



Entomological
Collections
Network



Annual
Meeting

November 8–9, 2025
Portland, Oregon, USA



species file
GROUP



Biodiversity informatics to describe the Earth's species.

Have a collection or working with one? Find our table for stickers, prizes and:

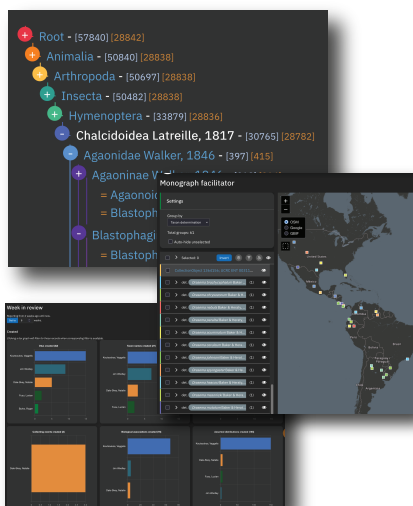
Discuss hybrid projects balancing collection management and research.

Share ideas for what's needed in your digital workflows and tooling.

See demos of the query interfaces, drawing to digitize, interactive-keys, the Darwin Core Importer and more.

Student? We want to hear your research needs!

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In 2025 SFG is starting a campaign to bring **all Insect nomenclature up to the cutting-edge of digital curation**. We seek partners at all levels, from ESA and ECN to individual taxonomists. *Come to our table and strategize with us.*

Ask dlpaul@illinois.edu about TaxonWorks Together - May 2026

Catalogue of Life



TaxonWorks



Prairie Research Institute
Illinois Natural History Survey

SCHEDULE AT A GLANCE

Saturday, November 8th

MEMBER SYMPOSIA

8:15 am – 9:35 am	1. The Promises (and Realities) of “AI” for the Insect Taxonomist	4 – 7
9:45 am – 10:50 am	2. Seeing Clearly Now: Tips and Tricks for Specimen Imaging, from Legacy Systems to the Latest Gear	8 – 10
11:00 pm – 12:00 pm	Contributed Talks, Session 1	11 – 13
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Sunday, November 9th

MEMBER SYMPOSIA

8:00 am – 10:00 am	3. Discover the Hidden Gems in Our Museums	26 – 32
10:10 am – 12:45 pm	Contributed Talks, Session 3	33 – 43

ACKNOWLEDGMENTS

Thank you so much to our corporate and institutional sponsors and their continued generosity in helping our meetings be successful.

Our members and officers greatly appreciate their support.

Ecology Supplies, EntoQuip, ESA-SysEB, Furth Museum Consulting, HH Elements Inc., Macroscopic Solutions, Pensoft Publishers, Picturae, Pin-It Entomological Supply, Species File Group, The Coleopterists Society, The International Society of Hymenopterists, The Lepidopterists Society, and The Pacific Coast Entomological Society

Thank you to our individual donors for their continued generosity: Victoria Bayless, William Clark, Mike Ferro, Dave Furth, Chris Grinter, Gail Kampmeier, Oliver Keller, Floyd and Shannon Shockley, Catherine Tauber, and Margaret Thayer

ECN 2025 Organizers: Oliver Keller, Ainsley Seago, Andrew Johnston, Jack Whisenant, Patrick Gorrington, Chris Wirth, Kristin Jayd, and Ashleigh Whiffin

ECN Social Media Team: Ashleigh Whiffin

Program layout and design: Chris Wirth and Kristin Jayd

Cover image: A rain beetle (*Pleocomma* species), a genus of adorable scarabaeoid beetles native to the western coast of the United States and northern Mexico.

Photograph courtesy of Chris Wirth and the Purdue Entomological Research Collection.

We are also very thankful for our continued partnership with the Entomological Society of America (ESA).

Entomological Collections Network

Annual Meeting

Saturday, November 8th & Sunday, November 9th, 2025
Hyatt Regency Portland at the Oregon Convention Center
Portland, OR, U.S.A.

#ECN2025 <https://ecnweb.net>

Saturday, November 8th

Hyatt Regency Portland at the Oregon Convention Center
Deschutes Ballroom ABC

7:00am – 8:10am **Registration**

8:10am – 8:15am **Welcome and Announcements**

Oliver Keller

*University of Michigan Pathogen Biorepository,
Ann Arbor, MI, U.S.A.*

The International Society of Hymenopterists



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Collections Network

Join us for our upcoming events!

ISH Mixer and Poster Session

Sunday, November 9, 3-5 PM
Portland Ballroom 254, OCC

#Hymathon2025

Our annual 24 hour marathon of Hymenoptera

Research Talks - Art Contest - Social Events -

Business Meeting - Chaos
December 4-5, Online



MEMBER SYMPOSIUM 1

The Promises (and Realities) of “AI” for the Insect Taxonomist

Organizer/Moderator: **Ainsley Seago**, *Carnegie Museum of Natural History, Pittsburgh, PA, U.S.A.*

8:15 am – 8:20 am Introduction

Ainsley Seago

*Carnegie Museum of Natural History, Pittsburgh,
PA, U.S.A.*

**8:20 am – 8:35 am Use Your Words! Enhancing
Participation in Collections Digitization
Using Speech & AI**

Nicolas J. Dowdy¹ & Mackenzie Miner¹

*¹Milwaukee Public Museum, Milwaukee, WI,
U.S.A.;*
dowdyn@mpm.edu

Digitizing specimen labels remains a bottleneck in biodiversity research, often requiring specialized training and computer literacy. This project introduces digitAIzer, a speech-to-text AI toolchain that transforms spoken label readings into Darwin Core-compliant digital records. The tool aims to broaden participation, increase transcription speed, reduce training needs, and generate reproducible records while preserving audio as a long-term reference. Eleven participants with varied digitization experience completed both manual and spoken transcriptions of 30 insect specimens under timed conditions. Outcomes were assessed by speed and accuracy of transcribed data. Results demonstrate that dictation with digitAIzer consistently outperformed manual entry in efficiency and ease of use, while maintaining data quality. I will also discuss considerations of cost, implementation, data security, and remaining challenges. This approach highlights the potential of speech and AI tools to democratize collections digitization, streamline workflows, and expand the accessibility of biodiversity informatics.

8:35 am – 8:50 am

**Deb and Jim in the Wild West of AI:
mining host and locality data and more**

Deborah L. Paul¹ & James Woolley²

*¹Species File Group, Illinois Natural History Survey, Prairie Research Institute, University of Illinois Urbana-Champaign, Champaign, IL, U.S.A.; ²Department of Entomology, Texas A&M University, College Station, TX, U.S.A.;
dlpaul@illinois.edu*

New technology (e.g. our phones), “new” resources (imagine pre-Wikipedia) bring new possibilities to extend specimens and new issues to wrap our brains around. We share our digital adventures, from extracting host and locality data to imagining evolving roles for AI (e.g ChatGPT), with emphasis on the practical. Overall results were surprisingly good and ranged from wacky to sublime. We suggest that doing this data-mining work at scale would be potentially game-changing. The large language models (LLMs) improved even during the few weeks in which we ran our experiments. One can imagine mining all of BHL or say, all 65K+ PDFs stored in TaxonWorks. Needs we recognize include: custom LLMs, query-writing skills, risk management, ways to share query templates, and human-computer interfaces to evaluate LLM output. Access, cost and moving goalposts will challenge humans and the planet.

