is needed to document the important players in the ecosystems. The biodiversity of macro-moths was assessed through field collections using light traps during the summer of 2024. Moths collected were preserved and identified to species or morpho-species based on appearance. This poster will help illustrate the means and measures taken to start this project.

5:30 to 9:00pm

Banquet
Presentation of the Mix Family Award
Presentation of the Karl Jordan Award
Presidential Address
Announcement of Next Year's Meeting

Saturday, August 2, continued

11:30 to Noon

Student Poster Viewing

Yair Ben Dor, Linyi Zhang, and John Lill
Address: George Washington University, Department of Biological Sciences, Washington, DC 20052 yairbendor@gwmail.gwu.edu

Evidence for Host-Associated Differentiation in the Oak Dagger Moth (Noctuidae: Acronictancreta)

We investigated whether the moth Acronicta increta, traditionally associated with white oak, is undergoing host-associated differentiation (HAD) following a shift to American beech. HAD-was assessed with no-choice feeding experiments measuring larval survival, growth, and behavior on natal vs. novel hosts. Larval coloration was also quantified to assess morphological divergence. Lastly, genomic differences between host races were examined with ddRAD seq. Early instar caterpillars reared on their natal host exhibited higher survival and growth rates than those switched to novel hosts, indicating strong host-specific adaptation. Notably, oak-associated larvae reared on beech experienced complete mortality, whereas the converse exhibited marginal survival. Additionally, larval ground coloration differed significantly by host, potentially reflecting divergence in morphology associated with habitat specialization. Despite these ecological and morphological differences, genomic analyses revealed no genetic differentiation among host races. Therefore, while A. increta exhibits features consistent with local adaptation, it remains genetically intermixed across most of the genome, a characteristic of incipient HAD.

Thursday, July 31

9:00am-8:00pm

Registration
Clarion Sierra Suites,
39 E. Fry Boulevard
Sierra Vista AZ (520) 459-4221

9:30 a.m. Vernadero Room

Introductory Remarks

Richers, Harp, Grinter

Session 1

(Arizona and New Mexico presentations)

10:00 to 10:30am

Christopher C. Grinter

California Academy of Sciences, 55 Music Concourse Dr
cgrinter@calacademy.org

14 years of the LepCourse

A look into the past and future of the 10 day field course held at the Southwestern Research Station in Portal, AZ. Founded in 2009, the course has evolved into a popular resource for students, professionals, and naturalists. How can the LepCourse continue to grow and turn into a resource for everyone? What tools, techniques, or topics would you like to see in future courses?

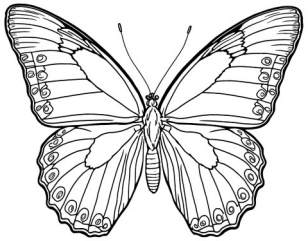
Thursday, July 31, continued

10:30 to 11:00am

Jing Zhang, Qian Cong, Jinhui Shen, Leina Song, and Nick V. Grishin
University of Texas Southwestern, 5323 Harry Hines Blvd., Dallas, TX, USA. 75390
grishin@chop.swmed.edu

Southeastern Arizona as a hotspot for new butterfly species

Southeastern Arizona is a hotspot of Lepidoptera diversity. The whole genome analysis provides unprecedented insight into the classification of butterflies and reveals several new species in the region, both residents and strays. From Mark Walker's and Roever's Cloudywings, Arizona streaky-skipper, and Brown-banded Skipper to Elfoid and Faria Metalmark, these examples will be discussed and the steps leading to the discovery of these new species shown. Some of these findings were rooted in previous misidentifications revealed by the analysis of primary type specimens, while other species are split from their known relatives hinted by genetic differentiation and supported by phenotypic considerations.



