

M | LSA MUSEUM OF PALEONTOLOGY

UNIVERSITY OF MICHIGAN

2024-2025 YEAR IN REVIEW



University of Michigan Museum of Paleontology

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lsa.umich.edu/paleontology

DIRECTOR'S NOTE



Dear friends and colleagues,

Hello from Ann Arbor, where we're wrapping up another eventful year in the Museum of Paleontology! The Museum has continued its recent growth in personnel, welcoming new assistant curators Luke Weaver in September of 2024 and Anshuman Swain in January of 2025. Luke, whom we introduced in our last newsletter, is an expert in Mesozoic mammals and will oversee the Museum's important fossil mammal collection. Anshuman comes to the Museum from Harvard where he was a member of the Society of Fellows. Anshuman's big-picture paleobiological work ranges from Ediacaran ecosystems to Cenozoic plankton. His curatorial focus is on insects, with ongoing field projects in the Carboniferous of the eastern US. You can learn more about Anshuman later in this newsletter. We're also excited to welcome Sierra Petersen as an associate research scientist this fall. Sierra is a leader in geochemical analysis of fossils to understand past climates and the biology of extinct bivalves. It was a busy year in research as well. Major contributions include Catherine Badgley's landmark volume *At the Foot of the Himalayas* and dozens of research papers covering a wide range of topics. The Museum's role in training the next generation of paleontologists was on full show over the past year. We have welcomed 10 new postdocs and graduate students, with several others moving on to exciting new positions. Museum personnel provided immersive experiences for dozens of undergraduates in collections work, fossil preparation, and research. Trainees at all levels were recognized with numerous awards from the Museum, U-M, and external organizations. An active collection is a growing collection, and this year we took steps to expand our capacity to accommodate expansion and conserve incoming specimens for future generations of researchers. We've also shared our latest work with the public via outreach events, activities, and temporary displays at the Museum of Natural History, and continued our long and productive relationships with the Friends of the U-M Museum of Paleontology. Looking forward, we are approaching two exciting centennials: the establishment of the Museum as an independent unit in 1926 and our move to the Ruthven Museums Building in 1928. We're working on plans to celebrate these major milestones, and find ways to make sure that the Museum's second century is even more successful than its first.

- Matt Friedman, Director, University of Michigan Museum of Paleontology

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UMMP Participates in Natural History Museum's Annual ID Day

The University of Michigan Museum of Paleontology (UMMP) recently took part in the Natural History Museum's annual ID Day, a vibrant event welcoming participants of all ages to bring unique artifacts—from fossils to feathers—for identification by leading experts across various scientific disciplines. This year, UMMP experienced one of its largest volunteer turnouts in recent memory. Faculty, staff, students, and friends collaborated with professionals from other museums and departments to identify over 300 unique objects brought in by more than 500 attendees. The UMMP played a crucial role in identifying several remarkable fossils, including an impressive sauropod bone.



We extend our gratitude to the UMMP volunteers who made this event possible:

- Graduate Students:** Athena Vohs, Tariq Abdul Kareem, Lynnea Jackson, Jared Shiffert, Rory Sweedler, Hadeel Saad, Zach Lyons-Weiler
- Postdoc:** Anna Wisniewski
- Staff and Faculty:** Jennifer Bauer, Adam Rountrey, Matt Friedman
- Friends of the UMMP:** Dave Thompson, Maddie Holderbaum

The collaborative efforts of our volunteers and experts from other scientific fields created an exciting day of discovery, education, and community engagement. Attendees were able to unravel the mysteries surrounding family heirlooms and learn more about research and collections at the University of Michigan, fostering meaningful connections between science and the public.

We eagerly anticipate uncovering more hidden stories from Michigan's treasures and beyond at the next ID Day!

