

#HYMATHON2025

A 24 hour
virtual symposium from the
International Society of Hymenopterists

4– 5 December 2025



Original artwork by Mollie-Rosae Slater-Baker 2025

#HYMATHON2025

International Society of Hymenopterists virtual symposium



Organising Committee:

Natalie Dale-Skey, Jessica Awad, Erinn Fagan-Jeffries, Cristina Vasilița, Miles Zhang, Alana McClelland, Luke Kresslein, Emma Kärrnäs, Zoltán László, Ecaterina Pirvu

All start times in the program are given in **UTC** exclusively

All images in this program are the winning entries of last year's art competition

SCHEDULE

ABSTRACTS

HYMENOPTERA SHOWDOWN

ART COMPETITION

HYMATHON SOCIAL EVENTS

CODE OF CONDUCT



2024 winner in the category 'Illustration – Fun & Artsy Hymenoptera/Hymenopterists' *'The Milkmaid'* by Rachel Behm

The schedule can also be accessed via a public Google calendar (click on "Agenda" or choose "Schedule" in the top right corner to have a list view of the talks); all times should appear in UTC and be converted to your own time-zone if you add the calendar to your own:

[Hymathon Google calendar UTC](#)

SCHEDULE

All times given in UTC

SESSION 1, chaired by Jessica Awad

17:00 **Introductory remarks**
Jessica Awad

17:05 **KEYNOTE: Microbe-mediated transitions in parasitoid sex**
Presenter: Amelia Lindsey

17:45 **Break**

17:55 **Do Parasitoids prefer urban living? – Asking for a leafminer (COMPETITION)**
Presenter: Anna Behringer, anna.behringer@gmx.net

18:10 **Redescription of *Melikaiella favosa* (Bassett, 1890) comb. nov. (COMPETITION)**
Presenter: Pierre Belloncle, pierre.belloncle@etu.sorbonne-universite.fr
[@perrydotite.bsky.social](#)

18:25 **The Ant-Free Atacama: Aridity Gradients Shape Biogeographic Patterns of Ant Distribution in Northern Chile (COMPETITION)**
Presenter: Benjamin Palm, benjamin.palm@pdmc.net [@haplodiploid.bsky.social](#)

18:40 **Unveiling the hidden diversity of a morphologically homogenous genus (Ichneumonidae: *Netelia*) (COMPETITION)**
Presenter: Joan Kolasa, joan.kolasa@gmail.com

18:55 **SHOWDOWN: Platygastroidea, Vespine wasps, Cynipoidea**
Presenters: Jessica Awad, Elijah Talamas, Femi Benny, Jacky Chitty

19:10 **Break**

19:20 **A new species of *Cratomus* (Pteromalidae) (COMPETITION)**
Presenter: Jacky Chitty, jackychitty02@gmail.com [@callimome.bsky.social](#)

19:25 **Prey selectivity in the cicada hunter *Alysson tricolor* (Hym., Bembicidae) (COMPETITION)**
Presenter: Robert Zimmermann, zim.rob96@gmail.com

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- 19:30 Exploring Hymenoptera Diversity in Cameroon**
Presenter: Tomáš Hovorka, hovorkarl@gmail.com
- 19:35 Reclaiming the Unwanted: Mining Scientific Gold from multi-trap bycatch**
Presenter: Nina Koenig, nina.koenig@nmbe.ch
- 19:40 Eight new hymenopteran genomes - A basis for exploring the genomic background of secondary phytophagy**
Presenter: Ronja Reinisch, ronja.reinisch@uni-hohenheim.de
- 19:45 Break**
- 19:55 Nanomagnetism in Bees and other Aculeata**
Presenter: Sean Brady, bradys@si.edu
- 20:10 Taxonomy and conservation status of *Megachile* (Megachiloides) Mitchell – North America’s most speciose and at risk group of leafcutter bees**
Presenter: Cory Sheffield, cory.silas.sheffield@gmail.com [@corysheffield.bsky.social](https://www.instagram.com/corysheffield.bsky.social)
- 20:25 *Nylanderia* (Hymenoptera: Formicidae) of the Galápagos: Endemic or Not? The Case of *N. nesiotis* stat. nov.**
Presenter: Jason Williams, jwilli81@ufl.edu [@pixelatedants.bsky.social](https://www.instagram.com/pixelatedants.bsky.social)
- 20:40 Classification and revision of Sceliotrachelinae Brues and allied taxa (Hymenoptera: Platygastroidea: Platygastridae)**
Presenter: Zachary Lahey, laheyzi@gmail.com
- 20:55 Less is more: Global trends in regional distribution of oak gall wasp genera (Hymenoptera: Cynipidae: Cynipini).**
Presenter: Víctor Cuesta-Porta, victorcp93@gmail.com
- 21:10 From forest to grassland, gradients and boundaries in leaf-cutting ants diversity**
Presenter: Andrés Sánchez-Restrepo, andres.sanchez@fuedei.org
- 21:25 Concluding remarks**
Jessica Awad
- 21:30 Hymathon Quiz and Zoom Pictionary!**
Erinn Fagan-Jeffries

SESSION 2, chaired by Luke Kresslein and Miles Zhang

- 00:00 **Introductory remarks**
Luke Kresslein and Miles Zhang
- 00:05 **KEYNOTE: The ecology of parasitic wasp speciation**
Presenter: Andrew Forbes
- 00:45 **Break**
- 00:55 **The underestimated species diversity of nocturnal Darwin wasp subgenus *Bessobates*, genus *Netelia* (Hymenoptera: Ichneumonidae) from Taiwan (COMPETITION)**
Presenter: Hsuan-Pu Chen, pooh890510@gmail.com
- 01:10 **Beyond Color Patterns: Integrative Delimitation of *Poecilopompilus* Howard, 1901 Species (Hymenoptera: Pompilidae) (COMPETITION)**
Presenter: André Vital Ferreira, andrevitalfe@gmail.com
- 01:25 **Gall Things Considered: the taxonomy of gall wasp parasitoids in genus *Ormyrus* (COMPETITION)**
Presenter: Robin Marquez, robinpmarquez@gmail.com
- 01:40 **Distribution and prevalence of *Diplolepis* (Hymenoptera: Diplolepididae) induced galls on wild roses in Romania: insights from a four-year survey**
Presenter: Zoltán László, laszlozoltan@gmail.com
- 01:55 **Opening a Can of Wasps: *Eurytoma* Illiger 1807 (Chalcidoidea, Eurytomidae) in *Silphium* gall communities (Asteraceae, Heliantheae)**
Presenter: Cecil Smith, cecilsmith109@gmail.com
- 02:10 **Collective groups and parataxa: Nomenclatural stability, accuracy, and precision in taxa of convenience**
Presenter: Ziv Lieberman, zlieberman@ucdavis.edu [@formicula.bsky.social](https://www.bsky.social/formicula.bsky.social)
- 02:15 **Break**
- 02:25 **Assessing the conservation status of Canada's bee fauna**
Presenter: Jennifer M. Heron, jennifer.heron@gov.bc.ca
- 02:40 **New Species, New Genomes, and New Endosymbionts: Investigating Ficus Galls in Hawai'i**
Presenter: Miles Zhang, yuanmeng.zhang@gmail.com [@ymilesz.bsky.social](https://www.bsky.social/ymilesz.bsky.social)
- 02:55 **Hong Kong Hymenoptera Biodiversity**
Presenter: Alexey Reshchikov, alexey.reshchikov@gmail.com
- 03:10 **Hymenopteran adventures on Bush Blitz - field work adventures and wasps galore.**
Presenter: Erinn Fagan-Jeffries, erinn.fagan-jeffries@adelaide.edu.au [@erinnfj.bsky.social](https://www.bsky.social/erinnfj.bsky.social)

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- 03:25 Taxonworks - a chalcidoid/host database that needs biocontrol help!**
John Heraty, heraty@ucr.edu
- 03:40 Two species of inquiline are one species of parasitoid**
Presenter: Guerin Brown, guerin-brown@uiowa.edu
- 03:55 Concluding remarks**
Luke Kresslein and Miles Zhang
- 04:00 Connect with ISH and Hymathon Quiz!**
Erinn Fagan-Jeffries



2024 winner in the category '**Photography – Live Hymenoptera**': *Orchid bee in flight*
By Aidan Hersh

SESSION 3, chaired by Alana McClelland

- 06:50** **Introductory remarks**
Alana McClelland
- 06:55** **From Shadows to Clarity - The GBOLIII: Dark Taxa approach to training taxonomists**
Presenter: Cristina Vasilita, vasilita.cris@gmail.com
- 07:10** **I fought Girault, and Girault won..... or did he?**
Presenter: Alana McClelland, alana.mcclelland@aff.gov.au
- 07:25** **Notes from the field: Ant-ing through the central U.S. plains states**
Presenter: Jill Oberski, jtoberski@gmail.com [@jilloberski.bsky.social](https://www.bsky.social/jilloberski.bsky.social)
- 07:40** **The Lord of the Wasps: The Two Realms — discoveries of *Doddifoenus* Bouček (Chalcidoidea: Pelecinellidae) from Vietnam and Taiwan**
Presenter: Taisuke Kawano, eupelmidae@gmail.com [@tkawano-hym-ist.bsky.social](https://www.bsky.social/tkawano-hym-ist.bsky.social)
- 07:55** **Investigating the biodiversity and systematics of Australian rogadine parasitoid wasps using phylogenomics and DNA barcoding (Hymenoptera, Braconidae, Rogadinae) (COMPETITION)**
Presenter: Mollie-Rosae Slater-Baker, a1746992@adelaide.edu.au
[@molliersb.bsky.social](https://www.bsky.social/molliersb.bsky.social)
- 08:00** **A taxonomic revision of the genus *Paraphylax* (Ichneumonidae: Phygadeuontinae) in Australia.**
Presenter: Olivia Portmann, olivia.portmann@adelaide.edu.au
- 08:05** **Pollinator communities in the smallholder farmland in southern China: stressors and conservation**
Presenter: Xiaoyu Shi, shixy_eco@163.com
- 08:10** **The first known troglomorphic, eyeless spider wasp (Hymenoptera: Pompilidae) from the Nullarbor Caves, Western Australia**
Presenter: Juanita Rodriguez, juanita.rodriguez@csiro.au [@juanita_rodr.bsky.social](https://www.bsky.social/juanita_rodr.bsky.social)
- 08:15** **Break**
- 08:25** **ISH Business meeting**
- 09:25** **Break**
- 09:35** **KEYNOTE: The secret world of wasps**
Presenter: Seirian Sumner
- 10:15** **SHOWDOWN: Lubbock's wasp, Mutilidae, Aphelinidae**
Presenters: Natalie Dale-Skey, Juanita Rodriguez, Andrew Polaszek
- 10:30** **Concluding remarks**
Alana McClelland