Saturday, August 2, continued

11:00 to 11:30am
(Student Presentation)

Andrea Murillo Vazquez, Ivonne J. Garzón Orduña, Jorge Leonel León Cortéz
Colegio de la Frontera Sur, San Cristobal de las Casas, Chiapas; Universidad Nacional Autónoma de Mexico, CMDX, Mexico ♂
andrea.murillo@posgrado.ecosur.mx; ivonne.garzon@ib.unam.mx; jleon@ecosur.mx

An annotated checklist of Ennominae (Lepidoptera: Geometridae) from Chiapas, Mexico

Ennominae is the most diverse clade of geometrids with over 11,100 named species. The identities and number of Mexican geometrids are unknown, even for regions well sampled for butterflies, like Chiapas.
We present an annotated list of Ennominae of Chiapas, based on records from scientific collections, field work, and online sources. 213 taxa were recorded: 197 species in 98 genera, including 177 new records and 16 taxa that likely represent undescribed lineages. Pero, Opisthoxia, Macaria, and Hygrochroma have the most species in Chiapas. Of 12 documented tribes, the most diverse was by far Ennomini, followed by Palyadini, Boarmiini, Macariini, and Odontoperini. Tropical rainforests were dominated by Ennomini and Macariini, dry deciduous forests displayed a balanced representation of Boarmiini and Ennomini. This checklist provides a baseline for future research on Ennominae in Chiapas and is expected to be expanded and refined as taxonomic work in the region progresses.

Saturday, August 2, continued

10:30 to 11:00am

Garzón-Orduña, Ivonne J., Sihvonen, Pasi, Murillo-Ramos, Leidys & Matson, Tanner
Universidad Nacional Autónoma de Mexico, CDMX, Mexico
ivonne.garzon@ib.unam.mx

Phylogenetic relationships among ennomine looper moths (Geometridae: Ennominae): A cladistic total evidence approach

This talk reports on the results of a phylogenetic analysis that concatenates a previously published molecular supermatrix of 10 DNA markers with a novel morphological matrix for the largest subfamily of geometrid moths, the Ennominae under a cladistic approach. At the center of this study is the phylogenetic position of Mexican taxa included in a phylogenetic analysis for the first time. The patterns of character change of various characters traditionally used in loopers' taxonomy are explored to test their value as potential synapomorphies.

Thursday, July 31, continued

11:00 to 11:20am

Steven J. Cary & Michael E. Toliver
Cary: 202 Solana Drive, Santa Fe, NM 87501 Toliver: 613 E Center, Eureka, IL 61530
Cary: sjcary@outlook.com Toliver: tolivermichael1@gmail.com

Butterflies of New Mexico: A web-based book

On 2 June, 2020, Steve Cary initiated an on-line book (https://peecnature.org/butterflies-of-new-mexico/) detailing information on all butterfly species known from the state of New Mexico, generously hosted by the Pajarito Environmental Education Center. Mike Toliver joined this effort in 2021. Together, they have developed a resource which includes descriptions, range and habitat, life histories, flight periods and additional comments of all species known or suspected from New Mexico, illustrated whenever possible with live photos. The site includes distribution maps and comparison plates for difficult groups. The advantages of an on-line book revolves around the ability to incorporate new information and provide easy accessability to a wide range of users. Many individuals have contributed photos or information to this effort.

Thursday, July 31, continued

11:25am to Noon

(Student Presentation)

Simon Doneski, Quinlyn Baine, David Lightfoot, Esteban Muldavin, Jade McLaughlin, Anna Walker, Richard Norwood
1013 Summit Drive NE, Albuquerque, New Mexico 87106
sdoneski@unm.edu

Introducing the New Mexico Rare Arthropods Resource

The New Mexico Rare Arthropods Resource (NM-RARe) is a one stop shop to learn about the rare, threatened, and endemic arthropods that call New Mexico home.
We have been compiling information on these unique, poorly known species, for the last two years so that we can better understand and protect them. There are currently 70 lepidopterans listed with full write ups on nmrare.org and we have plans to add many more soon. In this talk I plan to discuss the resource and open discussions about how best to improve and add to the resource in the coming years.

Noon to 1:30pm

Lunch on your own

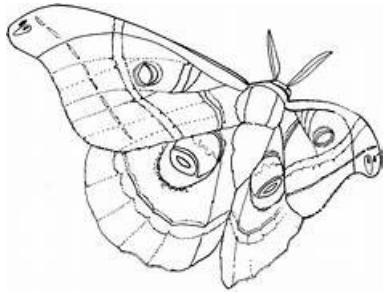
Saturday, August 2

10:00 to 10:30am

Jeffrey M. Marcus and Nataliia Kopchak
Dept. Biological Sciences, Univ. Manitoba, Winnipeg MB R3T 2N2
jeffrey.marcus@umanitoba.ca

Above It All? Genetic Variation in the Andean buckeye, *Junonia vestina*, and Lowland Congeners: Is there Gene Flow?