UMMP Invertebrate Collection Now Available on GBIF



In 2024, the University of Michigan Museum of Paleontology (UMMP) made a significant leap in accessibility by publishing its invertebrate fossil records through the Global Biodiversity Information Facility (GBIF). Now, over 20,000 of the museum's 85,000 cataloged invertebrate specimens can be explored online, allowing researchers worldwide to examine much of UMMP's internationally renowned collection. The invertebrate collection includes Paleozoic fossils from the Michigan Basin, Mesozoic mollusks from the Western Interior Seaway, and Neogene mollusks from the southeastern United States. Nearly 200 downloads were recorded in the first month after the launch. This follows the 2020 release of UMMP's vertebrate collection on GBIF. **Find the collection here!**

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New Book Caps 50 Years of Research on Siwalik Paleontology



Early 2025 saw publication of *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record* (Johns Hopkins University Press). Catherine Badgley, Research Scientist in UMMP and Professor in Ecology and Evolutionary Biology and the Residential College, acted as lead editor for this volume. With 27 contributed chapters, it represents the culmination of more than 50 years of research on a sequence of sediments and fossils that lie south of the Himalaya Mountains. Chapters cover important depositional, paleoenvironmental, and taphonomic background, review the fossil mollusks, fishes, reptiles, birds, and mammals, and provide a synthesis with questions yet to be answered.



The Siwalik record spans most of the last 20 million years. In northern Pakistan, the sequence is about 5000 meters thick, well exposed over hundreds of square kilometers, and yields abundant fossils of aquatic and terrestrial animals living in and around rivers. It holds special significance as one of the longest sequences of continental sediments and ecosystems anywhere in the world. The research team including Badgley has involved more than 100 scientists from around the world and achieved several important "firsts" in methods for studying a continental sequence.



At the Foot of the Himalayas creates a legacy for future work on the remarkable Siwalik record. Reflecting on this landmark accomplishment, Badgley indicated, "I have been involved in studying this sequence since I was a doctoral student in the 1970s, and consider myself extremely fortunate to have had the opportunity to work in the field in the Siwalik record of northern Pakistan, to collaborate with Pakistani scientists, and to experience the hospitality of the local people."

Photo credits: top & middle: Catherine Badgley; bottom: Julius Csotonyi



UMMP Welcomes New Assistant Curator, Anshuman Swain

We are thrilled to welcome Anshuman Swain as a new Assistant Curator at the University of Michigan Museum of Paleontology (UMMP).

Anshuman grew up near the mining town of Talcher in eastern India. His academic journey began at the Indian Institute of Science (IISc), where he earned his Bachelor of Science in 2017. Although he majored in Physics, which was his subject of interest prior to the start of his undergraduate studies, the biology and earth sciences classes during these four years changed his perspective and interests. This led him to pursue a Ph.D. in Biological Sciences at the University of Maryland, College Park, under the supervision of William F. Fagan. His Ph.D. research focused on eco-evolutionary processes across a wide variety of systems – from microbes to plant-insect interactions.

After completing his Ph.D. in 2022, Anshuman was awarded a Junior Fellowship at the Harvard Society of Fellows and a James S. McDonnell Foundation (JSMF) Postdoctoral Fellowship in the Department of Organismic and Evolutionary Biology at Harvard University. These joint fellowships granted allowed him full independence to pursue his research on global change from a deep-time perspective.

We are delighted that Anshuman will continue this line of research at the UMMP and the Department of Ecology and Evolutionary Biology as an Assistant Curator and Assistant Professor in Winter 2025. His new lab will focus on a unique integrative approach, combining paleontological fieldwork, natural history collections, theoretical models, and data-driven methods to understand how interactions among and between organisms and their environment structure ecosystems, especially in the realm of plant-insect interactions and planktonic foraminifera. Joining him are Richard J Knecht (postdoc), Léo Laborieux (Ph.D. student), and many undergraduate researchers.

Beyond his professional engagements, Anshuman and his wife, Srishti, love travelling, reading, and engaging in culinary adventures. Please join us in welcoming Anshuman Swain to the UMMP community, where his research will surely contribute to our ongoing success.