8:50 am – 9:05 am

**Agentic AI tools in Practice for
Searching Biodiversity Databases**

Ann Dunn

*University of Florida, Gainesville, FL, U.S.A.;
ard224@cornell.edu*

Scientists today have access to an unprecedented amount of information through online biodiversity databases. The recent advent of advanced artificial intelligence (AI) tools such as Large Language Models (LLMs) and “Agentic AI” systems now purportedly offers the user a way to consolidate large amounts of data into digestible shares from simple text commands. In this instructional presentation, I will demonstrate step-by-step how these AI tools work and what they can provide. Next, I will compare and contrast the output of the AI tools with manual database

searches, in order to assess the value and competence of both methods for exploring and interpreting biodiversity data.

9:05 am – 9:20 am **Handwritten labels: What AI promises, how we deliver**

Jack Whisenant

Cornell University Insect Collection, Cornell University, Ithaca, NY, U.S.A.;
jacki.whisenant@gmail.com

With older handwriting that is not easily parsed by machine pattern recognition attempts, we look at ways to maximize these efforts. We share strategies for interpreting handwriting on older labels which boost confidence and cultivate a sense of accomplishment and agency in their work.

9:20 am – 9:35 am **Unlocking Biodiversity Data with Robotic Imaging and AI-Driven Transcription of Natural History Collections**

Christine Johnson¹, Erin Willigan¹, Ellen Hwang¹, Giovanni Gonzalez¹, Ana Maria Ruiz¹, Isobel Mifsud², Kyle Chang¹, Natalia Zurita¹, Elliott Ruo¹, Ann Davis¹, Janice Stenzel¹, Marinela Nicolescu¹, Kitri Miller¹, Peter Daly¹, Julia Schwartzman¹, Alyssa Seemann, Lily Berniker¹, Estefania Rodriguez¹, Parker Austin¹, & Chia-Ni Kao

¹American Museum of Natural History, New York, NY, U.S.A.; ²Department of Ecology, Evolution, and Environmental Biology, Columbia University New York, NY, U.S.A.;
cjohnson@amnh.org

Digitizing metadata on natural history specimen labels remains a critical bottleneck for biodiversity research. We present a transformative workflow integrating robotic imaging with AI-driven transcription for

rapid, comprehensive data extraction from specimen labels. Single high-resolution images of specimens and associated labels were submitted to Gemini 2.5 Flash and GPT-4-turbo to extract verbatim textual information. This approach yielded ~600 verbatim transcriptions per hour, a 30-fold increase in efficiency compared to traditional manual methods, which yielded ~20 transcriptions per hour. Releasing historical specimen metadata facilitates information accessibility and provides temporal and spatial context for a variety of analyses. Our method fosters the reconnection of disparate biological datasets previously segregated among departments or institutions to unite ecologically interdependent components (e.g., host/parasite, pollinator/plant) for a more complete understanding of biodiversity dynamics.

9:35 am – 9:45 am **Break**

Collections and Museum Consulting Services



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MEMBER SYMPOSIUM 2

Seeing Clearly Now: Tips and Tricks for Specimen Imaging, from Legacy Systems to the Latest Gear

Organizers/Moderators: **M. Andrew Johnston & Christopher C. Wirth**, *Department of Entomology, Purdue University, West Lafayette, IN, U.S.A.*

9:45 am – 9:50 am **Introduction**

9:50 am – 10:05 am **Building an affordable and fully-functional focus-stacking system on your own**

M. Andrew Johnston

*Department of Entomology, Purdue University,
West Lafayette, IN, U.S.A.;
ajohnston@purdue.edu*

Every collection has a need to take high-resolution photographs of their specimens. Commercially available systems are fantastic and feature-rich, but may be prohibitively expensive for some institutions. Additionally, many collections have a graveyard of imaging systems which simply need a few new items to bring back online. This presentation covers the main elements of a focus-stacking system and suggests several off-the-shelf options for each element. Not including a computer, an entire focus-stacking system can be built with new equipment for under \$3000. The self-made system lacks documentation and customer support available for commercially available systems but can provide massive cost savings and an affordable option to parallelize digitization efforts for institutions.

10:05 am – 10:20 am **Stacking Savings: Assembling a Portable Focus-stacking System on a Budget**

Christopher C. Wirth

*Purdue Entomological Research Collection,
Department of Entomology, Purdue University,
West Lafayette, IN, U.S.A.;
christophercwirth@gmail.com*

“Do-it-yourself” assembly of a focus-stacking system presents a bewildering range of equipment choices and “what-if” questions. This presentation reviews low-cost new, used, and repurposed equipment and sourcing options for constructing a portable focus-stacking system on a limited budget. While this system has a higher learning curve than some commercially available alternatives, the cost of all components, excluding a computer, averages less than \$1,500. The significant cost savings make this system an accessible focus-stacking option for both small institutions and individuals.

10:20 am – 10:35 am **Scaling Up Insect Collection Digitization with the DrawerDissect AI Workflow**

**Tatiana Sepulveda¹, Elizabeth Postema¹,
& Bruno de Medeiros**

*¹Field Museum, Chicago, IL, U.S.A.;
tsepulveda@fieldmuseum.org*

Natural history collections represent an unparalleled scientific resource, yet much of their potential remains inaccessible due to the slow pace of traditional digitization. The Field Museum’s Insects, Arachnids and Myriapods Collection, one of the five largest in North America with 15–16 million specimens, has fewer than 5% databased. To address this, we are integrating the DrawerDissect AI pipeline with GIGAMacro whole-drawer imaging, enabling rapid specimen segmentation, transcription, and dataset generation. In a pilot, DrawerDissect digitized 13,484 beetles from 43 drawers in only two weeks, transforming what once took days per drawer into minutes. These results highlight the potential of combining robotics and AI to scale digitization beyond pilot projects and toward a

comprehensive specimen-level database. By expanding this workflow, we aim to unlock backlogged material, provide global access to critical biodiversity data, and establish a scalable, sustainable framework that positions collections as leaders in innovation, accessibility, and research capacity

10:35 am – 10:50 am Pinned Insect Digitization Conveyor at the Smithsonian NMNH

Torsten Dikow¹ & Jessica Bird¹

*¹Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, DC, U.S.A.;
DikowT@si.edu*

Smithsonian Entomology is digitizing 200,000 pinned specimens of pollinating insects on a Picturae insect conveyor. We select pollinating species of bees, flies, beetles, and butterflies by genus and image/digitize every specimen of that genus in our collection. Following a pre-curation review of each drawer in Entomology (spacing specimens for the addition of a unique specimen identifier labels, assigning unique identifiers to unit trays and drawers), operators place specimens on the conveyor, removing all labels. Three focus-stacked images (dorsal, lateral, and frontal) and photos of each label are taken. The specimen views and a composite photo of the labels (in the original order in which they were on the pin) are delivered. Several image QC steps occur before import into EMu. The transcription of label data into Darwin-Core fields will be conducted by a different vendor. A georeferencing workflow is still to be developed. All images and data will be pushed to GBIF. A representative specimen of each species is selected for low-coverage genome sequencing.