SESSION 4, chaired by Emma Kärrnäs and Zoltán László

- 13:00** **Introductory remarks**
Emma Kärrnäs and Zoltán László
- 13:05** **KEYNOTE: How fig wasps built communities worldwide? Pollinators, galls, parasitoids and endless family drama**
Presenter: Jean-Yves Rasplus
- 13:45** **Break**
- 13:55** **What can 5 months of intensive sampling by citizen scientists tell us about nocturnal ichneumonids? (COMPETITION)**
Presenter: Iona Cunningham-Eurich, iona.cunningham-eurich.16@ucl.ac.uk
[@ionace.bsky.social](https://www.instagram.com/ionace.bsky.social)
- 14:10** **Catch Me If You Can: Comparing Trap Strategies for Hymenoptera in Eastern Romanian Meadows (COMPETITION)**
Presenter: Ana Chiosa, anamariach.01@yahoo.com
- 14:25** **Phylogenomics of Tetrastichinae (Hymenoptera: Eulophidae) demonstrate a need for a revision of genera (COMPETITION)**
Presenter: Emma Kärrnäs, emma.karnas@biol.lu.se
- 14:40** **Illustrated checklist of the bees (Hymenoptera: Apoidea) of the Toco region, Northeastern Trinidad (COMPETITION)**
Presenter: Zoe BeDell, zoebee27@tamu.edu
- 14:55** **Chromosomes of *Aganaspis daci* and a review of known karyotypes of the family Figitidae (Hymenoptera)**
Presenter: Vladimir Gokhman, vegokhman@hotmail.com
- 15:10** **Using morphology, a mitochondrial and a molecular marker to delimit species in the genus *Ooencyrtus* (Hymenoptera, Encyrtidae)**
Presenter: Lucian Fusu, lucfusu@hotmail.com
- 15:25** **Break**
- 15:35** **Sugar feeding by adult ichneumonoid and stephanoid wasps (Hymenoptera) in dry evergreen forest, Thailand (COMPETITION)**
Presenter: Kittipum Chansri, kittipum.ch@gmail.com
- 15:40** **Shedding fluorescent light on insect courtship (COMPETITION)**
Presenter: Matvey Nikelshparg, matveynikel@yandex.ru
- 15:45** **New species and new records of gall wasps on Rosaceae**
Presenter: Wenqian Hu, huwenqian@alu.scu.edu.cn

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- 15:50 The Hymenoptera of Germany and beyond: a synopsis of the results from GBOL III: Dark Taxa**
Presenter: Ralph Peters, r.peters@leibniz-lib.de
- 16:05 Megabarcoding-driven diversity mapping of Darwin wasps to evaluate two national parks protection plans**
Presenter: Aleida Ascenzi, aleida.ascenzi@unitus.it
- 16:20 Reframing the misunderstood: A communication model for inclusive insect conservation through wasp representation**
Presenter: Kiril Arsovski Przo, kiril.arsovski@outlook.com
- 16:35 The First (Somewhat) Comprehensive UCE Phylogeny of the Trigonalidae**
Presenter: Zachary Griebenow, zachary.griebenow@colostate.edu
- 16:50 Winners announcements**
- 17:10 Concluding remarks**
Emma Kärrnäs and Zoltán László

SESSION 1, chaired by Jessica Awad

17:05 KEYNOTE: Microbe-mediated transitions in parasitoid sex
Presenter: Amelia Lindsey, University of Minnesota

Amelia Lindsey is an Assistant Professor at the University of Minnesota. She completed a PhD with Richard Stouthamer at the University of California Riverside and was a postdoctoral researcher with Irene Newton at Indiana University prior to starting at UMN in 2020. Her research is focused on understanding transitions in reproductive biology, and the symbionts that interact with and drive such changes. Parasitoid wasps are particularly rich in vertically inherited bacterial symbionts that alter reproduction, and her lab uses a range of hymenopteran models in combination with genomics and cell biology to address questions about these processes. A major focus in the lab includes the *Wolbachia* symbionts that convert *Trichogramma*, *Leptopilina*, and many other parasitoid genera to asexual reproduction (specifically, thelytokous parthenogenesis).

17:55 Do Parasitoids prefer urban living? – Asking for a leafminer (COMPETITION)
Presenter: Anna Behringer

Anna Behringer (University of Hohenheim/Stuttgart/Germany); Dr. Maura Haas-Renninger (Natural History Museum Stuttgart/Stuttgart/Germany); Dr. Alex Gumovsky (Natural History Museum Stuttgart/Stuttgart/Germany); Prof. Dr. Lars Krogmann (Natural History Museum Stuttgart/Stuttgart/Germany)

The invasive horse chestnut leafminer (*Cameraria ohridella*, (Deschka & Dimić, 1986)) reproduces on the common horse chestnut (*Aesculus hippocastanum*), typically planted in urban areas in mid-Europe. Urbanization can significantly affect insect diversity. This study investigates whether urbanization impacts *C. ohridella* and its natural enemies, parasitoid wasps. Leaves were collected from 45 sites in Baden-Württemberg, Germany during two study periods. Urbanization was categorized into three levels: urban, park, and forest. We examined the effects of urbanization on parasitism rate, abundance, and diversity of parasitoid wasps. Parasitism rates were significantly higher at urban sites, possibly due to increased temperatures. The parasitism rate of the overwintering generation was significantly higher than the one of the second generation. The reason for this result is the poor synchronization of *C. ohridella* and its associated parasitoid wasps in spring. The highest parasitoid abundance was found in park locations, suggesting a higher density of *C. ohridella* mines. Urbanization influenced the Shannon-Wiener diversity index, which was highest in urban areas. This may be explained by smaller sample sizes in forest sites due to the lower presence of *C. ohridella*. However, urbanization had no effect on evenness, likely because parasitoid communities were similar across all locations. In conclusion, urbanization has measurable effects on both *C. ohridella* and its parasitoid community, influencing parasitism rates and diversity, while evenness remains unaffected.

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18:10 Redescription of *Melikaiella favosa* (Bassett, 1890) comb. nov. (COMPETITION)

Presenter: Pierre Belloncle

Pierre Belloncle (Sorbonne Université/Paris/France); Antoine Guiguet (Muséum National d'Histoire Naturelle/Paris/France)

Most oak gall wasp species (Hymenoptera, Cynipidae) have an heterogonic life cycle, alternating between sexual and asexual generations. *Callirhytis favosa* (Bassett, 1890) is only known for its sexual generation. We used morphologic and genetic data to check if this species belonged to *Callirhytis* Förster 1869 or *Melikaiella* Pujade-Villar 2014. Furthermore, we used the same data to test the synonymy of *C. favosa* and both *M. ostensackeni* Pujade-Villar 2014 and *M. fructuosa* (Weld, 1922). Our morphologic analysis confirmed *C. favosa*'s belonging to *Melikaiella*, therefore renaming it *Melikaiella favosa* comb. nov. It also enabled us to refute a synonymy between *M. ostensackeni* and the latter.

18:25 The Ant-Free Atacama: Aridity Gradients Shape Biogeographic Patterns of Ant Distribution in Northern Chile (COMPETITION)

Presenter: Benjamin Palm

Benjamin Palm (University of Hohenheim, Stuttgart, Germany); Álvaro Zúñiga-Reinoso (University of Cologne, Cologne, Germany); Reinhard Predel (University of Cologne, Cologne, Germany)

Ants are widely regarded as one of the most ubiquitous and abundant animal groups on Earth, occupying nearly all terrestrial habitats. Apart from the polar regions, only a few remote oceanic and old continental islands are known to lack native ants, and they are typically considered dominant even in desert ecosystems. In this study, we tested whether this holds true for the Atacama Desert, one of the driest and oldest deserts on Earth. Through intensive field sampling combined with extensive citizen-science data and a comprehensive literature review, we examined ant distributions along the pronounced aridity and elevational gradients of northern Chile. Our results show that the vast central depression and the hyperarid core of the Atacama, between approximately 18°S and 26°S, is entirely devoid of native myrmecofauna. Native ants occur only in two marginal zones: a narrow coastal strip associated with fog-fed lomas south of the Mejillones Peninsula and the Andean slopes that receive seasonal summer rains. These habitats mark the extreme limits of ant occurrence within the western South American Dry Diagonal, with ant diversity declining sharply along the increasing aridity gradient toward the central depression. This pattern identifies the Atacama as the largest continuous land area on the South American continent without ant fauna, interrupted only by invasive species established in human settlements within the desert interior.

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18:40 Unveiling the hidden diversity of a morphologically homogenous genus (Ichneumonidae: *Netelia*) (COMPETITION)

Presenter: Joan Kolasa

Joan Kolasa (Center for Integrative Biodiversity Discovery, Museum für Naturkunde, Berlin, Germany); Bernardo F. Santos (Center for Integrative Biodiversity Discovery, Museum für Naturkunde, Berlin, Germany)

The genus *Netelia* is a widespread and species-rich parasitoid group, yet its taxonomy remains strikingly incomplete. In the Afrotropical region, only 38 species have been described to date, despite the genus' ecological significance and abundance in standardized surveys. Taxonomic progress has been hindered by the overall morphological uniformity among species, and by the reliance on male genitalia for species diagnosis — an approach that is time-consuming and excludes female specimens from routine identification.

To address these limitations, we applied an integrative taxonomic framework centered on large-scale DNA barcoding. We generated COI sequences for over 2,000 specimens collected throughout the Afrotropics, combining long-term field material from the Iziko South African Museum with more localized, short-term expeditions material from various countries. Species delimitation analyses based on these data reveal almost 100 putative species, nearly tripling the currently known diversity.

This comprehensive molecular dataset will enable the reliable association of sexes, the detection of cryptic species complexes, and the identification of previously overlooked diagnostic characters. Our findings underscore the extent of hidden diversity within Afrotropical *Netelia* and demonstrate how high-throughput barcoding can rapidly advance taxonomic knowledge in morphologically challenging groups, laying the groundwork for a modern revision and future ecological and evolutionary studies of these wasps.

19:20 A new species of *Cratomus* (Pteromalidae) (COMPETITION)

Presenter: Jacky Chitty

Jacky Chitty (Rutgers University, New Brunswick, United States)

A new species in the genus *Cratomus* is described, distinguished from other Pteromalid genera by their remarkably enlarged heads. Using the morphological characteristics of specimens collected from the eastern Nearctic region species limits are established and possible directions for future research are discussed.

19:25 Prey selectivity in the cicada hunter *Alysson tricolor* (Hym., Bembicidae) (COMPETITION)

Presenter: Robert Zimmermann

Robert Zimmermann (Staatliches Museum für Naturkunde Stuttgart/Stuttgart/Germany), Verena Engl (University of Regensburg/Regensburg/Germany), Magdalena Pfeiffer (University of Regensburg/Regensburg/Germany), Gernot Kunz (University of Graz/Graz/Austria)

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Prey preferences of solitary wasps are poorly understood, hindering a detailed understanding of their roles in population dynamics. In my presentation, I will showcase our results studying a nesting aggregation of the leafhopper-hunting *Alysson tricolor* (Hym., Bembicidae). We identified nine new prey species and recorded the surrounding leafhopper fauna to compare the species the wasp preyed upon with those not. Our data suggests that *Alysson tricolor* is specialized on tree-living leafhoppers and prefers the two subfamilies Eurymelinae and Deltocephalinae. Typhlocybinae, although strongly represented in our habitat survey, were not preyed on, likely due to their smaller size.

19:30 Exploring Hymenoptera Diversity in Cameroon

Presenter: Tomáš Hovorka

Tomáš Hovorka; Daniel Benda (both National Museum of the Czech Republic, Prague, Czech Republic); Kamil Holý (Czech Agrifood Research Center, Prague, Czech Republic)

We conducted two expeditions to southern Cameroon in August 2024 and August 2025 with the aim of documenting local Hymenoptera diversity. During these surveys, we established a network of Malaise traps, which currently number twelve and are continuously operating at the study sites. This sampling framework provides an exceptional opportunity to investigate the taxonomic richness and ecological roles of Hymenoptera in tropical ecosystems, focusing on parasitoid wasps (Braconidae, particularly Microgastrinae, and Ichneumonidae) as well as aculeate Hymenoptera, including both solitary and social species.

By combining intensive trapping with targeted observations, we are able to assess not only species diversity but also aspects of behavior and sociality. These expeditions represent the first coordinated effort to systematically monitor Hymenoptera communities in this part of Cameroon. The collected material contributes to understanding the diversity, distribution, and ecological significance of parasitoids and aculeates in Central Africa, while the long-term trap network ensures future temporal comparisons. Our preliminary findings highlight the extraordinary richness of Hymenoptera in the region and underscore the importance of southern Cameroon as a hotspot for parasitoid and aculeate diversity.