Anshuman in Chilika Lake (Odisha, India) during fieldwork



Anshuman with plant fossils from the Rhode Island and Wamsutta formations at Harvard Museum of Comparative Zoology - Photo Credit: Kris Snibbe, Harvard Staff Photographer



Current UMMP Research on Display at UMMNH

Specimens from the University of Michigan Museum of Paleontology are fan favorites at the U-M Museum of Natural History (UMMNH), ranging from the mastodons and whales that greet visitors in the main atrium to the hundreds of fossils from all over the world in the popular “Evolution: Life Through Time” gallery. The public can even catch a glimpse of UMMP personnel at work in the visible fossil prep lab. Over the past year, rotating research stations at UMMNH have highlighted the latest, in-progress work by U-M paleontologists. Michigan Fellow and Associate Professor Anne Kort’s studies to decipher the links between the structure of mammals’ vertebrae and their modes of locomotion are featured in the main atrium (1), while Professor and Curator Jeff Wilson Mantilla’s research on a new species of dwarf sauropod from Jordan appears at the junction of the evolution and Earth science galleries, complete with a touchable cast of a dinosaur bone (2). Joining these research stations was an interactive activity called “The Tooth about Evolution”, focusing on Curator and Professor Matt Friedman’s work on functional anatomy of fossil fish jaws (3).





An old gypsum mine in Grand Rapids, Michigan, United States (Rafa Rivero-Vega, James Andrews and Zach Lyons-Weiler)



Bighorn Basin, Wyoming, United States (Abby Waller; team photo, above right)



photo credits:
Luke Weaver

Where in the World Are We?



A bridge in Beitou, Taiwan & Chiang Kai-shek Memorial Hall in Taipei, Taiwan (Hadeel Saad)

photo credits: Adela Roa-Varon, Chloe M. Nash



photo credits:
Sierra Petersen

Sunken Meadow Formation of Carter's Grove locality along the James River, Virginia, United States (Lucas Gomes, Left; Right: Adriana Brown and Erin Kim)





photo credits:
Matt Friedman



European Synchrotron Radiation Facility, Grenoble, France



Koala Sanctuary and Park,
Queensland, Australia
(Catherine Badgley)



Equator Park,
Quito Ecuador
(Catherine Badgley)



Mojave Desert, Barstow region,
United States (Catherine Badgley)

photo credit: Lexi Marsh



photo credits:
Matt Friedman



The Natural History Museum,
London, United Kingdom

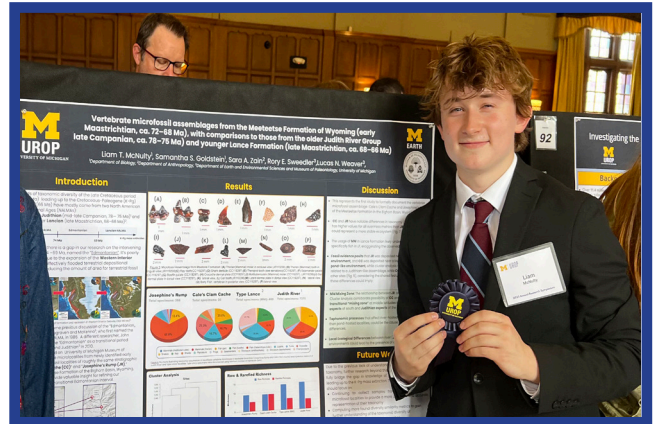
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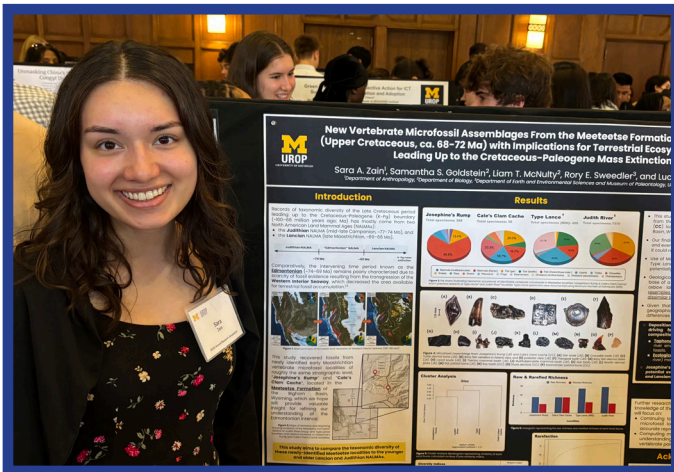
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Undergraduates Present at the 2025 UROP Symposium