10:50 am – 11:00 am Break

CONTRIBUTED TALKS SESSION 1

Moderator: Christopher C. Wirth, *Purdue Entomological Research Collection, Department of Entomology, Purdue University, West Lafayette, IN, U.S.A.*

**11:00 am – 11:15 am Morphos and Birdwings:
Evaluating, Accessioning, and
Exhibiting the Treves Collection**

Genevieve Anderegg

*Denver Museum of Nature & Science, Denver, CO,
U.S.A.;*

genevieve.anderegg@dmns.org

In 2023 the Denver Museum of Nature and Science received an impressive donation of butterflies, most notably many blue morphos (*Morpho*) and birdwings (*Ornithoptera*, *Troides*, *Trogonoptera*), from French mathematician and butterfly enthusiast Jean François Treves. With a worldwide distribution and collecting dates spanning from the 1940's to the 1990's, the work began with a thorough evaluation of identifications and collecting information to ensure that specimens were collected in adherence to all relevant laws and regulations, including CITES. Once accessioned, the pinned specimens were rehoused, databased, and photographed. After processing, collection staff worked with the museum to promote the collection in online articles, and to create a case displaying select specimens in a temporary exhibit, and subsequently in a main gallery. This presentation will cover the workflows and techniques used to process, inventory, and exhibit these beautiful specimens.



**Systematics, Evolution,
and Biodiversity Section**

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11:15 am – 11:30 am **Life in the fast lane: Museum collections, genomics and next generation morphology as tools for the study of arachnid systematics**

Ligia R. Benavides Silva

*Museum of Comparative Zoology, Harvard University, Cambridge, MA, U.S.A.;
lbenavidessilva@fas.harvard.edu*

Natural history collections are the storehouse of morphological, ecological, evolutionary, and genetic information and they also protect what are or could be the last physical examples of some species. Consequently, they are a great setting for vibrant research. With the recent technological developments in molecular techniques that allow us to use historical material, as well as powerful tools that permit the study of morphological features without disarticulation of the specimens, museums have a new role in arachnid evolutionary studies. In this talk I will highlight the advancements that are being made at the arachnid collection from the Museum of Comparative Zoology (MCZ) regarding DNA preservation and use of imaging tools for the study of historical and modern specimens and provide some examples of such developments in select groups of arachnids.

11:30 am – 11:45 am **Looking for the tooth fairy?
A dentist's contribution to the
NHMUK Mymaridae slide collection**

Natalie Dale-Skey

*Natural History Museum, London, UK;
n.dale-skey@nhm.ac.uk*

Digitisation projects often reveal unexpected aspects of our collections. Data from a slide digitisation project carried out on part of the Museum Chalcidoidea slide collection a few years ago highlighted that a surprisingly large number of Mymaridae (“fairyflies”) slides came from a completely unknown collector: Sidney Charles Scarsdale Brown, who further research showed was a dentist by profession, with a known interest in microlepidoptera. Although a quarter of the Museum Mymaridae slide-mounted specimens turned out to be collected by Brown, almost no

information is available on his work with Mymaridae. His slide collection offers some insight into this.

**11:45 am – 12:00 pm Mary Gladys Hoke Lobdell and
Her Spectacular Scale Collection**

Shelby Grice

*Mississippi Entomological Museum, Mississippi
State University, Mississippi State, MS, U.S.A.;*
smg624@msstate.edu

Mary Gladys Hoke Lobdell is a name that few recognize, and even fewer know the story behind. Lobdell was an entomologist in Mississippi, with her education being from the Mississippi University for Women (then as MSCW), and the University of Illinois. She became the first female faculty member of Mississippi State University (then Mississippi A&M College) after being offered the position in 1918 (for \$75 per month!). Her scale collection is still housed in the Mississippi Entomological Museum, containing thousands of specimens. Her collection includes local specimens, exotic specimens, as well as types that she described. Lobdell described dozens of new species of Coccidae in her time as a researcher and carved a path for future female entomologists in the southeast in doing so.

12:00 pm – 1:30 pm Lunch Break

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CONTRIBUTED TALKS SESSION 2

Moderator: Kristin Jayd, *National Museum of Natural History, Smithsonian Institution, Washington, DC, U.S.A.*, & **Christopher C. Wirth**, *Purdue Entomological Research Collection, Department of Entomology, Purdue University, West Lafayette, IN, U.S.A.*

1:30 pm – 1:45 pm **Itching to Share: The Digitisation of the Phthiraptera Collection at the Natural History Museum, London**

Daniel Hall

*Natural History Museum, London, UK;
d.hall@nhm.ac.uk*

We have recently completed the digitisation of the louse slide collection at the NHM, including georeferencing and host association. This talk will discuss the pipelines used, lessons learnt, and what next for collections in other media such as spirit. It will also cover the taxonomic and research opportunities that have developed through this project, and what opportunities we might be able to take advantage of in the future.

1:45 pm – 2:00 pm **Diagnosis of entomological collections in Brazil**

Luciane Marinoni¹, Marcos Fianco¹,
Tatiana Sepulveda², & Diego Souza²

*¹Universidade Federal do Paraná, Curitiba, Brazil; ²Field Museum, Chicago, IL, U.S.A.;
luciane.marinoni@gmail.com*

In 2022, aware of the need for knowing the reality of the biological collections, the Brazilian Society of Zoology carried out a diagnosis of the collections throughout the country. 977 collections were consulted and 742 responses returned (75.9%). From the 339 zoological collections that responded to the survey, 108 are entomological collections (32%). These are dominated by five orders: Hymenoptera, Diptera, Coleoptera, Lepidoptera, and Hemiptera. The geographic distribution of these collections is markedly asymmetrical, with a strong concentration in the Southeast and South, while the North, Northeast, and Central-West remain

underrepresented, a worrying contrast given the greater biodiversity precisely in the regions with less collections. Infrastructure is heterogeneous. The dependence on temporary projects for supplies jeopardizes the long-term preservation of the Brazilian entomological collections, fundamental for research and conservation of biodiversity. They require urgent and continuous investment in infrastructure, training, and digitalization to overcome regional inequalities and ensure their sustainability.

2:00 pm – 2:15 pm **Metamorphosis of the Oregon State Arthropod Collection:
A transformational re-design setting the collection up for a successful future**

Christopher Marshall¹ & David R. Maddison¹

¹Oregon State Arthropod Collection, Department of Integrative Biology, Oregon State University, Corvallis, OR, U.S.A.; christopher.marshall@oregonstate.edu

The Oregon State Arthropod Collection (OSAC), located at Oregon State University in Corvallis Oregon, has recently undergone a striking modernization as part of a university-level renovation of Cordley Hall, the building in which the collection has resided since the 1950's. This talk will present an overview of our history and our holdings but will spend more time discussing the early groundwork, initial planning challenges, the implementation, and the early impacts of this massive project.

2:15 pm – 2:30 pm **The UNH Natural History Collection Complex 2.0**

István Mikó¹, Monique Raymond², Donald S. Chandler¹, & Erin Sigel

¹University of New Hampshire, Durham, NH, U.S.A.; ²University of Florida, Gainesville, FL, U.S.A.; istvan.miko@gmail.com

The University of New Hampshire Natural History Collections Complex (NHCC), comprising the Albion R. Hodgdon Herbarium and the UNH Collection of Insects and Other Arthropods (UNHC), has successfully relocated to a new, highly accessible space. These collections hold over 913,000 specimens (213,000 plants/algae and 700,000 insects/arthropods). An urgent NSF CSBR award was critical to the move, funding the procurement of new, museum-quality cabinetry. The UNHC has simultaneously expanded its scientific impact through three NSF digitization projects over the last four years. Utilizing the TaxonWorks content management system, these projects established structured, quality-controlled workflows that have provided training and employment for over 50 undergraduate students. The NHCC is now fully operational, with infrastructure secured for a minimum of 30 years.