19:35 Reclaiming the Unwanted: Mining Scientific Gold from multi-trap bycatch

Presenter: Nina Koenig

Karin Urfer (Natural History Museum St.Gallen/St.Gallen/Switzerland; Natural History Museum Bern/Bern/Switzerland; University of Bern, Institute of Ecology and Evolution/Bern/Switzerland), Nina König (Natural History Museum Bern/Bern/Switzerland), Yvonne Kranz-Baltensperger (Natural History Museum Bern/Bern/Switzerland), Seraina Klopffstein (Natural History Museum Basel/Basel/Switzerland; University of Bern/Bern/Switzerland), Oliver Niehuis (Institute of Biology I (Zoology), University of Freiburg/Freiburg/Germany), Adrien von Virag (no affiliation), Manuela Sann (Natural History Museum Bern/Bern/Switzerland; University of Bern, Institute of Ecology and Evolution/Bern/Switzerland)

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Entomology-based research projects often involve setting up mass-collecting traps to obtain large-scale data on species or communities. Many of these projects gather not only the target taxa but also a large amount of bycatch, which often remains untouched or is even disposed of once the project has ended. Here, we have examined bycatch that has been collected in a project to promote biodiversity in the forests of the Swiss Pre-Alps. Multiple traps were set up in three forest reserves near deadwood, to monitor xylobiontic beetles as bioindicators between 2015–2018. The resulting bycatch was analysed about eight years later. Specimens were sorted, prepared, and in most cases identified to species level. From the 1,105 analysed bycatch individuals, we focused on 254 species, representing the groups Arachnida (Araneae, Opiliones) and Hymenoptera (Anthophila, Chrysididae, Eumeninae, Ichneumonidae, Pompilidae, and Sphecidae sensu lato). Most samples were recorded in flight interception traps near herb layers and in the tree canopy. Remarkably, we recorded two rare ichneumonid species, *Casinaria dubia* Tschek, 1871 as a first record for Switzerland and *Bioblapsis polita* (Vollenhoven, 1878) as a first record for Switzerland since 1958. Furthermore, we found the rare European spider *Episinus maculipes* Cavanna, 1876, representing a first record for eastern Switzerland. Our study highlights the importance of well-curated bycatch samples, even beyond the duration of the project. Future utilization of such samples may provide precious insights into the ecology and distribution of rare taxa.

19:40 Eight new hymenopteran genomes - A basis for exploring the genomic background of secondary phytophagy

Presenter: Ronja Reinisch

Ronja Reinisch (University of Hohenheim, Stuttgart, Germany); Johannes L.M. Steidle (University of Hohenheim, Stuttgart, Germany); Mark Lammers (Independent researcher, Gulpen, the Netherlands); Manuela Sann (Natural History Museum of Bern, Bern, Switzerland)

Phytophagous larval nutrition is well known in several hymenopteran taxa all over the species tree. In contrast to primary phytophagous sawflies, many species have developed secondary phytophagy. During evolution, these species reverted from a parasitoid or zoophagous larval lifestyle back to the development on various plant tissues, including pollen, nectar, seeds and gall tissue. This shift has independently occurred in many different clades, making it a promising system to study parallel evolution. In our project, we are interested in the genomic background and genome dynamics shaping these fascinating lifestyle transitions. To compare the genomes of phytophagous lineages and their close zoophagous relatives, we have selected several species from representative phytophagous taxa within Aculeata and „Parasitica“ that are still lacking genome data. Here, I will present the first eight genomes of the project and discuss their characteristics. I will also discuss future steps to address our research questions regarding parallel genome evolution and similar genomic innovations.

19:55 Nanomagnetism in Bees and other Aculeata

Presenter: Sean Brady

Dustin Gilbert (University of Tennessee, Knoxville, Tennessee, USA); Anne Murray (University of Tennessee, Knoxville, Tennessee, USA); Laura Russo (University of

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Tennessee, Knoxville, Tennessee, USA); Charlotte Buchanan (University of Tennessee, Knoxville, Tennessee, USA); Cameron Jorgensen (University of Tennessee, Knoxville, Tennessee, USA); Caleb Allen (University of Tennessee, Knoxville, Tennessee, USA); Michael Winklhofer (University of Oldenburg, Germany); Laurence Packer (York University, Canada); Sean Brady (National Museum of Natural History, Washington, DC, USA)

Scientists have long been fascinated by magnetoreception, the innate capacity of many animals to sense and use the Earth's magnetic field for navigation. In eusocial insects like honey bees, magnetoreception has been linked to communication and foraging. However, little is known about magnetoreception's phylogenetic patterns and relationship to species traits and natural history. We report that putative magnetoreception is widespread across a diversity of bee species. We also detected putative magnetoreception in other Aculeata, suggesting this magnetic capacity predates the evolution of bees. While magnetic signals were found across a diversity of life history traits, the strength of the magnetic signal varied within and between species, and increased with body size and social behavior.

20:10 Taxonomy and conservation status of *Megachile* (Megachiloides) Mitchell – North America's most speciose and at-risk group of leafcutter bees

Presenter: Cory Sheffield

Cory Sheffield (Royal Saskatchewan Museum, Saskatchewan, Canada)

Megachiloides is the largest subgenus of leafcutter bees in America North of Mexico, with its range extending from northern Mexico to southern Canada. The subgenus contains 57 species, and the majority of these are considered among the rarest of bees in the United States. A recent conservation assessment listed only ten of the species as Secure, with 45 of the species as at risk to some degree, 17 Possibly Extinct, with 12 either Imperilled or Critically Imperilled. However, the taxonomy of several species is not resolved, and currently a number of species are known only from one sex (18 known only from the male, 39 from the female only). However, 84 names are available, and at least some of these are likely to represent the unassociated sexes. Molecular methods, specifically the use of DNA barcodes, have been useful in associating sexes of a few of the species occurring in Canada and have facilitated accounting for colour variation within species, creating synonymies. Here I will discuss how the combined use of morphology and molecular data has helped resolve the taxonomy of this subgenus, and the implications this potentially has on future assessments of conservation status.

20:25 *Nylanderia* (Hymenoptera: Formicidae) of the Galápagos: Endemic or Not? The Case of *N. nesiotis* stat. nov.

Presenter: Jason Williams

Jason L. Williams (University of Florida, Gainesville, Florida, U.S.A.); Corbin Puckett (University of Florida, Gainesville, Florida, U.S.A.); Fernando Fernández (Universidad Nacional de Colombia, Bogotá, Colombia); Gianpiero Fiorentino (New Jersey Institute of Technology, Newark, New Jersey, U.S.A.); Henri W. Herrera (Escuela Superior Politecnica de Chimborazo, Riobamba, Ecuador); María Camila Tocora (University of Toronto, Toronto, Canada); Andrea Lucky (University of Florida, Gainesville, Florida, U.S.A.)

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The ant genus *Nylanderia* is nearly cosmopolitan in distribution, comprising 131 described species, at least 15 of which have been introduced beyond their native ranges via human-mediated dispersal. These ‘globetrotting’ *Nylanderia* pose significant ecological and economic concerns as invasive species that are both difficult to identify and potentially destructive. Taxonomic uncertainty and subtle morphological differences between species hinder efforts to distinguish natives from non-natives. This challenge is particularly acute in biodiversity hotspots like the Galápagos Islands, where conservation priorities are high and the *Nylanderia* fauna remains poorly documented. Here, we examine *Nylanderia* species inhabiting the Galápagos archipelago and recognize three taxa: *N. guatemalensis*, *N. steinheili*, and *N. nesiotis* stat. nov., a putatively endemic species elevated from subspecies status under *N. fulva*. We also synonymize *N. guatemalensis itinerans* with *N. guatemalensis* (syn. nov.). Species delimitation is supported through integrative evidence from morphology and Ultraconserved Element (UCE) phylogenomics. We map the distributions of each species and provide new identification tools, including a dichotomous key and high-resolution images of all castes. These resources establish a critical foundation for biodiversity monitoring and facilitate the rapid detection and management of invasive *Nylanderia* in one of the world’s most sensitive island ecosystems.

20:40 Classification and revision of Sceliotrachelinae Brues and allied taxa (Hymenoptera: Platygastroidea: Platygastriidae)

Presenter: Zachary Lahey

Zachary Lahey (USDA-ARS, Charleston, USA); Jonathon Bremer (FSCA, Gainesville, USA); Ovidiu Popovici (University “Al. I. Cuza”, Iași, Romania); Lubomír Masner (CNCI, Ottawa, Canada); Norman F. Johnson (OSU, Columbus, USA); Matthew L. Buffington (USDA-ARS, Washington D.C., USA); Elijah J. Talamas (FSCA, Gainesville, USA)

A revised classification of Platygastriidae (excluding Platygastriinae) is proposed based on a phylogenetic analysis of ultraconserved elements. The following subfamilies are recognized: Allotropinae Kozlov, Orwelliuminae Lahey and Talamas, Parabaeinae Lahey and Talamas, Proplatygastriinae Lahey and Talamas, and Sceliotrachelinae Brues. Four genera are described as new: *Marshallium* Lahey, Talamas and Masner, new genus (Allotropinae); *Protoclisia* Lahey, Talamas and Masner, new genus (Proplatygastriinae); *Terao* Talamas, Lahey and Masner, new genus (Allotropinae); and *Scarlettella* Lahey and Talamas, new genus (Sceliotrachelinae). *Plutomerus* Masner and Huggert, new synonym, is treated as a junior synonym of *Fidiobia* Ashmead. A neotype specimen is designated for *Proplatygaster rufipes* Kieffer. Comments are given on each genus, and the new classification is discussed relative to the phylogenetic analysis of Platygastriidae by Sosa-Calvo et al. (in press).

20:55 Less is more: Global trends in regional distribution of oak gall wasp genera (Hymenoptera: Cynipidae: Cynipini).

Presenter: Víctor Cuesta-Porta

Víctor Cuesta-Porta (University of Barcelona, Barcelona, Spain); George Melika (Retired Entomologist, Budapest, Hungary); James A. Nicholls (Royal Botanic Garden Edinburgh, Edinburgh, Scotland, U.K.); Graham N. Stone (University of Edinburgh, Edinburgh, Scotland, U.K.); Juli Pujade-Villar (University of Barcelona, Barcelona, Spain).

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Cynipini wasps (commonly called oak gall wasps) offer an excellent opportunity to study evolutionary dynamics processes due to their intimate ecological relationships with host plants, and roles as keystone species supporting rich communities of associated parasitoids and inquilines. An update on the classification of oak gall wasps is needed. The taxonomy of Nearctic and Neotropical fauna has been traditionally burdened by the strong tendency to homogenize the genus-level diversity between Europe and America. Part of the outdated and erroneous genus-level boundaries have been re-defined over the last years, yet the most complex genera remain unresolved.

The current integrative systematic revisionary process aiming to determine natural groups among the outdated Cynipini genera has promoted the increase of valid genera. Due to that, Holarctic distributed genera are being split into either Palearctic or Nearctic groups. For instance, our molecular results support the non-existence of *Cynips* in the Nearctic and the re-establishment of *Antron* and *Besbicus* (currently junior synonyms of *Cynips*). Furthermore, the species originally included in *Antron* are nested in two independent clades, which will become a new genus. The same trend is followed with the *Andricus* complex since several studies have also transferred Nearctic lineages into new or re-established genera. However, the type species of *Andricus* is placed within a major monophyletic clade containing several lineages from different biogeographic regions and remarkable morphological diversity. We propose several hypotheses on resolving the *Andricus*, which can include removing *Andricus* from the Nearctic and Neotropical fauna.