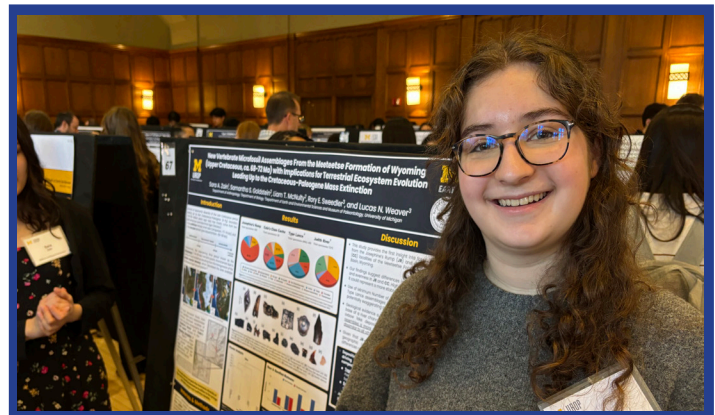
This year, the University of Michigan Museum of Paleontology hosted 13 undergraduate students working in various graduate student and postdoc-led research projects. These projects were broad ranging, from the description of Cretaceous vertebrate microfossils, testing functional morphology of mammals to examining patterns of leaf venation in tropical rainforests and studying fossil fish from Indonesia. We congratulate our students who proudly presented their research at the 2025 Undergraduate Research Opportunity Program (UROP) symposium on April 23rd.



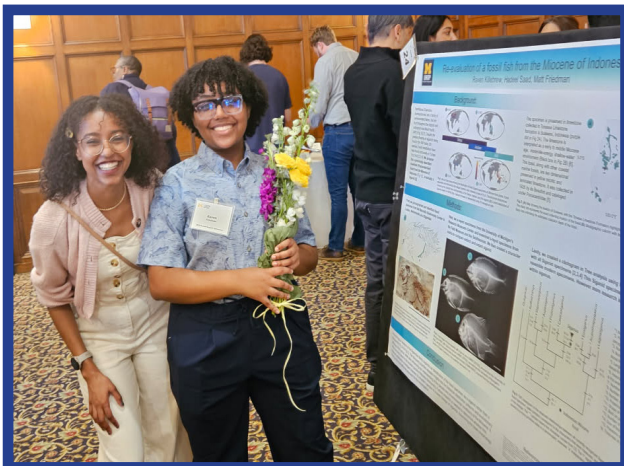
Liam McNulty, UROP Poster Blue Ribbon Winner



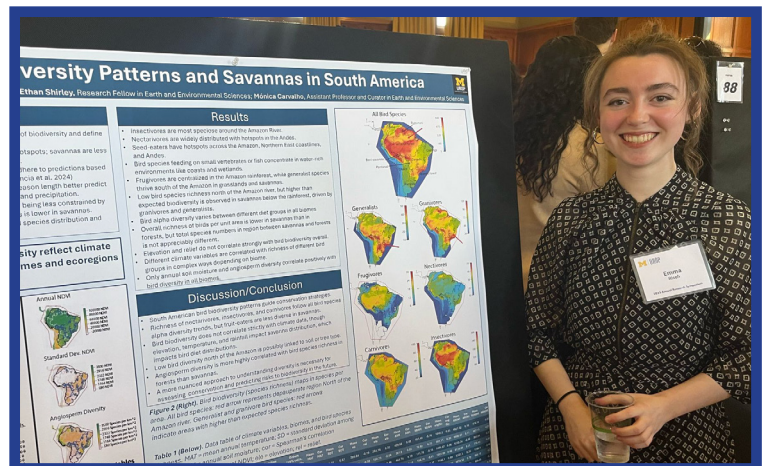
Sara Zain



Samantha Goldstein



Hadeel Saad (mentor) and Raven Killebrew (left)