In 1928, Forbes proposed that all New World *Junonia* belonged to a ring species, except for *Junonia vestina*, which occurs at moderate to high elevations in the Andes. The question of the distinctiveness of *J. vestina* has never been evaluated using modern genetic tools. Here we report the results of our survey of mitochondrial haplotypes from throughout the range of *J. vestina* and compare them with haplotypes from lowland *Junonia* species in South America. We conclude that *J. vestina* is genetically distinct from other *Junonia* species, but there is likely also some gene flow between *J. vestina* and other species.



Friday, August 1, continued

3:30 to 4:00pm

Jing Zhang, Qian Cong, Jinhui Shen, Leina Song, and Nick V. Grishin
University of Texas Southwestern, 5323 Harry Hines Blvd., Dallas, TX, USA. 75390
grishin@chop.swmed.edu

Surprises from butterfly genomics

While nature is full of deceit, the true colors of Lepidoptera are revealed by their genes. Whole-genome sequencing of the worldwide butterfly fauna yields numerous surprises. From unexpected evolutionary relationships to extreme phenotypic variation and misidentifications, large-scale genomic analysis revolutionizes our understanding of butterflies on all levels. Stemming from nomenclature puzzles solved by DNA sequencing of primary type specimens, some up to 250 years old, we address questions of systematics and speciation. Selected examples to showcase these surprises will be discussed, focusing on American species, including their higher classification along with species delimitation in cryptic species complexes.

5:00pm **Group Picture at the Hotel**

Barbeque
5:30 p.m. to 8:00 p.m.
Bam Bam Barbeque, Veterans Memorial Park
3105 East Fry Blvd., Sierra Vista

Thursday, July 31, continued

1:30 to 2:00pm

Session 2
(Western Continent Presentations)

Felix Sperling
Dept. Biological Sciences, University of Alberta, Edmonton, AB Canada
felix.ssperling@ualberta.ca

Six Decades of Butterfly Surveys at Bragg Creek, Alberta

In 1966 my family moved to a newly cleared farm site on the south slope of Fish Butte, near Bragg Creek, in the Rocky Mountain foothills west of Calgary Alberta. I enthusiastically launched into collecting, recording and observing the wonderful diversity of skippers and butterflies on my doorstep. By 1993 I had published an article that documented 67 species at this location, almost half of the known butterfly fauna for Alberta at that time, and pointed out some of the long-term faunal changes that had occurred during the previous 27 years. I have continued to survey butterflies at that location each year for 60 years, documenting a variety of changes that relate to current issues on the evolution, conservation and taxonomy of Lepidoptera.

Thursday, July 31, continued

2:00 to 2:30pm

Colin Chiu, Oksana Vernygora, Felix Sperling
Dept. Biological Sciences, University of Alberta, Edmonton, AB Canada
houwaico@alberta.ca

Genetic mixing, adaptation and speciation in the spruce budworm species complex (Lepidoptera: Tortricidae: Choristoneura)

Introgression describes gene flow between previously diverged species, a process which can enhance genetic variation that enables adaptation and even speciation. Such introgression may have shaped the evolution of the spruce budworm species complex (Lepidoptera: Tortricidae: Choristoneura) which is Canada's most important defoliator of conifer trees. Using whole-genome sequences, we are assessing the role of introgression in adaptive divergence, focusing on the origin of the two-year-cycle spruce budworm (Choristoneura occidentalis biennis). We are also comparing the genomes of interacting species in the complex to find signatures of adaptive introgression and reproductive barriers using a sliding window approach. In addition to providing better understanding of evolutionary processes, this work aims to inform predictive modeling of these forest pests.

Friday, August 1, continued

3:00 to 3:30pm

Akito Y. Kawahara
McGuire Center for Lepidoptera and Biodiversity, Florida Museum, University of Florida
kawahara@flmnh.ufl.edu

20 Years of research and education at the McGuire Center for Lepidoptera and Biodiversity

The McGuire Center for Lepidoptera and Biodiversity, located at the University of Florida in Gainesville, is a global leader in butterfly and moth research and education. Over the past 20 years, it has expanded to house millions of specimens from around the world, placing it among the largest Lepidoptera collections. The Center supports cutting-edge research in behavior, ecology, conservation, genomics, and systematics. As environmental changes accelerate, understanding the historical and ecological roles of butterflies and moths becomes increasingly urgent. The McGuire Center plays a vital role in uncovering how these insects have adapted over time and in forecasting their future. With world-class expertise and resources, the Center is committed to protecting Lepidoptera biodiversity through research, training, and public engagement. In this talk, I will highlight key milestones from the past two decades and share the McGuire Center's vision for the future.