21:10 From forest to grassland, gradients and boundaries in leaf-cutting ants diversity

Presenter: Andrés Sánchez-Restrepo

Andrés F. Sánchez-Restrepo (Fundación para el Estudio de Especies Invasivas/Hurlingham/Argentina); Luis Calcaterra (Laboratorio de Ecofisiología de Insectos, Instituto de Biodiversidad y Biología Experimental y Aplicada, Departamento de Biodiversidad y Biología Experimental, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires/Ciudad Autónoma de Buenos Aires/Argentina)

Leaf-cutting ants belonging to the genera *Acromyrmex*, *Amoimyrmex* and *Atta* are only found in the Americas, from Patagonia in Argentina to southern North America. The only exceptions are Chile and the arid coast of southern Peru. The greatest species diversity is found in the subtropical regions of southern South America, particularly the Atlantic Forest, the Espinal province of Córdoba and the Yungas forest. Using field data, biological collection data, bibliography, and specialised databases, we identified an increasing richness gradient towards higher latitudes for the genera *Atta* and *Acromyrmex*. In contrast, *Amoimyrmex* is restricted to the southern part of the subcontinent. There are marked differences in species composition between Central America, the Amazon basin and southern South America, with few species having a wide distribution. This pattern appears to be the result of an interaction between the structural complexity of the habitat, the biological attributes of the leaf-cutting ants and environmental factors, such as rainfall patterns and annual temperature variations. Furthermore, geographical overlap between species correlates with phylogenetic proximity, suggesting that divergence and diversification of leaf-cutting ants (~17–19 million years ago) was driven by vegetation changes during the Middle and Late Miocene.

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Overall, the evidence suggests that latitudinal diversity gradients in these ants are complex, responding to an interaction between evolutionary history, geoclimatic dynamics and local environmental conditions that varies between lineages and species.

21:25 Concluding remarks
Jessica Awad

SESSION 2, chaired by Luke Kresslein and Miles Zhang

00:00 **Introductory remarks**
Luke Kresslein and Miles Zhang

00:05 **KEYNOTE: The ecology of parasitic wasp speciation**
Presenter: Andrew Forbes, University of Iowa

Andrew Forbes received his PhD in 2008 from the University of Notre Dame (Indiana, USA), after working with Jeff Feder on the braconid parasitoids of *Rhagoletis* fruit flies. He then did a short but formative postdoc at the University of California, Davis with Jay Rosenheim before accepting a faculty position in 2010 at the University of Iowa (Iowa, USA). His research focuses on the role of ecology in generating and maintaining diversity among specialist insects.

00:55 **The underestimated species diversity of nocturnal Darwin wasp subgenus *Bessobates*, genus *Netelia* (Hymenoptera: Ichneumonidae) from Taiwan (COMPETITION)**
Presenter: Hsuan-Pu Chen

Hsuan-Pu Chen (Laboratory of Systematic Entomology, Graduate School of Agriculture, Hokkaido University/Sapporo/Japan; Department of Entomology, National Taiwan University/Taipei/Taiwan); Kazuhiko Konishi (The Hokkaido University Museum/Sapporo/Japan); Shih-Feng Shiao (Department of Entomology, National Taiwan University/Taipei/Taiwan)

The cosmopolitan nocturnal Darwin wasp genus *Netelia* comprises over 320 species in 12 subgenera, all of which parasitize lepidopteran larvae as koinobiont ectoparasitoids. Species of *Netelia* share a generally similar appearance, making species-level identification difficult without examination of their unique and complex male genitalia. The subgenus *Bessobates* includes 23 valid species classified into three species groups, characterized by a short ovipositor and specialized male genitalia, such as sclerotized subapical overhangs and papillate areas on the inner side of the gonostyles in most species. Taiwan, a continental island in subtropical East Asia, is characterized by its mountainous terrain and wide elevational range, which create diverse habitats encompassing both tropical and temperate faunas. However, the biodiversity of *Netelia* in Taiwan remains poorly studied. By examining over 200 specimens and integrating morphological data with cytochrome c oxidase I (COI) gene fragments using the species delimitation methods ASAP and bPTP, the known Taiwanese fauna of the subgenus *Bessobates* has decupled from three to 35 species. It includes two previously known species, five new records, one questionable record, and 27 undescribed species, which can be distinguished primarily by their male genitalia. Based on a phylogeny reconstructed using COI and 28S genes, the subgenus *Bessobates* is recovered as a paraphyletic group, with some species of *Paropheltes* nested within it and additional species groups recognized. This study highlights the highly underestimated diversity of the subgenus in Taiwan and underscores its significance as a biodiversity hotspot.

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01:10 Beyond Color Patterns: Integrative Delimitation of *Poecilopompilus* Howard, 1901 Species (Hymenoptera: Pompilidae) (COMPETITION)

Presenter: André Vital Ferreira

André Vital Ferreira (Programa de Pós-Graduação em Zoologia, Universidade de Brasília, Brasília, Brazil); Cecília Waichert (Departamento de Zoologia, Universidade de Brasília, Brasília, Brazil)

The genus *Poecilopompilus* Howard, 1901 (Hymenoptera: Pompilidae) includes spider-parasitoid wasps, widely distributed throughout the Americas and often morphologically associated with social wasps. Species delimitation is hindered by the lack of recent revisions, excessive reliance on coloration as a diagnostic character, and the presence of possible convergences. This study aimed to delimit the species of the genus using an integrative approach combining alpha taxonomy, geometric morphometrics of the wings, and mitochondrial molecular data (COI). A total of 538 specimens from Brazil and foreign collections were analyzed, with detailed morphological observations (including male genitalia). Geometric morphometrics was applied to the forewings, conducting principal component and discriminant analyses. Intra- and interspecific COI genetic distances were calculated. The results allowed the delimitation of five *Poecilopompilus* species: *P. algidus*, *P. eurymelus*, *P. interruptus*, *P. mixtus*, and *P. victori*. Thus, ten species are currently recognized for the genus. The analyses revealed consistent differences among species in the face (clypeus, vertex, and eye convergence), propodeum, and wing venation, including patterns of sexual dimorphism. Molecular analyses partially corroborate the morphological groupings, although with limited sampling. This study is the first application of geometric morphometrics in Pompilidae and provides COI sequences for several species of the genus. The species are illustrated, and an identification key is provided.

01:25 Gall Things Considered: the taxonomy of gall wasp parasitoids in genus *Ormyrus* (COMPETITION)

Presenter: Robin Marquez

Robin P. Marquez (University of Central Florida/Orlando/United States); Sofia Sheikh (University of Chicago/Chicago/United States); Guerin Brown (University of Iowa/Iowa City/United States); Louis Nastasi (University of Iowa/Iowa City/United States); MaKella Steffensen (University of Iowa/Iowa City/United States); Andrew Forbes (University of Iowa/Iowa City/United States)

Plant-insect gall systems have proved powerful for addressing myriad evolutionary and ecological questions. However, the continued exploration of gall biology is complicated by the presence of cryptic species, especially within natural enemy communities. The cryptic species phenomenon is exemplified by the parasitoid wasp genus *Ormyrus* (Hymenoptera: Chalcidoidea: Ormyridae) in North America; recent studies have identified dozens of morphologically cryptic but molecularly distinct species in this genus using DNA barcoding. To advance the characterization of *Ormyrus* diversity, we have begun collecting morphological data for these molecular units and other *Ormyrus*, with the goal of delimiting and describing species in an integrative taxonomic framework. Thus far, a candidate set of 44 morphological characters has been evaluated for over 30 undescribed species alongside type material of all previously described New World species.

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The results of this study will enable production of a more robust species key, establishment of morphological species groups, and descriptions of dozens of new species. Our ongoing and future work will expand DNA barcode datasets, apply UCEs to estimate a robust phylogeny for the genus, and incorporate museum collection material to produce a comprehensive taxonomic revision of *Ormyrus* in the New World.

01:40 Distribution and prevalence of *Diplolepis* (Hymenoptera: Diplolepididae) induced galls on wild roses in Romania: insights from a four-year survey

Presenter: Zoltán László

Attila Mátis, Róbert Veres, Mátyás Kassay (Hungarian Department of Biology and Ecology, Faculty of Biology and Geology, Babeş-Bolyai University, Cluj-Napoca, Romania), Sarah Melissa Withiak (Department of Biology, Virginia State University, Petersburg VA, USA) and Zoltán László (Hungarian Department of Biology and Ecology, Faculty of Biology and Geology, Babeş-Bolyai University, Cluj-Napoca, Romania, Centre 3B, Faculty of Biology and Geology, Babeş-Bolyai University, Cluj-Napoca, Romania)

Species Distribution Models (SDMs) may be powerful also when applied to tightly linked plant–insect systems, such as wild roses (*Rosa* spp.) and their *Diplolepis* gall inducers, whose finely tuned interactions may act as sensitive indicators of habitat structure and environmental conditions. Insect-induced galls, also those formed by *Diplolepis* on roses, may provide detailed insight into host ecology and microhabitat characteristics, making them subjects for distributional and ecological modelling. The aim of our study is to develop SDMs for Romania’s wild roses and their associated *Diplolepis* gall inducers and parasitoids, enabling a deeper understanding of host distribution, gall-formation patterns, and the environmental determinants shaping these interactions. Here we present results from a four-year survey documenting the distribution and prevalence of *Diplolepis* galls across all major biogeographical regions of Romania. The first three years of fieldwork covered Oltenia, Muntenia, Dobrogea, Moldova, Maramureş, Crişana, and Banat, while the fourth year extended the survey into the Carpathian Mountains. Using a systematic sampling scheme, shrubland sites were surveyed at 50-km intervals along 1.5-km transects, each examined for one to one and a half hour; at every site, rose species were identified and all *Diplolepis* galls recorded. The resulting dataset provides a comprehensive foundation for modelling the distributions of both roses and their gall inducers, supporting regional biodiversity assessment, improving the monitoring of wild roses and their gall inducers, and enhancing predictive capacity for plant-insect interactions.

01:55 Opening a Can of Wasps: *Eurytoma* Illiger 1807 (Chalcidoidea, Eurytomidae) in Silphium gall communities (Asteraceae, Heliantheae)

Presenter: Cecil Smith

Louis Nastasi (University of Iowa, Iowa City, USA); Cecil Smith (Pennsylvania State University, State College, USA); Charles Davis (Pennsylvania State University, State College, USA); Heather Hines (Pennsylvania State University, State College, USA); John Tooker (Pennsylvania State University, State College, USA), Andrew Deans (Pennsylvania State University, State College, USA)

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Recent integrative taxonomic studies have uncovered new species of gall wasps (Cynipidae) and improved our understanding of their species diversity; however the species limits of their parasitoids remains unknown. Throughout our ongoing work on *Antistrophus* (Aulacideini) gall wasps on Silphium, we reared a substantial number of *Eurytoma*. The only described species recorded from Silphium plants is *Eurytoma lutea* Bugbee, but taxonomic work on Eurytomidae in North America has been sorely lacking. We reared at least 3 undescribed *Eurytoma* morphospecies, which we analyzed with extensive morphological analysis and sequencing of the cytochrome oxidase one (CO1) gene. Our integrative taxonomic approach revealed 14 new *Eurytoma* species, far beyond the initial morphospecies we had hypothesized. Here, we present our preliminary data demonstrating the newfound species diversity of *Eurytoma* associated with Silphium gall systems.

We suspect this is just the tip of the iceberg and that there are likely many more species of *Antristrophus* and by extension *Eurytoma* that are waiting to be discovered in prairie ecosystems and poorly sampled regions.