Emma Risch

UPDATE: Succore Creek and Trout Creek Floras

In 1932, the University of Michigan Museum of Paleontology (UMMP) contracted professional fossil collector Percy Train and his wife Agnes Train to make collections of fossil plants from Miocene lacustrine sediments outcropping in Harney and Malheur counties of southeastern Oregon. Between 1932 and 1935, a total of ~13,000 specimens of fossil leaves, flowers, fruits, and seeds were sent to the UMMP paleobotany collection, through the efforts of the Trains, as well as Ph.D. student Helen V. Smith, and the Museum's first curator of paleobotany, Chester A. Arnold. The UMMP Trout and Succor Creek collections hold numerous holotype specimens and have been featured in many studies on the history and systematics of North American vegetation, most notably in the systematic revision published by UMMP alumnus Alan K. Graham based on 2,500 Succor Creek macrofossils, 6,000 Trout Creek macrofossils, and approximately 40,000 pollen grains and spores. Recently, geochronological studies on volcanic ashes intercalated between the fossil-bearing lake deposits have constrained their age to ~16–14 million years before present. This interval overlaps with the mid-Miocene climatic optimum (~16.9–14.7 Ma) and has renewed research interest in the Trout and Succor Creek floras.

Despite the large number of specimens and previous descriptions of these floras, ~4,500 specimens remained unidentified and only 1,000 have been included in the UMMP catalog. During Spring/Summer of 2024, Ph.D. candidate Theodore Matel and Curator Mónica Carvalho compiled taxonomic descriptions of leaf and reproductive taxa of the Trout and Succor Creek floras, sorted unidentified specimens into morphotypes and identified them. This collection is in the process of being properly catalogued and documented for public online access.



Expanded collection capacity in the vertebrate paleontology range at the Research Museums Center. New Cabinets are at the top of the aisle, with other cabinets faded to appear darker gray.

Accommodating a Growing Collection

While the existing collections of the University of Michigan Museum of Paleontology (UMMP) are already an outstanding resource, our holdings are constantly growing through a combination of several active field programs plus donations from avocational collectors like the Friends and the general public. To accommodate an expanding collection, UMMP invested in additional cabinetry and drawers for vertebrate paleontology and more drawers for invertebrate paleontology. Altogether, this will provide over 1,400 additional square feet of drawer area—more than half the size of a tennis court—for accommodating thousands of fossils that will be available for future generations of researchers.



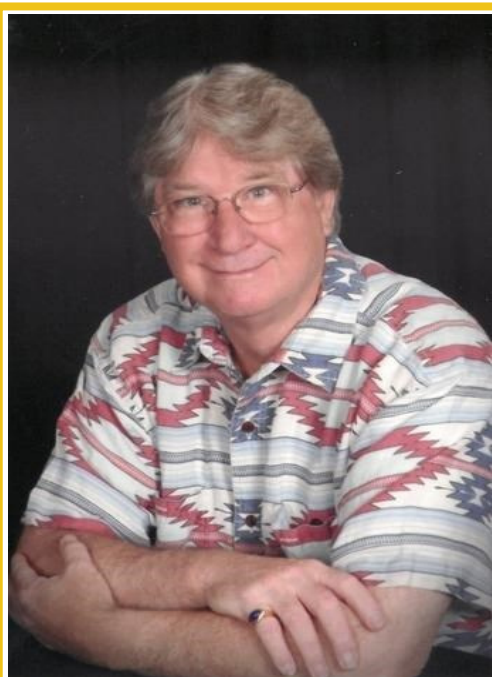
IN MEMORIAM

Stanley Hyne (1923-2024)

Stan Hyne's association with the University of Michigan Museum of Paleontology is tied to his decades of involvement with the Friends. He assembled a remarkably diverse fossil collection through many years of effort in Michigan and further afield. An outstanding storyteller, Stan regularly shared details of his fossil-hunting adventures at Friends meetings. Habitually modest, Stan routinely tried to convince people that he wasn't a good fossil collector, just lucky. But all evidence points to the contrary. Stan's discoveries have been important to research and outreach, ranging from specimens now on display at the University of Michigan Museum of Natural History to a new species of Ordovician cyclocystoid that will bear his name.



credit: Friends of UMMP



Edward P. Krasny (1944-2024)

Ed Krasny's long record of volunteering with the University of Michigan Museum of Paleontology (UMMP) began at several mastodon excavations. He and his wife Mary were 'regulars' at the Heisler and Brennan sites, and both helped excavate and mold the Brennan mastodon trackway, now displayed at University of Michigan Museum of Natural History. Ed was also a stalwart assistant in the UMMP fossil prep lab, where he developed great proficiency in molding, casting, and painting casts. His personal warmth and good humor made him an ever-welcome lab-mate, and he easily mastered the complex software used to generate early 3D models of mastodon bones. A fund established in Ed's honor will support students working in UMMP collections and labs.

