WASHINGTON STATE UNIVERSITY
M.T. JAMES
ENTOMOLOGICAL COLLECTION

Year in Review, 2024

Elizabeth Murray, Director (e.murray@wsu.edu)
Department of Entomology, Washington State University
https://museum.entomology.wsu.edu/
new museum email! **cahnrs.ento.museum@wsu.edu**

History and Personnel: Begun in 1892, the M. T. James Entomological Collection serves as an important regional resource and is an actively growing collection with especially strong representation in Lepidoptera, Coleoptera, and Diptera and a newfound focus on Hymenoptera. The collection's holdings number in the millions and are of significant historical and scientific importance.

Personnel: The museum-associated faculty and staff are Elizabeth Murray (Assistant Professor and Director), Richard Zack (Professor and Curator and longtime museum associate), Silas Bossert (Assistant Professor and Curator), and Joel Gardner (Collections Manager).

Collections Manager Joel Gardner undertakes collection care and management and functions as the primary coordinator for the daily operations of the museum. Through 2024, in addition to regular care, he has been organizing the slide-mounted collection and reorganizing our scientific literature & library. Joel also undertakes data cleaning and provides quality control for our digitized records.

Additionally, in 2024, we had four hourly or undergraduate students working in the collection. Joel also received a competitive grant fellowship from the College of Agricultural, Human, and Natural Resource Sciences) for a CAHNRS to fund an undergraduate student intern for the spring semester 2025!

Digitization: Until recently, the collection has not had the capacity to digitize specimens for upload to a public database. We did not have the personnel or a system for doing so. In 2022, WSU transitioned into the digitization era, kickstarted by funding specifically for bee and pollinator digitization. We have since digitized the labels of tens of thousands of specimens and have refined our workflow.

We devised a spreadsheet entry system and developed digitization protocols for WSU. We designed labels and devised a numbering system with a QR code. Undergraduate students database bees in our collection, image specimens, and complete other tasks as needed associated with the curating of the pinned specimens. At the end of 2024, we had ~35,000 bee specimens digitized, and an additional 1000 non-bees digitized. Joel Gardner identified >4,500 bee specimens from our undetermined material. During the year, we transitioned from publishing to scan-bugs.org to now publishing to ecdysis.org.

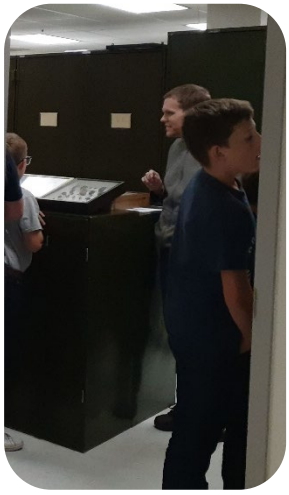
Graduate student course work in the museum: Our digitization got a boost from the fall Entom 539 'Taxonomic Entomology' class. The graduate students completed a digitization project databasing the labels of specimens from their taxon of choice. They created maps and wrote a short paper on the results of their digitation. Some focused on conservation, others on the importance of digitization or on the material itself. The nine students in the class digitized a total of nearly 600 specimens from five insect orders.

Museum visitors: We hosted eight scientific visitors and had seven research-driven visits. As a research museum, WSU is gaining visibility for bee research in the Pacific Northwest, and several of our visitors were here in support of their bee projects and Joel Gardner's identification expertise.

Loans: We are now using the Symbiota collection management system (through ecdysis.org) to track loans and gifts. All specimens are databased before being lent. We request that WSU be mentioned in publications involving our material. In 2024, we had seven loans of >1830 specimens total.

Outreach: We also welcome visitors from the public into our museum. We had approx. 40 tours amounting to more than 275 visitors to the museum exhibits. We often partner with the entomology grad students to show the live arthropod collection. This year we welcomed groups such as: the FFA state convention, prospective upcoming entomologists with their families, the Coffee Hour event for the International Student Center, and several WSU undergrad or grad classes.