02:10 Collective groups and parataxa: Nomenclatural stability, accuracy, and precision in taxa of convenience

Presenter: Ziv Lieberman

Ziv E. Lieberman (University of California, Davis, Davis, USA); Jill T. Oberski (Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt am Main, Germany); Brendon E. Boudinot (Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt am Main, Germany)

The accuracy and precision of paleotaxonomic classification is constrained by taphonomic biases and incomplete preservation. The question of how to contend with poorly-preserved fossils not attributable to nominal supraspecific taxa has been answered in various ways, but often through the use of parataxa incongruent with the ICZN. This noncompliance with the Code not only threatens nomenclatural stability, but can artificially inflate the perceived information content and quality in the fossil record. Here, we argue for the use of collective groups sensu ICZN, provide an overview of the relevant Articles, and give examples from our research of how to approach reclassification of 'formal genera'.

02:25 Assessing the conservation status of Canada's bee fauna

Presenter: Jennifer M. Heron

Jennifer M. Heron (British Columbia Ministry of Water, Land and Resource Stewardship, Surrey, Canada); Cory S. Sheffield (Royal Saskatchewan Museum, Regina, Canada)

Conservation status assessments are crucial to identify at-risk species, focus conservation efforts, inform policy under federal and provincial acts, and monitor the effectiveness of protection and recovery actions. These assessments also help prevent irreversible biodiversity loss by providing the probability of a species' risk of extinction or extirpation, allowing for timely intervention before species disappear entirely. As part of the General Status of Species in Canada Wild Species assessment, the conservation status assessments for Canada's complete list of bee fauna were first completed in 2015 and updated in 2020 using NatureServe methodologies.

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Using this prioritized list, those species deemed most at-risk are then prioritized for status report preparation and assessment by the Committee on the Status of Endangered Species in Canada (COSEWIC), which uses the International Union for the Conservation of Nature (IUCN) Red List Categories and Criteria. COSEWIC uses scientific and Indigenous knowledge to assess a species conservation status, and the recommends species to the federal government for listing under the Species At Risk Act (SARA). This talk will focus on the approach to assessing the conservation status of Canada's bee fauna, information and methods used where little data is available, knowledge gaps and challenges to applying both IUCN and NatureServe criteria, how species are recommended for national assessment, and how individuals can contribute to the national conservation status assessment process.

02:40 New Species, New Genomes, and New Endosymbionts: Investigating Ficus Galls in Hawai'i

Presenter: Miles Zhang

Y. Miles Zhang (USDA ARS, Hilo, USA); Amelia R.I. Lindsey (University of Minnesota, St. Paul, USA); Renee L. Corpuz (USDA ARS, Hilo, USA); Angela N. Kauwe (USDA ARS, Hilo, USA); Karl N. Magnacca (University of Hawai'i at Mānoa, Honolulu, USA); Scott M. Geib (USDA ARS, Hilo, USA); Sheina B. Sim (USDA ARS, Hilo, USA)

Josephiella is a small genus of fig-galling wasps (Chalcidoidea, Epichrysomallidae) that induce galls on *Ficus* species. *Josephiella microcarpae* forms small blister-like leaf galls, and has been recorded across many regions where these ornamental trees are cultivated, although its native origin remains unknown. *Josephiella manana* is a new species that induces stem galls and was first identified in Hawai'i. Both species exhibit highly female-biased sex ratios, suggesting reproduction through thelytokous parthenogenesis. We generated chromosome-level genome assemblies for both *J. microcarpae* and *J. manana*, along with complete genomes of their associated *Wolbachia* symbionts.

02:55 Hong Kong Hymenoptera Biodiversity

Presenter: Alexey Reshchikov

Alexey Reshchikov (The University of Hong Kong); Michael Boyle (The University of Hong Kong)

Despite a large bulk of studies on the Oriental Hymenoptera, species identification in Hong Kong is still difficult, as generally of the fauna of the Oriental Region. Available checklists of Hong Kong species include mostly aculeate wasps (Dover 1926; Barthélémy & Guénard 2025) and consist of 350 species from 13 families (without ants and bees), whereas other Hymenoptera groups remain completely unstudied, e.g. there are records of only 35 species of Ichneumonidae in Hong Kong (Taxapad 2015, Reshchikov et al 2019). Even relatively well studied Aculeata is challenging, thus new findings and new species are constantly being discovered. We conducted two years survey in the region with extensive sampling and provided the first baseline of the diversity, distribution and status of Hong Kong's wasps.

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03:10 Hymenopteran adventures on Bush Blitz - field work adventures and wasps galore.
Presenter: Erinn Fagan-Jeffries

Erinn P. Fagan-Jeffries (University of Adelaide, Adelaide, Australia); Ben A. Parslow (South Australian Museum); Tiahni M. Bament (The University of Adelaide)

Bush Blitz is an Australian program where scientific expedition teams travel to remote survey sites and document the biodiversity of the area for two weeks. In this informal presentation, I'll share some of the adventures the wasp team have had whilst on Bush Blitz expeditions in the last few years, including how we are implementing rapid barcoding pipelines to quickly determine and report on the incredible diversity of wasps at these remote locations. Stories may feature helicopters, light traps and Malaise traps in impossible locations, vehicle nets in the middle of the desert, risking death by brown snakes at lunchtime, and taxonomy blood-pacts leading to intercontinental collaborations.

03:25 Taxonworks - a chalcidoid/host database that needs biocontrol help!
Presenter: John Heraty

John Heraty (University of California, Riverside, USA); James B. Woolley (Texas A&M University, College Station, USA), Roger Burks (University of California, Riverside, USA); Matt Yoder (Illinois Natural History Survey); Deb Paul (Illinois Natural History Survey)

Chalcidoidea (Hymenoptera) are one of the most diverse and beneficial group of wasps for the control of other insects. The Universal Chalcidoidea Database (UCD) is curated in the taxonomic workbench Taxonworks. The UCD includes a comprehensive list of the various generic combinations and misspellings that have been used in the literature. In all nearly 50,000 different combinations and spellings are recorded. All names are supported by a citation of the published source from where they were obtained as are all taxonomic and nomenclatural acts noted within the database. Also included are over 120,000 host/associate records (including associations with food plants of the hosts) and more than 140,000 distribution records. A curatorial group of systematists use biweekly meetings to keep the taxonomic changes up to date, but we are desperate for curators to update the host association and distribution literature records. We need help!

03:40 Two species of inquiline are one species of parasitoid
Presenter: Guerin Brown

Guerin E. Brown (University of Iowa, Iowa City, USA); Brady Bird (University of Iowa, Iowa City, USA); Charles Davis (Pennsylvania State University, State College, USA); Corey J. Lewis (University of Iowa, Iowa City, USA); Louis F. Nastasi (University of Iowa, Iowa City, USA); Nicolas Sierra (University of Iowa, Iowa City, USA); MaKella J. Steffenson (University of Iowa, Iowa City, USA); Dane Sweezer (University of Iowa, Iowa City, USA); Christian Weinrich (University of Iowa, Iowa City, USA); Andrew A. Forbes (University of Iowa, Iowa City, USA)

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Parasitism is one of the most prevalent life history strategies for Hymenoptera. Consequently, parasitoid wasps are often incredibly diverse both in terms of species-richness and host range. This remarkable diversity is extensively represented in parasitic relationships with the cynipid wasps (Hymenoptera: Cynipidae), which form galls on oak trees. Galls are complex structures of modified plant tissue created as part of the wasp's reproductive strategy. Additionally, each gall wasp species is attacked by myriads of parasitic wasps. These parasites exploit galls through feeding on the gall-inducing larva inside until its eventual demise (parasitoidism), the gall tissue itself (inquilinism), or other parasites within the gall (hyperparasitism). Despite this diversity, the feeding ecology of many North American oak-gall-associated parasite genera remains poorly documented. Wasps in the genus *Euceroptres* (Hymenoptera: Figitidae), found throughout eastern North America, exemplify this problem, having long been assumed to be inquilines based on limited evidence. Dissections, micro-CT scanning, and DNA barcoding revealed *Euceroptres* exclusively within unaltered gall wasp chambers feeding on the gall-inducer larva, suggesting parasitism rather than inquilinism. While sequencing larvae and adult *Euceroptres*, we found that two species in eastern North America, *E. whartoni* and *E. primus*, cluster within the same clade of an ultra-conserved element (UCE) phylogeny constructed from >1500 loci, supporting a single-species hypothesis. Morphometric comparisons support this finding, warranting synonymization of *E. whartoni* with *E. primus*.

SESSION 3, chaired by Alana McClelland

06:55 From Shadows to Clarity - The GBOLIII: Dark Taxa approach to training taxonomists

Presenter: Cristina Vasilita

Cristina Vasilița (Karlsruhe Institute of Technology (IPS), Eggenstein-Leopoldshafen; State Museum of Natural History, Entomology, Stuttgart; University of Hohenheim, Biological Systematics (190w), Stuttgart, Germany) Jonathan Bremer (Florida State Collection of Arthropods, Division of Plant Industry, Gainesville, USA), Ovidiu Alin Popovici (University „Alexandru Ioan Cuza” from Iași, Faculty of Biology, Iași, Romania), Lars Krogmann (State Museum of Natural History, Entomology, Stuttgart; University of Hohenheim, Biological Systematics (190w), Stuttgart, Germany), Elijah Talamas (Florida State Collection of Arthropods, Division of Plant Industry, Gainesville, USA)

Within the framework of the German Barcode of Life (GBOL) III: Dark Taxa initiative, the parasitoid wasp genus *Gryon* was comprehensively revised using an integrative approach that combined DNA barcoding with biogeography and morphological study. A total of 10 species are now recognized from Germany, eight of which are newly recorded for the country: *G. cydnoide*, *G. divisum*, *G. hospes*, *G. lala*, *G. lymantriae*, *G. misellum*, *G. opacum*, *G. pedestre*, *G. rubrigaster*, and *G. sagax*. Two additional European species, *G. moczari* and *G. szelenyii*, were also redescribed. The study provides an identification key for females, type images, and distribution maps to support reliable identification. This revision represents the first comprehensive treatment of *Gryon* in Germany, revealing a previously hidden diversity and underscoring the power of integrative taxonomy to illuminate Europe's understudied "dark taxa". It also serves as a proof of concept for the innovative approach utilized by GBOLIII: Dark Taxa for the training of future taxonomists within a collaborative and "cross-continental" network.

07:10 I fought Girault, and Girault won..... or did he?

Presenter: Alana McClelland

Alana McClelland (University of Adelaide, Adelaide, Australia); Erinn Fagan-Jeffries (University of Adelaide, Adelaide, Australia); Michelle Guzik (University of Adelaide, Adelaide, Australia); Andy Austin (University of Adelaide, Adelaide, Australia); Steve Cooper (University of Adelaide, Adelaide, Australia); Juanita Rodriguez (CSIRO, Canberra, Australia).

There is an inherent problem with many historically described species of *Psyllaephagus*, a genus of parasitoid wasps with an intractable taxonomic legacy, left by the late, (but not terribly great) A.A. Girault, that has been a major obstacle to progressive taxonomy of the group. *Psyllaephagus* are extremely important for the biocontrol of their psyllid hosts, but current descriptions lack true diagnostic information which is needed for species identification. To address Girault's mess, this study created a framework that incorporates multiple lines of molecular, biological and morphological evidence to describe new species, create the first ever phylogeny of the genus and delimit 29 new species. A Girault themed side quest uncovered secrets that can only be revealed during Hymathon, so be sure to stay awake and tune in!