If you would like to contribute to the Edward P. Krasny Undergraduate Paleontology Lab and Collections Support Fund, [please click here](https://lsa.umich.edu/paleontology/giving.html).



Empowering Future Paleontologists: Stocker-Nesbitt Fund Supports Student Professional Development

The University of Michigan Museum of Paleontology is proud to celebrate the success of this year's recipients of the Stocker-Nesbitt Professional Development in Paleontology Award: Abby Waller and Anna Zhao. This award, supported by generous contributions to the Stocker-Nesbitt Professional Development in Paleontology Fund, provides undergraduate students with financial assistance to attend professional conferences in vertebrate paleontology, fostering invaluable academic and professional growth.

Abby Waller, an Earth and Environmental Sciences major with a Paleontology minor, and Anna Zhao, an Ecology and Evolutionary Biology major with a Paleontology minor, each attended the 2024 Society of Vertebrate Paleontology Meeting in Minneapolis that offered immersive experiences and unique opportunities to connect with experts and peers in the field.

Reflecting on the experience, Abby highlighted the collaborative and supportive atmosphere of the conference: "It was really nice to just be surrounded by so many people who have the sort of interest that we do. I tried to attend every mammal lecture that I could, and they were all super awesome. To be able to discuss topics with them and learn from people doing things I want to be involved with in the future was incredible. It's a very collaborative environment, and it's really cool to see how people are so supportive of each other."



Anna emphasized the accessibility and conversational nature of the conference: "It felt really cool to be immersed in the field for days on end. The way the conference was set up, it made everyone feel more like peers rather than being lectured at. The poster session was especially exciting because I got to chat with passionate people about their work. There was even a student panel with topics like finding grad school opportunities and dealing with imposter syndrome, which was incredibly helpful."

These conferences offer more than academic enrichment—they provide a space for students to envision their future in paleontology, engage with cutting-edge research, and build connections that will shape their careers. The Stocker-Nesbitt Award continues to foster the next generation of leaders in the field.

If you wish to contribute to the **Stocker-Nesbitt Professional Development in Paleontology Fund** and assure that these experiences continue to make a difference, please [click here](https://lsa.umich.edu/paleontology/giving.html)

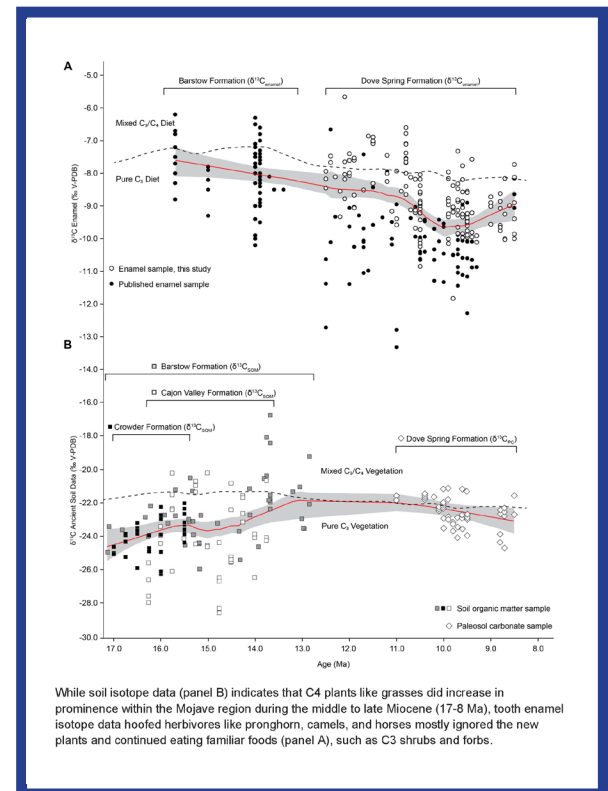
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Mammals Kept Diets Constant While Environments Changed