2:30 pm – 2:40 pm **Break**

THE COLEOPTERISTS SOCIETY



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In-person Mixer in Portland

Tuesday, November 11th
7:00 PM - 9:00 PM
Oregon Convention Center,
Room B110-112

Keynote talk:

Rolling in the Deep:
A 25 Year Love Affair with
Dung Beetles and Other Scarabs
By Dana Price



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Membership not required to attend the event – everyone welcome!

2:40 pm – 2:55 pm **Back to the Future: Insect Collections in the 21st Century**

Wendy Moore

*Department of Entomology, University of Arizona,
Tucson, AZ, U.S.A.;
wmoore@arizona.edu*

The University of Arizona Insect Collection has expanded its holdings of DNA-barcoded voucher specimens. Efforts include barcoding newly acquired, expertly identified specimens, such as Salvador Vitanza's photo vouchers, and material donated by systematists working in the region. We are also securing voucher specimens from previous barcoding efforts, including those from Arizona Western College and the Ian Watkinson Collection. While Barcode Index Numbers (BINs) provide a genomic "name" and an identification system less vulnerable to human bias than traditional taxonomy, we view the essential element as the voucher specimen itself. Vouchers within the same BIN function like multiple, distributed holotypes linking molecular diagnostics with morphological concepts of species. I will present our workflow and describe our focus on the vouchers and the total genomic DNA we extract from them. As we transition into an era of molecular-based species identification and monitoring, physical specimens will remain the essential touchstones to reality.

2:55 pm – 3:10 pm **Empowering Regional Collections:
The Case of the UCF Collection of
Arthropods and TaxonWorks**

**Alessandra Pandolfi¹, Sandor Kelly², &
Davide Dal Pos¹**

*¹University of Central Florida, Orlando, FL,
U.S.A.; ²University of Central Florida Collection
of Arthropods, University of Central Florida,
Orlando, FL, U.S.A.;
alessandra.pandolfi@ucf.edu*

Entomological collections are vital for biodiversity and taxonomic research, yet they remain underutilized because much of their data is inaccessible without digitization. Regional and academic institutions provide unique specimens that fill critical taxonomic, geographic, and

temporal gaps, making them indispensable components of the global biodiversity research infrastructure. The University of Central Florida Collection of Arthropods (UCFC) reflects this commitment, with over 575,000 pinned specimens individually cataloged in a growing database. In this presentation, we outline the migration of the UCFC database to TaxonWorks, an open-source platform for managing specimens and collecting-event data. We also consider the challenges and opportunities encountered during this process, emphasizing how digitization not only secures long-term data preservation but also increases UCFC's visibility and impact as a resource for research, teaching, and biodiversity conservation.

3:10 pm – 3:25 pm **140,000 Tiny Rove Beetles - Tackling the Curation of the Field Museum's Often Overlooked Pselaphinae and Scydmaeninae Collections**

Jessica K. Wadleigh

Field Museum, Chicago, IL, U.S.A.;

jwadleigh@fieldmuseum.org

The Field Museum contains one of the largest Staphylinidae collections in the world. Included within it are the more recently accepted subfamilies Pselaphinae and Scydmaeninae, containing some of the smallest known beetles. Our pinned holdings for these subfamilies are substantial with ~105,000 Pselaphinae and ~35,000 Scydmaeninae specimens, including hundreds of primary types and thousands of secondary types. In a collection with a historical focus on Staphylinid grants, both of these newly added subfamilies were comparatively delayed in overall re-curation efforts. With support from a PenSCAN grant and dedicated volunteers, the majority of our specimens in both subfamilies have been curated and reorganized under updated taxonomy, including digitization of select North American specimens and imaging of many types. I will discuss the challenges of curating this large, neglected section of the collection, as well as future plans for further digitization and the creation of a comprehensive type catalog.

3:25 pm – 3:40 pm

Examining the Peter Jump Acquisition: The Story of a Collector and his Collection

Elizabeth Young

*National Museum of Natural History, Smithsonian
Institution, Washington, DC, U.S.A.;*
youngea@si.edu

Peter Jump has had a lifelong passion for insect collecting. As a schoolteacher in southwestern Arizona, Peter spent his summers with his family collecting insects across the western United States and into northern Mexico. While he was not an active researcher, he made notable contributions to the field of entomology. The National Museum of Natural History acquired his collection earlier this year, consisting of over 40,000 pinned specimens. Although strongest in Lepidoptera, Peter's collection includes representatives of all the major orders of insects. His diverse collection will be a valuable resource for future studies in microlepidoptera and beyond, and his legacy will live on in the Smithsonian collection.

3:40 pm – 3:50 pm

Break

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3:50 pm – 4:05 pm

Have You Seen These? Hidden Fungal Associates of Insects in Entomological Collections

Polina Mironova¹, Danny Haelewaters^{2,3}, & M. Catherine Aime¹

¹*Department of Botany & Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.*; ²*Research Group Mycology, Department of Biology, Ghent University, Ghent, Belgium*; ³*Biology Centre of the Czech Academy of Sciences, Institute of Entomology, České Budějovice, Czechia*;
pmironov@purdue.edu

Laboulbeniales is an order of microscopic fungi strictly associated as ectobionts or ectoparasites with arthropods. The fungal structures stay preserved on the host's body for an indefinite amount of time whether the host is pinned, point-mounted, or stored in ethanol. Some species are visible to the naked eye (e.g., *Hesperomyces harmoniae* on *Harmonia axyridis*), while most are best observed under a dissecting microscope. Dried pinned or point-mounted specimens from entomological collections form a valuable resource for those studying Laboulbeniales. However, their prevalence rates are low, making awareness among entomologists crucial for locating and reporting these fungi. This talk will provide an overview of their morphology, host associations, and tips for recognizing them on specimens. I aim to raise awareness of these fungi and encourage collaboration that could increase available data to do work on their taxonomy and systematics, as well as improve our understanding of their distribution ranges and ecology.

4:05 pm – 4:20 pm

The History of ECN

Christy Bills

Natural History Museum of Utah, University of Utah, Salt Lake City, UT, U.S.A.;
cbills@umnh.utah.edu

“Never doubt that a small group of thoughtful entomologists can change the world...” with apologies to M.Mead. ECN has been a grassroots professional organization for decades and this is a recounting of how it got

started and how it continues to thrive, with volunteerism, pluck and personalities.

4:20 pm – 4:35 pm **Cultivating Curiosity: Inspiring the Next Generation**

Connor Hsu¹ & Cole Cramer¹

*Lorquin Entomological Society, Los Angeles, CA,
U.S.A.;*

lorquinsocietyscholars@gmail.com

After noticing the lack of youth within the Lorquin Entomological Society in Southern California we started our own initiative focused on engaging children through meaningful, community-based experiences. What began as a simple idea among two motivated high school freshmen has grown into one of the leading youth focused entomology programs in Southern California. We design and lead hands-on outreach events for children, encouraging interaction with live insects, exploration of insect biodiversity, and basic collection techniques. Since launching in 2023 as the first youth division of the Lorquin Society, we have organized over fifteen public events, reaching thousands of attendees. Such events include insect discovery tables, guided hikes, and specimen displays. In this presentation, we will share the development of our group, highlight our outreach work to date, and discuss how youth-led efforts can broaden participation in insect science and foster environmental awareness in the next generation.