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07:25 Notes from the field: Ant-ing through the central U.S. plains states

Presenter: Jill Oberski

Jill Oberski (Senckenberg Natural History Museum and Nature Research Institute/Frankfurt/Germany)

In the summer of 2025, I undertook a three-week field expedition through lesser-travelled regions of the United States on the search for pyramid ants (Formicidae: *Dorymyrmex*), which are the focus of my ongoing taxonomic revision. Although these ants are abundant and conspicuous, most records online (e.g. AntWeb) are concentrated heavily in west and southeast states. Records from central, agriculture-heavy plains states—e.g., Kansas, Oklahoma, and north Texas—are severely lacking, and when museum specimens exist, they are usually very old and/or not databased. The goals of this trip were threefold: 1) collect fresh material for DNA extraction; 2) target the geographical collection “gap,” which is also the overlap zone of the western and eastern *Dorymyrmex* faunas; and 3) visit 9 major museum collections along the way to examine material and make note of species occurrences. Additionally, this was an opportunity to gather material in preparation for starting my research group at an undergraduate college in 2026, and my first time leading an expedition with students in tow. Here, I will present an overview of my trip, including my route, collecting methods, the surprising diversity of habitats and landscapes I encountered, and fascinating natural history observations like social parasitism and nuances in nest building.

07:40 The Lord of the Wasps: The Two Realms — discoveries of *Doddifoenus* Bouček (Chalcidoidea: Pelecinellidae) from Vietnam and Taiwan

Presenter: Taisuke Kawano

Taisuke Kawano (The Kyushu University Museum/Fukuoka/Japan); Hsuan-Pu Chen (Laboratory of Systematic Entomology, Graduate School of Agriculture, Hokkaido University/Sapporo/Japan); Namiki Kikuchi (Toyohashi Museum of Natural History/Toyohashi/Japan)

The genus *Doddifoenus* Bouček represents one of the most extraordinary and elegant lineages among chalcidoid wasps. It belongs to the family Pelecinellidae, which was previously included within Pteromalidae but has since been recognized as a distinct family. This genus possesses an extremely elongated body with a striking bluish metallic sheen, reaching up to 40 mm in length including the ovipositor in females, representing the largest body size known in the Chalcidoidea. The genus was established by Bouček in 1988 to include two species, *D. australiensis* (Dodd, 1927) from northern Australia and *D. rex* Bouček, 1988 from Papua New Guinea. Despite its remarkable morphology, subsequent discoveries of *Doddifoenus* have been rare, with only two additional species described to date: *D. wallacei* Burks & Krogmann, 2009 from Laos and Thailand, and *D. burksi* Gupta, Sankararaman & Hemanth, 2022 from India.

In this presentation, we report the discoveries of *Doddifoenus* from Vietnam and Taiwan—two realms within the Oriental region. These represent the first records of the family Pelecinellidae from both countries. Notably, the Taiwanese specimen represents the northernmost known occurrence of the family, extending its distribution range farther across the Oriental realm.

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Through morphological and molecular data examination, we trace the identity of these “small giants” long hidden in the shadows of subtropical forests. Field observations further reveal glimpses of their secret lives, offering new insights into the bionomics of this enigmatic lineage and marking a small yet meaningful step in the continuing journey to understand the “lords” of the wasps.

07:55 Investigating the biodiversity and systematics of Australian rogadine parasitoid wasps using phylogenomics and DNA barcoding (Hymenoptera, Braconidae, Rogadinae) (COMPETITION)

Presenter: Mollie-Rosae Slater-Baker

Mollie Slater-Baker (The University of Adelaide, Adelaide, Australia); Michelle Guzik (The University of Adelaide, Adelaide, Australia); Juanita Rodriguez (Australian National Insect Collection CSIRO National Research Collections Australia, Canberra, Australia); Erinn Fagan-Jeffries (The University of Adelaide & South Australian Museum, Adelaide, Australia)

Rogadinae is a subfamily of parasitoid wasps within the mega-diverse family Braconidae. Rogadines are commonly known as ‘mummy wasps’ due to their unique ability to mummify their caterpillar hosts. These wasps are found worldwide and are commonly collected throughout Australia, however only a fraction of their estimated diversity has been formally documented. A particularly interesting but poorly known tribe, the Betylobraconini, is endemic to Australia and surrounding regions, making it an important target for taxonomic revision and further study. This project uses DNA barcoding for rapid assessment of the diversity of Rogadinae in Australia, along with a short-read whole-genome sequencing approach to obtain ultra-conserved elements (UCEs) and mitochondrial genomes for examining phylogenetic relationships within the tribe Betylobraconini. Molecular methods are used alongside efficient morphological examination to document and explore the diversity of the Australian Rogadinae, and provide a foundational taxonomic and systematic framework for the tribe Betylobraconini. This rapid talk will present new findings from preliminary phylogenomic analyses of Betylobraconini, and highlight key results on the diversity of Australian Rogadinae based on DNA barcodes.

08:00 A taxonomic revision of the genus *Paraphylax* (Ichneumonidae: Phygadeuontinae) in Australia.

Presenter: Olivia Portmann

Olivia Portmann (The University of Adelaide, Adelaide, Australia); Erinn Fagan-Jeffries (The University of Adelaide, Adelaide, Australia); Ben Parslow (South Australian Museum, Adelaide, Australia)

Paraphylax is a genus of parasitoid wasps within the subfamily Phygadeuontinae. While it is currently represented by only four described species in Australia, a quick glance into any Australian museum's collection is likely to reveal a treasure trove of undescribed species with a diverse range of host relationships. For this taxonomic review, we sourced 188 *Paraphylax* specimens from museum collections, field expeditions, and from the citizen science project 'Insect Investigators'. These specimens were sequenced for the mitochondrial COI gene as well as the nuclear Wingless (WG) gene.

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Newly generated molecular data was combined with DNA sequences available on public databases, and molecular delimitation analyses were conducted to estimate the group's diversity within Australia. Thirteen new species of *Paraphylax* were also described using a combination of molecular delimitation methods and morphological evaluation. Although this study only includes a fraction of the *Paraphylax* material likely to be held in museum collections, it is intended to provide a foundational framework to assist in future work focused on documenting and describing Australia's phygadeuontine biodiversity.

08:05 Pollinator communities in the smallholder farmland in southern China: stressors and conservation

Presenter: Xiaoyu Shi

Xiaoyu Shi (Institute of Zoology, CAS, Beijing, China)

Pollinators are declining around the world. This presentation focuses on the pollinator communities (including bees) in the small-holder farmland in the southern China to explore the stressors for these valuable insects. We explore the impact of farmland consolidation, pollution and agricultural intensification on the crop pollinators.

08:10 The first known troglomorphic, eyeless spider wasp (Hymenoptera: Pompilidae) from the Nullarbor Caves, Western Australia

Presenter: Juanita Rodriguez

Juanita Rodriguez (Australian National Insect Collection, Canberra, Australia); Andrew D Austin (University of Adelaide, Adelaide, Australia); Jessica R. Marsh (University of Adelaide, Adelaide, Australia)

Surveys of caves of the Nullarbor Plain, Western Australia revealed a cave containing a remarkable assemblage of exceptionally well-preserved mummified arthropods, comprising Araneae, Blattodea, Coleoptera and Chilopoda, all of which exhibit high levels of troglomorphism, lacking eyes and showing a number of other adaptations. Of note, this arthropod assemblage also included a pompilid wasp which is eyeless and brachypterous and unlike any member of the family known globally. Here we describe this amazing wasp as *Troglopompilus miracaecatus* Rodriguez & Austin gen. & sp. nov., and discuss its remarkable morphology, and possible affinities and biology.

09:35 KEYNOTE: The secret world of wasps

Presenter: Seirian Sumner, University College, London

Seirian Sumner is a celebrated British entomologist who completed her PhD at University College London, where she studied the reproductive conflicts of primitively eusocial hover wasps. This was followed by a postdoc at the University of Copenhagen on the social parasitism of leaf cutting ants. Succeeding this, she held a number of independent fellowship positions before taking a senior lectureship position at the University of Bristol, returning to University College London in 2016. Here, she currently leads the Sumner Lab, where her active and engaged lab seeks to understand the evolution of sociality and social behaviour, from the genome to phenotype, through the

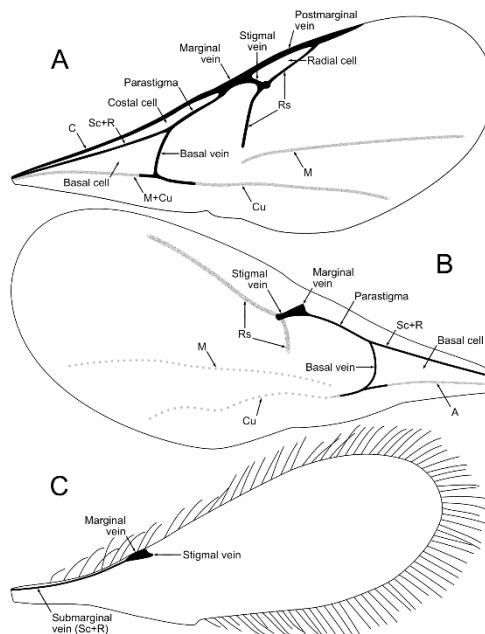
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interplay of genes, behaviour and the environment. She is also author of the wonderful, and highly acclaimed “Endless Forms: The Secret World of Wasps”, a beautifully written, funny and engaging book which will convince even the most ardent of wasp haters why they should understand and love wasps



2024 winner in the category ‘Photography – Hymenopterists in action: *Lenses on the littlest lives*

By Madalene Giannotta



2024 winner in the category ‘Illustration – Scientific illustrations: *Fore wings of three diapiiid wasps*

By Kendrick Fowler

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SESSION 4, chaired by Emma Kärrnäs and Zoltán László

13:05 KEYNOTE: How fig wasps built communities worldwide? Pollinators, gallers, parasitoids and endless family drama

Presenter: Jean-Yves Rasplus, University of Montpellier

Jean-Yves Rasplus is Research Director at Institut Nationale pour l'agriculture, l'alimentation et l'environnement (INRAE) in Montpellier, France. He completed his PhD in parasitoid community ecology at the University of Paris-Orsay in 1988. Over his long career, he has worked on the taxonomy, ecology and evolutionary biology of a wide range of organisms, Coleoptera, Lepidoptera, Hemiptera and especially Hymenoptera as well as taxonomy and evolution of fig trees. His main research focus has been chalcidoid wasps – notably fig wasps and other groups of importance for biological control. He has made major contributions to Chalcidoidea phylogenomics at both superfamily and family levels (e.g. Agaonidae, Chalcididae, Eulophidae, Eurytomidae, Pteromalidae)

13:55 What can 5 months of intensive sampling by citizen scientists tell us about nocturnal ichneumonids? (COMPETITION)

Presenter: Iona Cunningham-Eurich

Seirian Sumner (UCL, London, UK); Gavin Broad (NHM, London, UK)

Biodiversity monitoring is essential to understand how anthropogenic impacts threaten ecological communities; however, most monitoring is biased towards certain taxonomic groups. Parasitoid wasps comprise one such group that remain understudied, despite being ecologically and taxonomically diverse. Nocturnal ichneumonids are of particular interest as potential bioindicators of insect ecosystems. They are relatively easy to sample at light traps and some common genera, such as *Netelia* and *Ophion*, are predators of Lepidoptera, a group known to be impacted by anthropogenic change. Here, we present the results of a collaboration with 130 moth-trappers across the UK to sample the parasitoid 'bycatch' from their traps. We collected nearly 7,000 wasps (over 6,700 in our main sampling period, May-September) of 198 taxa to produce a near complete UK inventory of our target nocturnal species of relatively large, orange wasps, belonging to the genera *Netelia* (19/23 species), *Ophion* (31/35), *Enicospilus* (), *Perilissus* (), *Eremotylus* (2/2) and *Stauropoctonus* (1/1). Using a curated dataset of *Netelia* records dating back to the 19th Century, we show that the samples collected in our project are representative of UK *Netelia* species diversity and general phenological trends (at the month level). We also find that we are able to produce species distribution models that are comparable to the last 50 years of data. Overall, this project demonstrates that a focused, seasonal survey of nocturnal ichneumonids can provide major insights into their diversity and distributions, highlighting their potential utility as bioindicators of populations and distribution of insect predators.