University of Michigan Museum of Paleontology Postdoctoral Researcher Fabian Hardy, Research Scientist Catherine Badgley, and their colleagues set out to understand how mammals adapted to changing environments in the American southwest during the Miocene. The team gathered carbon and oxygen isotopic data from hoofed mammals and soil carbonates in the Mojave region from 17-8 million years ago to see if they could spot change in the mammals' diets as the dominant kinds of plants changed over time. What they found was a surprise. Rather than switching diets, herbivores in the region tracked their preferred food resources and consumed familiar plants for at least 9 million years as forest-dominated settings changed to more open woodland and grassland habitats. These conservative diets suggest the mammal species were consuming plants from outside of the immediate basin where their fossils were preserved, highlighting the importance of habitat connectivity during periods of climate and vegetation change. Hardy's results also provide tantalizing evidence for facultative drinking behavior—obtaining more water from leaves than drinking it directly—in extinct camels and pronghorn. If correct, this suggests an earlier evolution of the adaptation than previously known in these groups. The study, “Dietary fidelity of Miocene ungulates in the context of environmental change in the Mojave region, western North America”, appears in *Palaeogeography, Palaeoclimatology, Palaeoecology*.



Updates From the Friends of the Museum of Paleontology

The Friends of the University of Michigan Museum of Paleontology (FUMMP) continue to be busy with regular monthly meetings featuring a range of in-person and virtual speakers with topics ranging from exceptional fossil preservation to biotic invasions in the fossil record to paleoart. Members have participated in several field trips to Paleozoic sites in Michigan (Alpena, Milan), Ohio (Flat Run/Mt. Orab), and Ontario (Arkona), and celebrated as a group at the summer BBQ and holiday party. A highlight of the past year was recognition of several long standing Friends with lifetime honorary memberships: Joe Koniecki, Sally Labadie, Dave Thompson, John Topor, and Mike Topor. All five have been awarded prizes from either the Paleontological Society or Paleontological Research Institution for their outstanding contributions as avocational paleontologists, and embody what the Friends should be. These are first honorary memberships awarded by the Friends in over 20 years.

Anyone with a passion for paleo is welcome to join FUMMP. Individual membership is still only \$20. Active U-M community members can join for free.

Benefits include:

- Monthly meetings with exciting speakers covering a broad spectrum of topics
- Ability to assist with the research of scientists at the University of Michigan Museum of Paleontology
- Engage in public outreach at the annual ID Day at the Museum
- Exclusive access to our field trips in various quarries, which do not allow the general public
- On-line Archive of FUMMP materials, including past meeting minutes and Newsletters
- Learn how to properly identify, prepare, and preserve fossils and generally engage with fossil collectors and other like-minded individuals of all experience levels

Additional information can be accessed through [this link](#), or by contacting me directly.

David Clark
President, FUMMP
fummpinfo@gmail.com



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HAPPENINGS IN THE COLLECTIONS



TAXA NAMED BY UMMP RESEARCHERS

- *Daemodontiscus harrisae*, Carboniferous predatory fish (**Friedman, Figueroa**, Hodnett, Lucas, Higgins, Pierce Giles)
- *Bastetodon syrtos*, Oligocene hyaenodont (Al-Ashqar, Borths, El-Desouky, Heritage, Abed, Seiffert, **El-Sayed**, Sallam)



IMPORTANT ADDITIONS

- More than 50 jawless fishes and placoderms from the Early Devonian of Wyoming (1)
- Complete specimen of the eurypterid *Acutiramus* from the Silurian of New York (2)
- Uncommon Devonian and Carboniferous acanthodians, chondrichthyans, and actinopterygians from Michigan



1



2

SPECIAL THANKS



2024-2025 VOLUNTEERS

Doug Scales, Dave Thompson, Sally Labadie, Auguste Eberle, John Klausmeyer

A special thank you to our volunteers for donating over 660 hours of work: in our collections, organizing and adding the RMC invertebrate collection to the database; preparing, molding, casting and reconstructing of fossil specimens. Their work is invaluable to the collections management aspects of the University of Michigan Museum of Paleontology!

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HAPPENINGS IN THE COLLECTIONS



ExPAND Summer Workshop Recap

For five days in June, the University of Michigan Museum of Paleontology Invertebrate Division with NSF funding support, hosted the inaugural Expanding Expertise and Providing Access through Natural History Digitization (ExPAND) Workshop. This workshop brought together undergraduate students from across the country with the shared interest of exploring museum careers. There were an astounding number of applicants!