4:35 pm – 4:40 pm **Telling Human Stories Through Collections**

Christina Watkins

University of Florida, Gainesville, FL, U.S.A.;
christinalwat@gmail.com

Entomological collections are rich with scientific value, but when it comes to outreach, we often forget the power of human stories. This talk explores how cultural entomology can transform collections into bridges between science and society, aiding in public engagement by connecting insects to people, history, and meaning.

ENTOMOLOGY CONVEYOR DIGITIZATION



PICTURAE

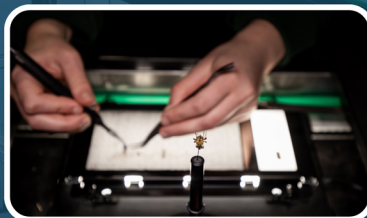
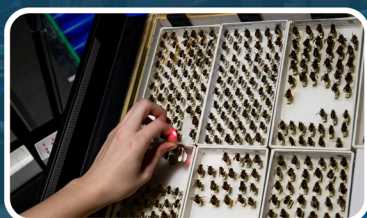
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4:40 pm – 4:55 pm **One small step for bug-kind: outcomes from a week long entomology camp for teens**

Taylor Kane

*University of Alaska Museum, University of
Alaska, Fairbanks, AK, U.S.A.;*
tlkane@alaska.edu

‘Entomology Camp’ is a week-long summer camp for teens at the University of Alaska Fairbanks. Students learn about insect identification, preservation, habitats, and ecological roles. Each day students collected insects from a different habitat and built collections which they took home on the last day. They were also given daily nature journaling prompts and participated in group discussions about each day’s learning objective. The learning goals for this camp were that participants would: 1. be able to identify insects to the order level, 2. be able to describe some of the roles that insects play in ecosystems, and 3. have an increased awareness of insect diversity. On the first and last days of camp we conducted a pre- and post-survey to see if Entomology Camp changed how students feel about insects, how they act towards insects, and what they knew about insects, all of which were achieved to some degree.

4:55 pm – 5:00 pm **Stupid serendipity: State record beetle emphasizes value of both “filthy generalist” entomology and school-required insect collections**

Marian L. Kirst

Billings, MT, U.S.A.;
marianclyman@gmail.com

The first report of *Amblycheila cylindriformis* (Say, 1823) (Coleoptera: Carabidae: Cicindelinae) in Montana, USA in 2024 was the product of absurd entomological convergence; a culmination of circumstances and events that fortuitously revealed the existence of *Amblycheila* in Montana’s Big Horn County. This revelation inspired an ad-hoc field team (composed of a newbie entomologist with generalist tendencies, an amateur insect enthusiast with unusual land access connections, and a determined, if irascible, coleopterist who had been searching for *A.*

cylindriformis in MT for decades) to track the beetles down using the original collector's 14-year-old memories of the find—which occurred during a bug-hunting trip with his daughter for her high school insect collection project—and a single photo of a tree from near the collection locality.

5:00 pm – 5:15 pm **'Imagining Insects' and Exhibiting
with Intent: Revitalizing a Dormant
Entomological Collection at the North
Museum of Nature and Science**

Joshua Kulak¹ & Molly Wolanski¹

*¹North Museum of Nature & Science, Franklin &
Marshall College, Lancaster, PA, U.S.A. ;
joshkphilly@gmail.com*

Containing only between 20,000 and 30,000 insect specimens, most of them without data, and with no dedicated entomology staff, the North Museum's insect collection will hardly be breaking any records. Yet, with such holdings as Simon Snyder Rathvon's 19th century self-articulated cabinet, the George Ehle Lancaster Lepidoptera Collection, and some well documented early 20th century Coleoptera, it is still one with the potential to inspire— and one which highlights the hidden treasures that can lurk in small regional collections. The exhibit "Imagining Insects" was developed as one means of showcasing those treasures, and to revitalize North's insect collection from a state of languishing to one of use. This paper therefore describes the development of this exhibit, the initiatives that will hopefully follow its conclusion, and the challenges regional collections face in increasing visibility.

5:15 pm – 5:30 pm **Fighting towards the light:
Keeping collections relevant in a
gathering Dark Age**

Maxwell Barclay

*Natural History Museum, London, UK;
m.barclay@nhm.ac.uk*

In Medieval Europe, hundreds of monks and scribes, often the most educated people in their communities, dedicated their lives to copying

classical manuscripts, duplicating and preserving them, and making them accessible. It is only because of their efforts that much ancient wisdom still survives. Despite this, the early Medieval period is often called the 'Dark Ages' because the classical works were usually accepted and copied without criticism or synthesis. An orthodox, dogmatic culture lacked mechanisms to question, innovate and experiment, and ultimately, learning stagnated. Replicating and preserving the knowledge of the past became a substitute for, instead of a supplement to, generating new knowledge. I will discuss implications of a perceived modern decline in support for curiosity driven research, and an emerging tendency to prioritise duplication and preservation of old knowledge over creation of new knowledge.

5:30 pm – 5:45 pm **Break**

5:45 pm – 6:15 pm **ECN Business Meeting**

7:00pm – 9:00pm **ECN Reception, Produce Row Café,
204 SE Oak St, Portland, OR 97214**



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Sunday, November 9th
Hyatt Regency Portland at the Oregon Convention Center
Deschutes Ballroom ABC

7:00am – 8:00am Registration

MEMBER SYMPOSIUM 3

Discover the Hidden Gems in Our Museums

Organizers/Moderators: **Luc Leblanc**, *William F. Barr Entomological Museum, Department of Entomology, Plant Pathology and Nematology, University of Idaho, Moscow, ID, U.S.A.*, **Brittany L. Kohler**, *University of California Davis, Davis, CA, U.S.A.*, & **Peter Oboyski**, *Essig Museum of Entomology, University of California Berkeley, Berkeley, CA, U.S.A.*

8:00 am – 8:05 am Introduction

Peter Oboyski

Essig Museum of Entomology, University of California Berkeley, Berkeley, CA, U.S.A.

8:05 am – 8:20 am California Insects in Illinois

Tommy McElrath

*Illinois Natural History Survey, Prairie Research Institute, University of Illinois Urbana-Champaign, Champaign, IL, U.S.A.;
monotomidae@gmail.com*

The Illinois Natural History Survey Insect Collection (INHS-IC) holds a surprising amount of biodiversity not just from central Illinois in the United States, but also from the California Floristic Region. We recently received a grant from the Society for the Preservation of Natural History Collections to curate and digitize our holdings of California arthropods. Herein, we will discuss the progress and process for curating and digitizing over 100,000 specimens of California arthropods held at the INHS-IC, including surprising discoveries and an overview of the taxonomic specialties and holdings at INHS.



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8:20 am – 8:35 am **Beyond Proctotrupoidea:
Lubomir Masner’s lasting impact
on Hymenoptera research**

István Mikó¹ & Elijah Talamas²

*¹University of New Hampshire, Durham, NH,
U.S.A.; ²Florida State Collection of Arthropods,
Florida Department of Agriculture and Consumer
Services, Division of Plant Industry, Gainesville,
FL, U.S.A.;
istvan.miko@gmail.com*

In this presentation, we celebrate the contributions of Lubomír Masner to entomology. While renowned for his foundational work in the taxonomy of “proctos”, his influence reaches far beyond hymenopteran systematics. We showcase his innovative methods in specimen collection, curation and identification, his role in developing entomological tools, fostering collaborative networks, and mentoring generations of researchers. By reflecting on both his scientific accomplishments and lasting impact on the entomological community, we honor a legacy that continues to shape the study of insects worldwide.