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14:10 Catch Me If You Can: Comparing Trap Strategies for Hymenoptera in Eastern Romanian Meadows (COMPETITION)

Presenter: Ana Chiosa

Ana-Maria Chiosa (Faculty of Biology, Alexandru Ioan Cuza University of Iași, Iași, Romania / Stuttgart State Museum of Natural History, Stuttgart, Germany); Ovidiu Alin Popovici (Research Group in Invertebrate Diversity and Phylogenetics, Faculty of Biology, Alexandru Ioan Cuza University of Iași, Iași, Romania)

Given the high diversity and behavioral complexity of Hymenoptera, sampling efficiency strongly affects data quality and representativeness. In this context, the study aimed to compare the performance of the Malaise trap and yellow pan traps across three meadow habitats: riparian, xerophilous, and overgrazed during May-August 2024, in the eastern vicinity of the Eastern Carpathians (Romania), a region where Hymenoptera, particularly microhymenopterans, are still insufficiently documented.

The sampling methodology included one Malaise trap placed centrally and 40 yellow pan traps arranged in two concentric circles with radii of 5 and 10 meters. Each month, traps were installed simultaneously, starting with the riparian meadow, and left in the field for one day. After the samples were collected, the same protocol was applied successively in the xerophilous and overgrazed meadows. After completing the rotation through all habitats, traps were removed and reinstalled the following month.

Throughout the study, 2,748 individuals were collected, representing 37 taxa. The results highlight that trap efficiency is closely linked to the behavioral and ecological traits of Hymenoptera. Interception-based methods favor active, mobile parasitoids, while visually attractive traps perform better for species adapted to open, sun-exposed habitats or those associated with ground-level activity. Statistical analyses showed no significant differences among habitats in taxonomic composition when each trap type was considered separately.

In conclusion, the MT provided higher species diversity, while YPT ensured a more constant taxonomic structure. Together, they offer a more reliable picture of Hymenoptera diversity and contribute to improving knowledge of local biodiversity.

14:25 Phylogenomics of Tetrastichinae (Hymenoptera: Eulophidae) demonstrate a need for a revision of genera (COMPETITION)

Presenter: Emma Kärrnäs

Emma Kärrnäs (Lund University, Lund, Sweden); Christer Hansson (Lund University, Lund, Sweden); Jadranka Rota (Lund University, Lund, Sweden); Niklas Wahlberg (Lund University, Lund, Sweden)

Despite their immense ecological and economic importance, jewel wasps (Chalcidoidea) are one of the very least known groups of insects. They exhibit an astonishing species diversity – the group is thought to perhaps encompass as many as 500 000 species – and whenever studied taxonomically, new species are discovered. The largest jewel wasp family Eulophidae is no exception. The 6 000 species described to date most certainly only represent a fraction of the true species diversity, and little is known about the phylogenetic relationships of many groups within Eulophidae.

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The family Eulophidae is divided into five subfamilies of which the largest one, Tetrastichinae, has long proven notoriously challenging for taxonomists because of the lack of defining morphological characters of many groups within the subfamily. Currently, no large-scale detailed phylogeny of the generic relationships within Tetrastichinae has been published. To remedy this gap of knowledge, we extracted the whole genomes of 180 tetrastichines for reconstructing the first detailed phylogeny at the genus level, with an emphasis on the *Tetrastichus* group within Tetrastichinae. By extracting mitochondrial genes, ultra-conserved elements and BUSCO genes from the genomes, we show that several of the genera within Tetrastichinae are para- or polyphyletic, questioning the validity of the current classifications within the subfamily.

14:40 Illustrated checklist of the bees (Hymenoptera: Apoidea) of the Toco region, Northeastern Trinidad (COMPETITION)

Presenter: Zoe BeDell

Zoe BeDell Zoe BeDell (Texas A&M University/College Station/Texas/USA) ; James Woolley (Texas A&M University/College Station/Texas/USA).

This study surveyed bees (Hymenoptera: Apoidea) in the Toco region of northeastern Trinidad. Yellow, blue, red, and white pan traps, a Malaise trap, aspirators, and various sweep netting excursions were used to survey the area. Twelve locations were sampled around the region over the span of 10 active collection days (from 27 May to 4 June, and 9–10 of June, 2023). A total of 148 specimens representing 22 different species were collected. Individuals were classified into one of the three families Apidae, Halictidae, or Megachilidae. Identification of all species to genus, subgenus or species were conducted at Texas A&M University using standard taxonomic references. Three photos of each species were taken (lateral, dorsal, and frontal) using focus-stacking software to provide a visual guide to the bee fauna in the area. When species were collected while foraging on a plant, the host plant was identified. It was observed that most of the host plants had white flowers. It was also observed that hypermetamorphic triungulin coleopterans infested several *Epicharis* bees, and further research of these parasites could be a promising future research topic for this region.

14:55 Chromosomes of *Aganaspis daci* and a review of known karyotypes of the family Figitidae (Hymenoptera)

Presenter: Vladimir Gokhman

Vladimir Gokhman (Russian Entomological Society/Moscow/Russia); Feliciano Pica (Institute for Sustainable Plant Protection, National Research Council of Italy/Portici/Italy); Fortuna Miele (Institute for Sustainable Plant Protection, National Research Council of Italy/Portici/Italy); Francesco Nugnes (Institute for Sustainable Plant Protection, National Research Council of Italy/Portici/Italy)

Aganaspis daci (Weld, 1951) (Hymenoptera: Figitidae: Eucoilinae), an important larval-pupal parasitoid of several tephritid species (Diptera), was recently found for the first time in Campania (southern Italy). Its karyotype is studied from a laboratory stock using chromosome morphometry and staining with acridine orange. This species has $n = 9$ and $2n = 18$, with the very large first metacentric chromosome, which is more than twice longer than the remaining ones. The second and third chromosomes are represented by a submetacentric / subtelocentric and an acrocentric of similar size respectively. The

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remaining chromosomes are slightly shorter than the preceding ones. They are either acrocentric (the fourth-fifth and eighth-ninth chromosomes), metacentric (the sixth chromosome) or metacentric/submetacentric (the seventh chromosome). The sixth metacentric presumably carries a single nucleolus organizing region (NOR). Staining with acridine orange provides homogeneous staining of all chromosomes. A brief review of the chromosome study of parasitoids of the family Figitidae, which have $n = 5$ to 11, is given. The haploid karyotype of ten chromosomes apparently represents the ancestral character state at least for the best studied subfamily Eucoilinae. In turn, chromosome sets of several species are characterized by $n = 9$ and very large first metacentrics, which likely resulted from independent chromosomal fusions.

15:10 Using morphology, a mitochondrial and a molecular marker to delimit species in the genus *Ooencyrtus* (Hymenoptera, Encyrtidae)

Presenter: Lucian Fusu

Lucian Fusu ('Al. I. Cuza' University, Faculty of Biology, Iași, Romania); Andrada Jugariu-Vicoleanu ('Al. I. Cuza' University, Faculty of Biology, Iași, Romania); Patricia-Maria Tudosie ('Al. I. Cuza' University, Faculty of Biology, Iași, Romania)

DNA barcoding represents a powerful tool for species identification and delimitation, not only complementing morphological methods of species delimitation but also accelerating species discovery. Using just one molecular marker has limitations and may overestimate species counts due to factors like introgression or presence of pseudogenes. This study aims to complement the molecular marker COI with ITS2, in order to identify and characterize species of the *Ooencyrtus telenomicida* species group. These wasps are egg parasitoids of various insects, including major pests in the orders Lepidoptera and Hemiptera. The analysis was carried out on *Ooencyrtus* individuals collected from various regions of Europe. DNA was extracted using a non-destructive method based on the DNeasy Blood & Tissue Kit (Qiagen), PCR amplification was performed with the Folmer primers and primers specific for the ITS2 region. The congruence between the nuclear and mitochondrial phylogenies supports the existence of several cryptic species.

15:35 Sugar feeding by adult ichneumonoid and stephanoid wasps (Hymenoptera) in dry evergreen forest, Thailand (COMPETITION)

Presenter: Kittipum Chansri

Kittipum Chansri (Chulalongkorn University, Bangkok, Thailand); Rath Pichyangkura (Chulalongkorn University, Bangkok, Thailand); Karan Wangpaiboon (Chulalongkorn University, Bangkok, Thailand); Donald L J Quicke (Chulalongkorn University, Bangkok, Thailand); Buntika A Butcher (Chulalongkorn University, Bangkok, Thailand)

Many temperate parasitoid wasp species are known to consume sugars as adults. However, little is known about their adult nutritional ecology in the tropics. Here we present the results of sugar analyses of adult parasitoid wasps collected in a dry evergreen forest in Thailand. Sugars were detected using cold anthrone tests, and the results were validated for a subsample using HPAEC-PAD. Sugars were detected in 90% of stephanids ($n=218$), 81% of ichneumonids ($n=563$) and 60% of braconids ($n=1665$).

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We examined whether the presence or absence of sugar and the amount detected were influenced by family (Braconidae, Ichneumonidae, Stephanidae), body size, sex, life history strategy (idiobiont, koinobiont) or weather (rainy vs. drier months). Both the incidence of sugar feeding and the amount detected were strongly positively correlated with body size and season. Larger individuals were significantly more likely to be sugar-positive, as well as individuals collected in the dry season. However, family (Braconidae vs. Ichneumonidae) was also a significant factor for the incidence of sugar feeding. Sugar-feeding prevalence was significantly associated with life history strategy in both families, but in opposite directions: koinobiont ichneumonids were more likely to have fed on sugar, whereas koinobiont braconids were less likely. Sugar feeding by braconid wasps was significantly more likely during rainy months. When interactions between variables were taken into account, these relations also changed with weather and weather: size and weather:size:life history interactions were significant for ichneumonids, but for braconids the significant explanatory variables were size, life history and size: life history interaction.

15:40 Shedding fluorescent light on insect courtship (COMPETITION)

Presenter: Matvey Nikelshparg

*Matvey I. Nikelshparg (Gumilyov Eurasian National University, Astana, Kazakhstan);
Vasily V. Anikin (Chernyshevsky Saratov State University, Saratov, Russia)*

Hymenopteran insects exhibit vivid coloration, which they employ in predator–prey interactions, camouflage, and mating behavior. While numerous studies have investigated these insects under white light conditions, few have documented morphological observations of specific species in the blue (Ex: 436 nm / Em: 480 nm), green (Ex: 470nm / Em: 525 nm), yellow (Ex: 500 nm / Em: 535 nm), and red (Ex: 560 nm / Em: 645 nm) parts of the spectrum. In this study, we observed several insect groups - Eurytomidae, Eupelmidae, and Cynipidae - across different regions of the spectrum. We found that certain body parts involved in mating rituals, specifically the wings, eyes, and legs, exhibit fluorescence under blue, green, and red light. The fluorescence in all insect species was most intense under blue light. Furthermore, we recorded mating behaviors in various species, which differed depending on the group, and correlated these behaviors with the body parts that fluoresce under blue light. Our findings suggest that blue fluorescence of specific body parts may serve as species-specific markers, potentially aiding in the identification of closely related species. This discovery opens new perspectives for the study of insect morphology and mating behavior and enhances our understanding of the role that different spectral regions play in natural communication and evolution.