Rich and Joel have answered >30 identification requests from the public in 2024. Rich identified arthropods on sticky traps for a local museum to assist their survey for pest species in the displays. We've welcomed WSU media relations and administrative colleagues into our museum to discuss our mission.



Right: A sneak peak at Joel Gardner leading a tour of the Collections!

Type Specimens: Joel has rehoused our type specimens in individual plastic containers in 2023. The last published assessment of our type collection was in 1986 in "Melanderia" reporting we had 152 holotype specimens and many other various type specimens (esp. numerous in paratypes). If you're interested in the current list, please contact us.

Acquisitions: In 2023 we acquired six personal collections of varying sizes. In 2024, we acquired specimens from a personal collection and received the first WA Bee Atlas specimens.

Funding and Donor Support: Our museum operates on donor support. We have four endowments which together provide an estimated $30,000 a year at current rates. In December 2024, we received a $80,000 gift from Terry and Faye Whitworth as a contribution to their established museum fund. These funds are going towards supporting two graduate students for museums work in the summer, two undergraduates working part time, travel, and equipment and supplies. A substantial amount of that will also go towards buying 15 new Olympus microscopes to support our teaching and workshops. Our current teaching microscopes are many decades old and have seen better days, and we will be buying new scopes in 2025 to take us through the next few decades. Thank you!

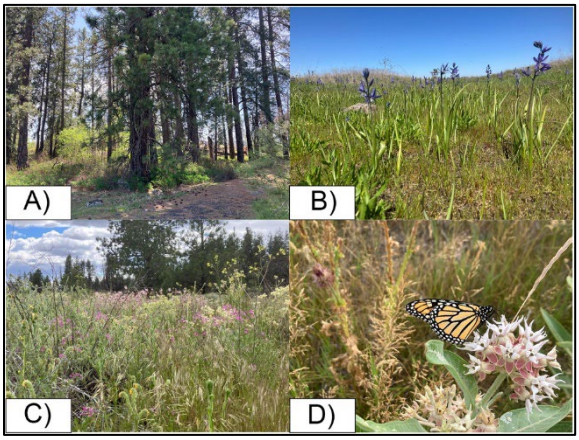
Collaborations and Projects:

Guatemala Biodiversity Initiative: Rich Zack has spent decades sampling insects in Guatemala with longtime collaborator Dr. José Monzón (Universidad del Valle de Guatemala). We have arguably one of the best two collections of insects from Guatemala in the world.

Bee Atlas: Joel Gardner helps to manage the M.T. James' acquisition, identification, and curation of the bees of Washington state. He participates with WSDA (esp. Dr. Karen Wright, shown bottom photo) as they coordinate trained volunteers to collect, curate, and identify bees from across the state, through the WA Bee Atlas program. Bees collected by volunteers will be deposited in our WSU museum, and we are tasked with their care in perpetuity. WSU co-hosted a Bee Atlas event May 17-19, 2024, with WSDA and the Phoenix Conservancy in Pullman, where over a dozen volunteers came to the Pullman area to collect bees and be trained at WSU on microscope use and bee identification. We will host a 2nd event in June 2025.

Washington State Bee List: Elizabeth, Silas and Joel collaborated with WSDA entomologists Dr. Chris Looney and Chanda Bartholomew to assemble a list of the bees recorded from the state. The data come from online databases of museum records and iNaturalist records, published literature, and the WSUC collection. We published a checklist of the WA bees in November 2024.

Fairchild Air Force Base insect survey: Elizabeth, Rich, and Silas secured a grant of $50,000 from the US Fish and Wildlife Service to undertake a survey of the Fairchild AFB. Rich and master's student Alexis Menth are the primary surveyors, and one or both traveled to the Base every week for the six months of the field season in 2023 and 2024. We have collected > 10,000 specimens representing over one hundred different insect families, with a focus on bees and moths. Joel is assisting in identifying the bees of this project and Lars Crabo is assisting with identifying the moths.



Right: Lexi's primary sampling sites.