8:35 am – 8:50 am **Gary Gier Collection of Lepidoptera**

**William H. Clark¹, Luc Leblanc², & Paul
Castrovillo¹**

*¹Orma J. Smith Museum of Natural History, The
College of Idaho, Caldwell, ID, U.S.A.; ²William F.
Barr Entomological Museum, Department of
Entomology, Plant Pathology and Nematology,
University of Idaho, Moscow, ID, U.S.A.;
bclark@collegeofidaho.edu*

During the fall of 2020, Gary Gier, a retired high school science teacher from Soda Springs, Idaho, donated his extensive world-wide collection of Lepidoptera to the Barr Entomological Museum, University of Idaho and the Orma J. Smith Museum of Natural History, The College of Idaho. The collection represents collecting in at least 14 countries, mostly in the New World, but some in Asia and Europe also. Copies of appropriate collecting permits are filed in both institutions. The collection represents over 18,000 specimens; most are immaculately curated and were in 381 glass-topped

hand-made wooden boxes. Some remain in paper envelopes. The collection represents over 3,700 taxa evenly divided between butterflies and moths. So far, 222 of Gary's boxes have been integrated into the OJS Museum, adding 1,460 new taxa to our collection.

8:50 am – 9:05 am **Uncovering Hidden Gems in the University of Guam Insect Collection**

Alfred Daniel Johnson¹, Ava Jade Rios¹, Kai Anderson², Aubrey Moore¹, & Ross Miller¹

¹*University of Guam, Mangilao, Guam, U.S.A.;*

²*Harvest Christian Academy, Barrigada, Guam, U.S.A.;*

danieljalfred@gmail.com

The University of Guam Insect Collection, though modest at about 30,000 specimens, holds exceptional historical and biological value. It includes arthropods from Guam and neighboring Micronesian islands, with some materials transferred from the Northern Marianas College to safeguard them from typhoon threats. Curation, expansion, and digitization have been advanced by Dr. Aubrey Moore and Dr. Ross Miller, whose dedication has preserved vital biodiversity records for the region. Hidden within the collection are rare, endemic, and possibly extinct butterflies such as *Hypolimnas octocula marianensis*, *Vagrans egistina*, and *Euploea eleutho*. The collection also houses a historically significant fly specimen labeled “from dead [Japanese soldier],” collected near the end of World War II and later cited in *Filth-inhabiting Flies of Guam* (Bohart & Gressitt, 1951) and *Life on a Little Known Planet* (Evans, 1968). Our presentation highlights key specimens while emphasizing curation and outreach efforts to enhance awareness and accessibility.

9:05 am – 9:20 am **Under Glass: The Original Riker Mounts**

Genevieve Anderegg

Denver Museum of Nature & Science, Denver, CO, U.S.A.;

genevieve.anderegg@dmns.org

The Denver Museum of Nature and Science Entomology collection houses two original cabinets handmade by Clarence Riker, inventor of the Riker mount. Constructed and filled in the late 1800's, each cabinet contains 20 Riker mount-style drawers displaying specimens mounted on cotton on both the upper and lower sides, for a total of 1,675 specimens. While few of these specimens have collecting data, they have great value as historic specimens. Currently, we are inventorying and imaging these cabinets to create a digitally accessible reproduction to provide public access to this slice of history for research and education.

**9:20 am – 9:35 am Hidden Gems of the Naturalis
Hymenoptera Collection**

Jessica Awad¹ & Thomas Wood¹

*¹Naturalis Biodiversity Center, Leiden,
Netherlands;*

jessica.awad@naturalis.nl

Over the past two centuries, the Dutch national collection has grown to over 43 million natural history objects, all housed at the Naturalis Biodiversity Center in Leiden. Around 1.7 million of these specimens belong to the order Hymenoptera (ants, bees, and wasps), requiring approximately 12,000 insect drawers. More than 28,700 species have been identified from this material, including thousands of type specimens, with many more yet to be described. Specimens originate from across the globe, but Europe and Asia are especially well-represented. This presentation showcases some of the most interesting bee and wasp specimens preserved at Naturalis, along with the stories of their collectors.

**9:35 am – 9:40 am A Century of Stag Beetles:
Photographic Documentation and New
Discoveries from the Zoological Survey
of India Collections**

Devanshu Gupta¹ & Irtiza Wani¹

*¹Zoological Survey of India, Kolkata, India;
devanshuguptagb4102@gmail.com*

The family Lucanidae, or stag beetles, are iconic insects known for their striking mandibles and significant ecological roles as saproxylics—

decomposers of decaying wood. With over 1,600 species globally, their diversity is a key indicator of forest health. Our work is based on a meticulous curation of the National Zoological Collections at the Zoological Survey of India, Kolkata, a repository of historical and modern faunal data. Our analysis of hundreds of specimens has yielded a critical update to the country's biodiversity records. We identified 97 species across 27 genera, including the exciting discovery of three species newly documented for India and numerous new state records. Our findings confirm that genera such as *Lucanus*, *Neolucanus*, *Odontolabis*, *Hexarthrus*, *Dorcus*, and *Prosopocoilus* dominate the collections, highlighting their prevalence in the Indian subcontinent. To enhance accessibility and aid future identification, we also compiled a comprehensive photographic catalog of the species in the collection. The geographical distribution of these species reveals distinct biodiversity hotspots in the Northeastern states, Eastern Himalaya, and Western Ghats. A high degree of endemism was observed, with many species confined to a single biogeographic zone, underscoring the uniqueness of these ecosystems. Beyond species counts, our morphological examination uncovered fascinating intraspecific variation, particularly in mandible size and body shape. This research not only updates our understanding of Indian Lucanidae but also validates the crucial role of curated collections in providing the foundation for targeted conservation strategies and future explorations.

9:40 am – 9:55 am **The Malcom Furniss collection of bark beetles**

Luc Leblanc

*William F. Barr Entomological Museum,
Department of Entomology, Plant Pathology and
Nematology, University of Idaho, Moscow, ID,
U.S.A.;*
leblanc@uidaho.edu

The entomological collection at the University of Idaho, initiated by John M. Aldrich in 1893, grew to over one million pinned specimens under the care of William F. Barr, a reputed expert of Buprestidae and Cleridae. Bill trained numerous graduate students who became prominent leaders in their disciplines, including buprestid expert Rick Westcott and forest entomologist Malcom M. Furniss, the younger brother of Robert L. Furniss, another prominent forest entomologist. Over his career, Mal

surveyed bark beetles (Scolytinae) and deposited in the Museum an extraordinary collection that consists of over 25,000 specimens and over 600 species, and very rich in biological information, as he reared from host material the majority of the specimens. Although long retired from the US Forest Service, Mal has continued with his very active research and publication output to this day, as has his school lab partner Rick Westcott.

9:55 am – 10:00 am **Closing Remarks**

Brittany L. Kohler

University of California Davis, Davis, CA, U.S.A.