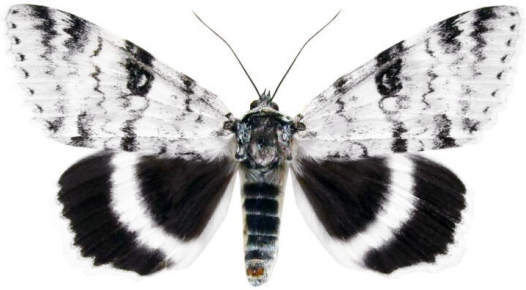
Friday, August 1, continued

2:30 to 3:00pm

James K. Adams
Dept. of Life Science, Dalton State College, Dalton, GA 30720
jadams@daltonstate.edu

Updates on the Catocala (Erebidae) of Taylor's Ridge, Walker Co., Georgia

I presented a brief, pre-recorded talk on the Catocala of Taylor's Ridge in the Covidyear (2020) at the online 2021 Lep Soc meeting. I have since compiled a more complete picture of the Catocala species that have been recorded there (47 species verified, with some others possible). Bob Borth wrote up a discussion of this location for the Southern Lep Soc News, and I thought I would share not only my observations but some of his as well. Come and enjoy!



Thursday, July 31, continued

2:30 to 3:00pm

Andrew B. Overton and Donald G. Miller
Department of Biological Sciences, CSU Chico

Post-wildfire recovery of macrolepidopteran communities in the northern California chaparral.

Succession of chaparral plant communities following wildfire has been well-
documented. Lepidoptera can be biological indicators of plant community health based on four criteria: i) their well-defined taxonomy, ii) the ease of surveying them, iii) their wide distribution and host-plant specificity, iv) the concordance of lepidopteran diversity with that of other taxa.
Here we evaluated whether changes in moth communities parallel those in plant communities following fire. We used UV traps to sample macrolepidoptera in burned chaparral and two unburned reference sites in northern California. We sampled 2204 moths in eight families in the burned (treatment) area and 3647 in the reference (control) sites. A Bray-Curtis similarity index indicated moderately dissimilar species composition (estimate: 0.614) between treatment and control sites. We recorded significant seasonal changes in species richness and abundance from January-December 2019, and we identified several candidates potentially useful as indicator species in response to fire.

Friday, August 1

Session 3

(Western presentations and parts East)

10:00 to 10:30am

Kelly Richers
139 Liberty Drive, Bolivar, PA 15923
kerichers74@gmail.com

Producing a State List of Lepidoptera by County

Producing a state list of Lepidoptera by county is a process requiring significant research and assistance from collectors, museums and universities. Categories of information will be discussed, based on work done to this point. The presenter has worked on California, Arizona and Nevada, and now has a significant Arizona checklist. I will have the AZ information on a flash drive for interested moth studiers. There will also be a hard copy of many of the moths on the list with photos of many AZ species for reference available during the meeting.

Friday, August 1, continued

2:00 to 2:30pm

Paul Masonick [1], Pamela Rivera [2], Jesse Barber [3], and Akito Kawahara

1] McGuire Center, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611, USA; [2] Boise State University, Boise, ID 83725, USA; [3] American Museum of Natural History, New York City, NY 10024, USA- Phone: 847-650-2132 (cell) Email: p.masonick@ufl.edu

Convergent evolution of antipredatory bioacoustic traits in bombycoid moths

Moths exhibit remarkable antipredatory traits. Many Saturniidae and Sphingidae employ disparate bioacoustic tactics to thwart bat attacks. Saturniidae have evolved elongated hind wings with twisted tails that lure bat strikes away from vital body parts. Sphingidae disrupt bat attacks by producing ultrasound via genital-based stridulation where modified valvular scales rub against specialized scales, spines, or microsculpturing on the 8th abdominal tergite. Surprisingly, detailed investigations into the bioacoustics, three-dimensional morphology, and microsculpturing of these traits have been lacking. Using ensonification experiments, microtomography, and scanning electron microscopy, we examine the evolution of saturniid tails and their complex morphologies that create decoy echoes to confuse bats. Similarly, we survey the acoustics, diversity, and evolution of stridulatory systems in male Sphingidae. In both groups, we investigate traits in a phylogenetic context and demonstrate their tendencies to coalesce on adaptive optima. Our findings ultimately provide novel insights into the iconic bat-moth arms race.