Publications:

In 2024, the staff of the museum published 14 papers, some on the same papers as co-authors.

Below: publications using M.T. James Entomological Collection material in 2024:

Bartholomew, C.S., Murray, E.A., Bossert, S., Gardner, J., and Looney, C. 2024. An annotated checklist of the bees of Washington state. *Journal of Hymenoptera Research*, **97**, 1007-1121. https://doi.org/10.3897/jhr.97.129013

Bossert, S., Hung, K.-L. and Neff, J. 2024. Evolutionary History and Ecology of *Andrena* (*Foveoandrena*) *androfovea*: A New Nearctic Mining Bee (Hymenoptera, Andrenidae) Species and Subgenus. *Ecology and Evolution,* 14: e70453. https://doi.org/10.1002/ece3.70453

Castillo, S.A.C.A., Napoles, J.R., Rifkind, J.R., Dávila, M.F., Martínez, O.G. and Chávez, E.C., 2024. Biodiversidad de la familia Cleridae (Coleoptera Cleroidea) de México. Folia Entomológica Mexicana (nueva serie), 10(1), pp.ágs-1.

Chandler, D.S., 2024. New Synonyms, Species, Lectotype Selections, and Records for Nearctic *Anthicus* Paykull (Coleoptera: Anthicidae). *The Coleopterists Bulletin*, 78(3), pp.447-462. https://doi.org/10.1649/0010-065X-78.3.447

Flynn, D.J. 2024. A New Treehopper Species of Cladonota (Stål) from Guatemala (Hemiptera: Membracidae: Membracinae: Hypsoprorini) and Errata on Prior *Cladonota* Publications. *Proceedings of the Entomological Society of Washington*, 125(4), 465-470. https://doi.org/10.4289/0013-8797.125.4.465

Gaimari, S.D., Zack, R.S. and James, M.T., 2024. Island hopping the lauxaniid-way, *Poecilominettia sexseriata* Hendel, 1932 (Diptera: Lauxaniidae), new to Guam with additional records of Lauxaniidae and Chamaemyiidae (Diptera) from Guam and the Commonwealth of the Northern Mariana Islands. *The Pan-Pacific Entomologist*, 100(3), pp.246-252. https://doi.org/10.3956/2024-100.3.246

Ouellette, G.D. and Chandler, D.S. 2024. Antlike Flower Beetles Collected by Ultraviolet Light Trap in the Paso del Norte Region, El Paso, with a Full Checklist of Species Known from West Texas, USA *Southwestern Entomologist*, 49(1), 200-213. https://doi.org/10.3958/059.049.0117

Runyon, J.B. 2024. Revision of the genus *Calyxochaetus* Bigot (Diptera: Dolichopodidae: Sympycninae). *Zootaxa* 5539(1):1–74. [including 1 new paratype] https://doi.org/10.11646/zootaxa.5539.1.1

Taylor, C.K. 2024. Annotated checklist of family-and genus-group names associated with Scoliidae (Hymenoptera, Aculeata). *Journal of Hymenoptera Research*, 97, 945-1006. https://doi.org/10.3897/jhr.97.134123

The museum & staff had some time in the limelight in 2024. Check it out!

Spokesman Review (Spokane, WA) –
front-page article:
"WSU makes strides in digitalizing 3 million insect collection".

Soundstage podcast on KUOW, NPR network:
"WSU researchers are on a quest to digitize over 30,000 bees, butterflies and other pollinators".

Spokesman Review article on new MS student:
"Beyond bees: Guatemalan entomology student turns to WSU for learning and help".

Spokesman Review article:
"You aren't imagining it: Pest control businesses in Spokane report significantly higher yellowjacket activity this year".

Ask Dr. Universe (WSU) featured in Spokesman Review article:
"Ask Dr. Universe: Insect muscle tissue is very similar to mammalian muscles".

Article on Paul and Alice Schroeder beetle donation,
WSU Insider and CAHNRS News, titled:
"Passion for nature lives on in zoologist's bequest".