10:00 am – 10:10 am **Break**



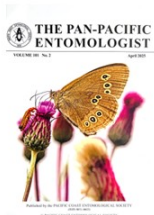
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CONTRIBUTED TALKS SESSION 3

Moderator: Christopher C. Wirth, *Purdue Entomological Research Collection, Department of Entomology, Purdue University, West Lafayette, IN, U.S.A.* & **Kristin Jayd**, *National Museum of Natural History, Smithsonian Institution, Washington, DC, U.S.A.*

10:10 am – 10:25 am Pinning, identifying, databasing: Leveraging volunteers in the DMNS Entomology collection

Genevieve Anderegg

*Denver Museum of Nature & Science, Denver, CO,
U.S.A.;*

genevieve.anderegg@dmns.org

The Denver Museum of Nature and Science has a strong volunteer program, with ~900 volunteers in both the public-facing gallery floors and behind the scenes. Currently, ~15 people volunteer in the Entomology collection conducting a variety of tasks, including sorting and identifying specimens from bulk samples, pinning, entering specimen data into Ecdysis, and other organizational tasks throughout the collection. In this presentation I will detail some of our strategies for recruitment and retention, task assignments, and training and management.

10:25 am – 10:40 am Entomological Collections of the Network Taxonline

Luciane Marinoni¹, Ana Caroline Lima¹,
Isaac Reis Jorge¹, Diego Souza², &
Tatiana Sepulveda²

*¹Universidade Federal do Paraná, Curitiba,
Brazil; ²Field Museum, Chicago, IL, U.S.A.;*
luciane.marinoni@gmail.com

The State of Paraná, Brazil, has a long-standing tradition of biodiversity research and is nationally and internationally recognized for its contributions to zoological taxonomy. The Network of Biological Collections in the State - Taxonline is a regional initiative that currently comprises 34 zoological collections distributed across universities,

research institutions, and museums. From these, seven are entomological and the largest is the Father Jesus Santiago Moure Entomological Collection, founded in 1956. It is the second largest insect collection in Brazil and is housed at the Department of Zoology at the Federal University of Paraná, Curitiba. The collection currently comprises eight million specimens representing the most significant insect orders and their information has been digitized and made available through Brazilian Biodiversity Information System (SiBBR), *speciesLink* and GBIF. The collaborative networking helps the curators to mitigate structural challenges, enhance infrastructure and data quality, and increase the public and scientific visibility of collections.

10:40 am – 10:55 am **Unlocking Cerambycidae Collections:
The Renato Contin Marinoni
Repository and Digital Tools for
Global Access**

Tatiana Sepulveda¹, Luciane Marinoni²,
& Diego Souza¹

¹*Field Museum, Chicago, IL, U.S.A.;*

²*Universidade Federal do Paraná, Curitiba,
Brazil;*

tsepulveda@fieldmuseum.org

The Prof. Renato Contin Marinoni Repository is an online platform dedicated to the digitization and dissemination of type specimens of longhorned beetles (Coleoptera: Cerambycidae). Developed at the Federal University of Paraná (UFPR), the project builds upon the photographic work of Father Jesús Santiago Moure and the vision of Prof. R C Marinoni. To date, the repository offers open access to 3,108 high-resolution images of type material, with an initial focus on Lamiinae. As next steps, the initiative will expand to include Cerambycinae and, subsequently, holotypes from the UFPR entomological collection. In addition, the platform serves as a portal to other global databases of Cerambycidae types, extending its reach and integration. By centralizing and sharing type specimen information, the repository enhances taxonomic verification, facilitates international access to critical reference material, and preserves historical resources, demonstrating the transformative impact of digitization on entomological collections.

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10:55 am – 11:00 am **Squashed in the pages of history:
The Bible Fly at the CUIC**

Jack Whisenant¹ & Jason Dombroskie¹

*¹Cornell University Insect Collection, Cornell
University, Ithaca, NY, U.S.A.;
jacki.whisenant@gmail.com*

Conservation of an antique book brings with it an unconventionally preserved specimen, smashed in the pages of time.

11:00 am – 11:15 am **Exploring the Usefulness of the USA
Midwest Suction Trap Network in other
Taxa besides Aphids**

**Doris Lagos-Kutz¹, Ivair Valmorbida²,
Nicholas Seiter³, & Michael Crossley⁴**

*¹Illinois Natural History Survey, Prairie Research
Institute, University of Illinois Urbana-Champaign,
Champaign, IL, U.S.A.; ²College of Agriculture,
Food and Natural Resources, University of
Missouri, Columbia, MO, U.S.A.; ³Department of
Crop Sciences, University of Illinois Urbana-
Champaign, Urbana, IL, U.S.A.; ⁴Department of
Entomology & Wildlife Ecology, University of
Delaware, Newark, DE, U.S.A.;
dlagos@illinois.edu*

The initiation of the suction trap network (STN) in 2005 marked the beginning of a rich and fruitful collaborative effort that has produced a wealth of data about the soybean aphid, other insect species and organisms that make up an aerobiological “soup.” Collaboration among researchers, extension specialists, and agriculturalists has provided information about seasonal migration patterns of the soybean aphid and monitoring of other insect species. The physical collections of the “soup” have been stored, used for past research and will serve as a foundation for future research. Aerial biota collected by vertical tubes that rise more than six meters from the ground and suck air and particulates make up the tens of thousands of samples that have been collected throughout the years up to 2025.

11:15 am – 11:20 am Little-known Leps of the LSAM

Victoria Bayless

*Louisiana State Arthropod Museum, Department of
Entomology, Louisiana State University, Baton
Rouge, LA, U.S.A.;*
curator35@gmail.com

The Louisiana State Arthropod Museum (LSAM) is well known as a Coleopteran focused collection. A majority of the million plus specimens housed in the collection are beetles. What is not commonly known is that we have significant holdings of Louisiana moths. This Louisiana Lepidoptera collection can mostly be attributed to our long-standing relationship with the Lepidopterist, Vernon Brou. Vernon and his wife, Charlotte, have previously donated thousands of specimens to the LSAM. These donated moths are exquisitely mounted, labeled and identified. However, the collection currently housed in the LSAM is only representative of the Brous' entire collection. The majority is still housed with them at their home on the 10-acre Abita Entomological Study site near Abita Springs, Louisiana, but will eventually call the LSAM its home. This valuable collection and all of the 40-plus years of related data is being willed to the LSAM.

11:20 am – 11:25 am Entertaining our young visitors

Luc Leblanc

*William F. Barr Entomological Museum,
Department of Entomology, Plant Pathology and
Nematology, University of Idaho, Moscow, ID,
U.S.A.;*
leblancl@uidaho.edu

An important activity that helps justify the preservation of small university entomological museums is their public outreach vocation. You are invited to join a colorful tour of the Barr Entomological Museum with primary school children classes.

11:25 am – 11:30 am Break



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11:30 am – 11:45 am **Bridging the gap between current imaging practices and computational analysis needs**

Jennifer C. Girón

*Invertebrate Zoology Collection, Natural Science Research Laboratory, Museum at Texas Tech University, Lubbock, TX, U.S.A.;
entiminae@gmail.com*

Entomological collections have been imaging specimens for at least 20 years. The usual primary goal of these images on the collections end is associated with accurate representation of phenotypic traits, as these images are often produced to accompany taxonomic descriptions or facilitate identifications. In recent years, with increased availability of these images in public repositories and with the interest of researchers in fields including ecology and informatics, images are increasingly used for trait extraction and attempts at species identifications. In 2024 I was part of an interdisciplinary group where we found common ground for recommending best practices to optimize image capture so that the resulting images can be part of downstream uses in computer vision pipelines. I will discuss these recommendations which are now detailed at <https://doi.org/10.1111/2041-210X.70140>.