1:30 to 2:00pm

James K. Adams
Dept. of Life Science, Dalton State College, Dalton, GA 30720
jadams@daltonstate.edu

Dinumma deponens (Erebidae: Scoliopteryginae): the continuing saga of an introduced moth

Dinumma deponens, native to southeast Asia, was first recorded in the U.S. in northern Georgia in 2012. It has since spread throughout much of the range of its introduced foodplant, Silktree (Albizia julibrissin). I have presented updates on its progress across the southeastern U.S. at two past Lep Soc meetings, with a lot of the information being collected by citizen scientists and shared on social media. This is the latest update and nearly complete story of its spread and current range in the U.S., and includes a discussion of the possible origins of the U.S. populations.

10:30 to 11:00am

Kyhl Austin, Michael San Jose, Camiel Doorenweerd, Dan Rubinoff
3050 Maile Way, Room 310, Honolulu, HI 96822
kaaustin@hawaii.edu

Phylogenetics of *Spheterista* (Tortricidae: Tortricinae: Archipini): leaf-rolling, fruit-feeding,stem-boring, and 100 other ways to make a living in Hawaiian rainforests

Spheterista Meyrick is an endemic Hawaiian tortricid genus with 17 described species entirely restricted to the family Araliaceae as host plants. Despite several species being presumed extinct, others can be among the most abundant native moths in Hawaiian wet forests. To better understand relationships in *Spheterista*, we assembled and annotated a 332 Mb reference genome using PacBio HiFi long-read sequencing for an undescribed species from O‘ahu. We then sequenced 31 specimens representing 13 described and 8 undescribed species using Illumina whole genome resequencing. Using more than 500 orthologous genes, we reconstructed a robust phylogeny for *Spheterista* using Maximum Likelihood and Bayesian approaches. This allowed us to identify three clades within *Spheterista*: one as leaf-tiers on *Cheirodendron*, one as leaf-tiers on *Polyscias*, and one exhibiting diverse feeding strategies on both plant genera. Niche partitioning in this third clade appears to have facilitated higher rates of speciation than in the other two.

Friday, August 1, continued

11:00 to 11:30am

Lucas Micheels
750 N. Glebe Road, Arlington, VA 22203
lbmicheels@gwmail.gwu.edu

One Way, but not Another: Hybridization and Reproductive Isolation in two species of Euclea (Lepidoptera: Limacodidae)

Euclea delphinii Boisduval [1832] and Euclea incisa Harvey [1876] are two species of North American slug caterpillar moths (Lepidoptera: Limacodidae) that have partially overlapping ranges in Eastern Texas north through Western Missouri. Across this zone there have been many recorded intermediate adult phenotypes, suggesting potential hybridization. To test this hypothesis, I placed pairs of E. delphinii and E. incisa in mating chambers to record copulation and oviposition. Thus far, I have mated male E. delphinii with female E. incisa without the assistance of female E. dephinii pheromones. All crosses (N=3) produced viable offspring exhibiting a diverse suite of intermediate phenotypes. Curiously, the reverse cross of male E. incisa with female E. delphinii produced no eggs, suggesting unidirectional interspecific hybridization, a phenomenon indicative of asymmetric reproductive isolation. Analyses of late larval and adult phenotypes are forthcoming and may provide important reference material for interpreting the biogeographic patterns in adult wing patterning.

Friday, August 1, continued

11:30 to Noon

Chuck Harp
Research Associate II/Collections Manager
C.P. Gillette Museum of Arthropod Diversity
Colorado State University, Department of Agricultural Biology, 1177H Campus Delivery, Fort Collins, CO 80523

The Montana Moth Project: Growing Beyond Our Wildest Dreams

After completing five seasons collecting moths across the state of Montana, great interest has developed in 2024, with articles in three regional magazines, a segment in All Things Considered, an NPR radio broadcast, and a flurry of new volunteer groups helping across the state. The talk will highlight the recent volunteer groups and will feature some of the discoveries from this past season, including two new species, published in 2024.

Noon

Lunch on your own