15:45 New species and new records of gall wasps on Rosaceae

Presenter: Wenqian Hu

Wenqian Hu (Sichuan university, Chengdu, China)

The discovery of novel species from genera such as *Diastrophus*, *Orthopelma*, *Diplolepis*, and *Synergus*, as well as new distribution records for the genus *Liebelia*, underscores the rich yet underexplored wasp diversity in eastern Asia.

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15:50 The Hymenoptera of Germany and beyond: a synopsis of the results from GBOL III: Dark Taxa

Presenter: Ralph Peters

Ralph S. Peters (Leibniz Institute for the Analysis of Biodiversity Change, Museum Koenig Bonn, Germany); on behalf of the GBOL III: Dark Taxa consortium

The research and training initiative GBOL III: Dark Taxa has been studying various groups of parasitoid Hymenoptera (and of Diptera) from Germany and Central Europe for the last five years, in a large international consortium led by early-career researchers and senior taxonomic experts.

We were aware that even in one of the best-studied countries of the world, many species had been unrecorded. Based on the integrative taxonomic analyses of tens of thousands of specimens, we can provide numbers for the species in our selected taxa that are even beyond our expectations. We found an additional 970–1225 species for Germany, an average increase of 48–61% between groups. Using these numbers for estimates on the total numbers of species, we can expect an increase of at least 113%. This demonstrates that the basis for downstream biodiversity research, conservation and knowledge transfer is still very much incomplete and that the roles of parasitoid wasps on species- and community-level in natural and agricultural ecosystems are very far from understood.

We use these striking results to highlight the need for intensified biodiversity discovery in Germany, Europe, and globally. Furthermore, our diverse consortium developed an outlook on the future of biodiversity research and taxonomy, through the eyes of the ECRs, facing both unprecedented possibilities and a shattering polycrisis, including massive biodiversity loss and the rise of science denialism.

GBOL III: Dark Taxa has provided major steps forward but also—sometimes painfully—revealed that there are still huge gaps left even in our basic understanding of biodiversity.

16:05 Megabarcoding-driven diversity mapping of Darwin wasps to evaluate two national parks protection plans

Presenter: Aleida Ascenzi

Aleida Ascenzi (University of Tuscia, Viterbo, Italy); Giorgia Scrivano (University of Tuscia, Viterbo, Italy); Bernardo F. Santos (Museum für Naturkunde, Berlin, Germany); Filippo Di Giovanni (University of Siena, Siena, Italy); Pierfilippo Cerretti (Sapienza University, Rome, Italy); Daniele Canestrelli (University of Tuscia, Viterbo, Italy)

Parasitoid wasps are extraordinarily diverse, yet major gaps persist in their taxonomy, genetics, biogeography and ecology. Abiotic drivers of their diversity and distribution also remain poorly resolved, finally hindering conservation planning. To evaluate whether hyperdiverse insect taxa benefit from current conservation actions—and to test the role of several environmental factors—we conducted extensive Malaise-trap sampling in two Italian temperate national parks (central Apennines and southern Calabria) dominated by beech and mixed forests. Using a megabarcoding workflow, we processed ~20,000 Darwin wasps (Ichneumonidae): DNA was extracted non-destructively, cytochrome c oxidase I (COI) was sequenced via Next-Generation Sequencing, and barcodes were clustered into Molecular Operational Taxonomic Units

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(MOTUs) using Objective Clustering algorithm. In both parks, we detected pronounced species turnover between sampling sites, consistent with communities structured by habitat heterogeneity. Existing protection plans appear to only partially explain the turnover.

As a next step, we will advance primary taxonomy by validating molecular clusters with expert revision and species-name assignment, thereby calibrating COI barcode performance for species delimitation and identification across several subfamilies within an integrative framework. This combination of large-scale sampling, high-throughput barcoding, and taxonomic validation will enable functional characterization of wasp communities and open new avenues for studying their ecology and behavior.

16:20 Reframing the misunderstood: A communication model for inclusive insect conservation through wasp representation

Presenter: Kiril Arsovski Przo

Arsovski Kiril (Institute of communication studies, Skopje, Macedonia)

Insect conservation remains hindered by taxonomic bias, where public and institutional support disproportionately favours charismatic groups such as bees and butterflies. Social wasps represent one of the most ecologically influential yet socially maligned groups of insects. Despite their essential functions in pollination, biological pest regulation, and ecosystem stability, public perception of social wasps remains overwhelmingly negative, shaped by fear, aggression stereotypes, and cultural neglect. This bias constrains both research attention and conservation support, creating a significant gap in insect biodiversity protection. The Reframing Model for Wasp Communication (RMWC) is proposed as a theoretically grounded framework to transform public understanding and representation of social wasps. Integrating environmental communication principles, affective reframing, and dual-process persuasion strategies, the model employs gain-framed messaging and multimodal outreach to reposition social wasps as cooperative, ecologically valuable, and evolutionarily complex organisms. Drawing from environmental communication and cognitive persuasion theories, the model integrates gain-framed messaging, affective reframing, and multimodal dissemination strategies to shift public attitudes toward wasps. Central to the RMWC is an iterative feedback mechanism that evaluates changes in perception, emotional response, and conservation-oriented behaviour. By systematically addressing psychological and cultural barriers to wasp appreciation, the RMWC can promote empathy and behavioural intention toward underrepresented insect taxa. Its application across education, media, and citizen science contexts provides a replicable approach for transforming negative narratives into pro-conservation attitudes. Ultimately, the model can contribute to a more inclusive framework for insect biodiversity conservation, aligning public perception with ecological reality and enhancing the effectiveness of global conservation communication strategies.

16:35 The First (Somewhat) Comprehensive UCE Phylogeny of the Trigonalidae

Presenter: Zachary Griebenow

Zachary Griebenow (Colorado State University, Fort Collins, USA); Marek Borowiec (Colorado State University, Fort Collins, USA); Stephanie Eskew (Colorado State University, Fort Collins, USA); Vilas Brown (Colorado State University, Fort Collins, USA)

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The vanishingly rare family Trigonidae (Apocrita: Trigonoidea) constitute the largest radiation of hyperparasitoids in the Hymenoptera. Infamous for their convoluted ontogeny, some are primary parasitoids of social wasps (Vespidae: Vespinae, Polistinae), displaying what appears to be an evolutionary trajectory unique in the Hymenoptera. Until now, published molecular sampling of the Trigonidae for phylogenetic inference has been lacking—and the high evolutionary lability of their morphology has stymied the few efforts at inferring trigonid phylogeny from phenotype. We here present the status of our efforts at comprehensive phylogenomic inference of the Trigonidae, using ultra-conserved elements. Our current results for the first time include representatives of the bizarre “hammerhead wasps” (Trigoninae: Nomadini), overturn preexisting intuitions of trigonid phylogeny, and have profound implications for the origins of primary parasitoidism within the clade.

HYMENOPTERA SHOWDOWN

All times given in UTC



Back for the third year running and refereed by Erinn Fagan-Jeffries, the Hymenoptera Showdown is a light-hearted opportunity for all ISH members to argue why their taxon of choice is the best (or at least the best loved...) in three minutes and three slides - backing up that assertion with a mix of fun, cool and (possibly un)scientific facts.

SESSION 1, Thursday 4th December from 18:55 UTC:

- **Platygastroidea, Super-Fun Sing-Along with Billy and Cassandra!** represented by Jessica Awad and Elijah Talamas
- **Vespine wasps**, represented by Femi Benny
- **Cynipoidea**, represented by Jack Chitty

SESSION 3, Friday 5th December from 10:15 UTC:

- **Lubbock's wasp**, represented by the title holder, Natalie Dale-Skey
- **Mutilidae**, represented by Juanita Rodriguez
- **Aphelinidae**, represented by Andrew Polaszek

Who will be crowned this year's winner? YOU DECIDE! All Showdown presentations will be available for you to vote at <https://www.hymenopterists.org/hymenoptera-showdown-2025/> throughout Hymathon!

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ART COMPETITION

Run by Cristina Vasilița

Images entered in the five categories below will be available for voting throughout Hymathon.

View the entries here: <https://www.hymenopterists.org/hymathon-art-competition-2025/>

Vote for the entries here: <https://www.hymenopterists.org/art-competition-2025-audience-choice-vote/>

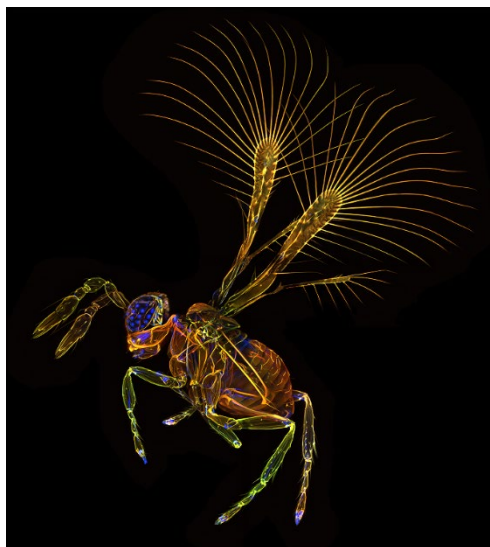
Photography – Specimen: Specimen images of Hymenoptera.

Photography – Live Hymenoptera: Live Hymenoptera images photographed in the field or in the indoor studio.

Photography – Hymenopterists in action: Field work pictures, humorous or intriguing pictures of hymenopterists at work.

Illustration – Scientific illustrations: Detailed and accurate drawings that represent the morphology and anatomy of Hymenoptera. These illustrations should be designed to provide a clear understanding of the species, highlighting specific features that may be of scientific interest, and can be used in research papers, taxonomic keys, or educational materials.

Illustration – Fun & Artsy Hymenoptera/Hymenopterists: Creative and imaginative artworks that showcase Hymenoptera or Hymenopterists in a playful, artistic, or unconventional manner. These can be abstract interpretations, cartoons, or any other artistic renditions that bring out the fun and whimsical side of Hymenoptera and their researchers.



2024 winner in the category '**Photography – Specimen**': *Megaphragma longiciliatum* Subba Rao
By Andrew Polaszek

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HYMATHON SOCIAL EVENTS

Session 1:

Join us for part one of the Hymathon quiz! Held over Kahoot, the quiz will span two social time slots – who will rein champion at the end of Hymathon?

We'll also play a round of zoom Pictionary using the Zoom whiteboard tool – do you think you could draw a Megastigmatidae in 30 seconds and have hymenopterists recognise what family it is? What about a sweep net? Two teams, four rounds – who will be victorious?

Session 2:

How well do you know other members of ISH? In this social we'll use quick zoom polls to allow people to find connections with others working in similar fields, geographic areas, or perhaps with the same coloured shirt!

We'll also do another round of the Hymathon quiz!

Session 3:

There will be no social in Session 3 – instead attend the ISH business meeting!

Session 4:

There will be no structured social in Session 4, as having been awake for 24 hours, it's now time for a rest! Feel free to stay and chat in the zoom meeting with colleagues



Original artwork by Mollie-Rosae Slater-Baker 2025

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CODE OF CONDUCT

The International Society of Hymenopterists (ISH) aims to encourage scientific research and to promote the diffusion of scientific knowledge concerning Hymenoptera.

ISH strives to be inclusive of the largest number of contributors, representing diverse backgrounds.

We are committed to providing a friendly, safe, and welcoming environment that allows all members to participate in the society to the fullest extent, regardless of gender, sexual orientation, ability, ethnicity, socioeconomic status, and religion.

The society expects all participants at ISH functions to abide by our Code of Conduct policy (see link below), and in particular to exercise consideration and respect and refrain from demeaning, discriminatory, or harassing behaviour and speech

https://www.hymenopterists.org/wp-content/uploads/2025/09/Code-of-Conduct-for-the-International-Society-of-Hymenopterists_versionuploaded10_9_25.pdf



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