11:45 am – 11:50 am **Highlighting Data Quality Issues in Digital Entomological Collections**

Tyler Tenniswood

*University of Arkansas at Little Rock, Little Rock, AR, U.S.A.;
tstenniswood@ualr.edu*

Maintaining the accuracy of entomological collections has been a vital part of entomological research. As existing collection records have become digitalized into entomological databases, issues of data quality have been highlighted as a recurring issue. In particular, specific data quality issues like duplicate records, out of date taxonomic information, ghost records, and geospatial errors have been reported in the literature. This presentation hopes to shed light on these data quality issues, and plans to incorporate practical recommendations from data science more broadly that can alleviate these issues in entomological collections datasets. In particular,

techniques for detecting, and correcting duplicate records will be addressed in this lightning talk.

**11:50 am – 12:05 pm Methods in Publishing Museum
Specimen Data to GBIF**

Lily Hart

*Department of Entomology, University of Illinois
Urbana-Champaign, Champaign, IL, U.S.A.;
lvhart2@illinois.edu*

This year, I published an Arkansas Plecoptera dataset to the Global Biodiversity Information Facility (GBIF) composed of museum specimen data. This presentation will highlight how the dataset came to be- merging multiple datasets from several institutions into one master list, the tools that were employed to do so (TaxonWorks, Google Sheets, Microsoft Excel, OpenRefine, Pensoft Integrated Publishing Toolkit, GitHub), best practices regarding data management, and the importance of Darwin Core standards when sharing biodiversity data. As a student, learning all of the skills needed in order to publish a dataset from beginning to end was a great deal of work and required guidance from many mentors and colleagues. Specimen digitization and management of the data (and sharing it!) are becoming increasingly important in the world of collections, where rapid biodiversity loss from anthropogenic effects and chronically low funding limit our ability to continue to catalog insect life on Earth.

**12:05 pm – 12:10 pm Bridging Biology and Code: An Image
Sorting Tool for Biological Collections**

Jennifer Smith¹ & Jennifer C. Girón¹

*¹Invertebrate Zoology Collection, Natural Science
Research Laboratory, Museum at Texas Tech
University, Lubbock, TX, U.S.A.;
smi81797@ttu.edu*

At the Natural Science Research Laboratory (NSRL) at Texas Tech University, I work with a butterfly collection seized from the illegal wildlife trade. Preserving the scientific value of this collection is difficult because the records are highly variable, often missing important details such as locality, collection date, or species names. The only consistent

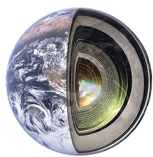
resource is specimen images, but cataloguing previously required scrolling through more than 700 images one by one. To improve this process, I developed a custom web-based tool using Google Apps Script that links images to metadata and allows them to be tagged and filtered by traits such as color, wing pattern, or family. This tool streamlines cataloguing, reduces errors, and ensures specimens are more accessible for biodiversity research. My project demonstrates how interdisciplinary approaches, even at the undergraduate level, can generate practical solutions to challenges in managing biological collections.

**12:10 pm – 12:25 pm Biogeographic Organization in
Entomological Collections: A State of
Affairs and Path Forward**

Samuel Z. Howard¹, Patricia L.S.
Wooden², & Crystal A. Maier¹

*¹Museum of Comparative Zoology, Harvard
University, Cambridge, MA, U.S.A.; ²Mississippi
Entomological Museum, Mississippi State
University, Mississippi State, MS, U.S.A.;
samuelhoward@fas.harvard.edu*

In entomological museums, navigating through thousands to millions of specimens at a glance is critical for curators, staff, and visiting scientists. Many organizational methods are employed globally, often in tandem, to ensure material of interest is easily visible. Whereas taxonomic and alphabetical systems are universal, the origin of the biogeographic scheme has been largely forgotten. Global regions, indicated by color or abbreviation, were once prevalent in collections but have been forsaken for racially charged color selections, lack of color-blindness accommodation, and an apparent absence of standardization. Here we surveyed the Entomological Collections Network listserv to understand opinions on the usefulness and feasibility of biogeographic sorting and system standardization for the future. We received 44 unique responses from five nations that largely supported the idea of biogeographic sorting, but demonstrate a lack of resources and frustration with current methods. We propose a new standard while requesting comment from the ECN community.



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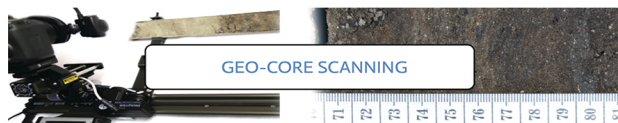
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Supporting the scientific community through reliable imaging technologies that strengthen research and collections worldwide.

12:25 pm – 12:30 pm **My pinning block is better than yours.
Here's how.**

Steven Hammer¹ & Ashleigh Whiffin¹

¹*National Museums Scotland, Edinburgh, UK;
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Pinning blocks enable insect specimens and their labels to be mounted at uniform heights, maintaining consistency in collections. Most commercially available blocks are made from machined metal which gives a sturdy and weighty feel. 3D printing gives greater design freedom, and features can be created that would be difficult to machine out of metal. We have developed a pinning block that makes pinning faster and more user-friendly. Our block has guide slots to aid accurate positioning of the pin into the five preset depth holes. It is made from softer recyclable plastic which reduces pin blunting. The user can see through the block from both sides, making it suitable for left- or right-handed use. We have made the block design available for free on the Cults3D file sharing website. We encourage you to try it and see if it changes your pinning process like it has ours.

12:30 pm – 12:45 pm **A nuisance in the field and lab: slide
mounting and imaging techniques for
Culicoides midges**

Amanda Peh¹ & Laura Harrington¹

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Culicoides (Diptera: Ceratopogonidae) are a diverse group of small flies that transmit several viral pathogens that affect livestock and human health globally. The group is relatively understudied in the northeastern USA. As part of a New York State *Culicoides* species survey project, I collected and preserved specimens for identification, which requires a high-power microscopy and, often, genitalia dissections. While dissecting the tiny flies is one thing, preparing museum-grade specimens for long term storage is another. There are several considerations to make for optimal success, from how to handle specimens to how best to stage slides for imaging. In this talk, I will present techniques that are essential for slide mounting and imaging these Ceratopogonids.

12:45 pm – 12:50 pm **ECN Annual Meeting Concluding Remarks**

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♂ *Pleocoma oregonensis* Leach, 1933. Photograph courtesy of Jack Whisenant and the Cornell University Insect Collection.

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Expected Behavior

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- Respect the rules and policies of the conference center and all venues as associated with the conference.
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- Harassment and intimidation, including any verbal, written, or physical conduct designed to denigrate, threaten, intimidate, or coerce another attendee, conference organizers or staff;
- Discrimination based on gender or gender identity, sexual orientation, age, disability, physical appearance, body size, race, religion, national origin, or culture;
- Physical or verbal abuse of any attendee, speaker, volunteer, exhibitor or service provider.

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- Anyone requested to stop unacceptable behavior is expected to comply immediately.
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- ECN reserves the right to prohibit attendance at any future meeting.

Reporting Unacceptable Behavior

- If you are the subject of unacceptable behavior or have witnessed any such behavior, please immediately notify any ECN officer.
- For matters of immediate physical safety, you may also approach the venue security staff.

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