Each day, the group toured a different museum space and met a variety of museum professionals. A series of career development brown bag-style talks also provided participants with informal networking opportunities. Museum professionals provided a short introduction to their career and what they do which was followed by lunch and a discussion with plenty of time to ask questions about their career path.

Throughout the week, students gained hands-on experience working with specimens of scientific importance in a variety of preservational states; how to curate these specimens and use a relational database (Specify). They also gained skills in photography, and are now proficient in DSLR imaging of specimens, and post-processing in Adobe Creative Suites. Additionally, many students created a completed 3D model of one of their specimens using their newfound knowledge of semi-automated photogrammetric methods like DigiCamControl, RealityCapture, MeshLab, and Blender.

Each participant was tasked with curating data for a specific Devonian echinoderm genus to facilitate learning while validating information in relational databases, exploring specimen photography, producing a 3D model via photogrammetry, and cleaning data to produce web pages for an upcoming field guide on the Devonian. The workshop participants curated 9,378 fields in our database over the course of the week. 3D models will be available on the [U-M Online Repository of Fossils](#) and the occurrence data will be available via the [Global Biodiversity Information Facility portal](#).

Feedback from participants was glowing. Sophia Haynes summed up her experience by saying, "Having the opportunity to explore extensive research collections, learn from museum professionals, and gain transferable skills was extremely valuable. I made extensive connections and discovered new career options, and I can't wait to take my newfound skills with me in my future work with museums."



Ambrose Johnson in the UMMZ fish collection
photo credit: Lia Dirks



Back, Left to Right (L to R): Kira Davis, Ambrose Johnson, Robin Balladares, Kate Schmidt (UMMP Staff), Jen Bauer;
Front (L to R): Nathanael Shamon, Lia Dirks, Sofia Haynes



Lia Dirks spends time getting to know the museum's better-known ambassador

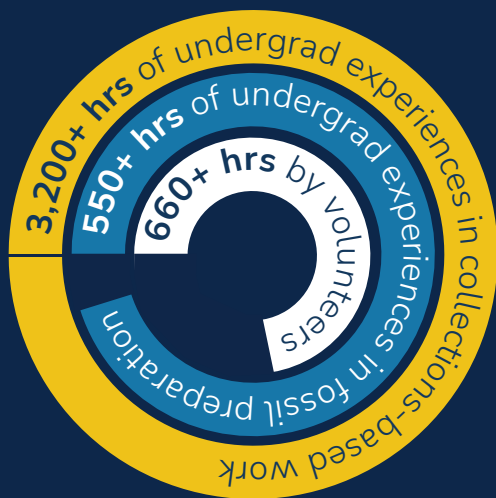
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HAPPENINGS WITH THE UMMP

UMMP BY THE NUMBERS



667

Loaned Specimens

308

Specimens Donated

6,904

Specimens Cataloged

353

Public Inquires

34,840

UMORF Sessions

35

3D Models Added to
UMORF

1,726

Students Given
Collections Tours

COMINGS AND GOINGS



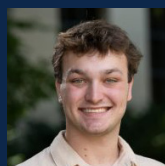
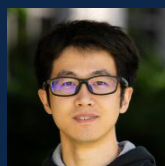
DEPARTING GRADUATES



James Andrews, Brielle Canares



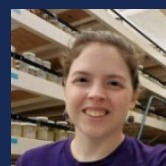
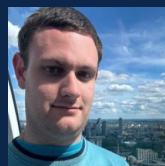
NEW GRAD STUDENTS



Welcomed in 2024-2025: Jie Geng, Zach Lyons-Weiler, Jared Shifert,



NEW POSTDOCS



Welcomed in 2024-2025: James Andrews, Benjamin Carter, RJ (Richard) Knecht, Ethan Shirley, Emily, Troyer, Anna Wisniewski

Giving Opportunities to Support Students at UMMP

Consider giving to the [George Junne Internship Fieldwork Award Fund](#) and help financially support students not traditionally represented in paleontology to participate in opportunities to join UMMP researchers and faculty on field work across the world.

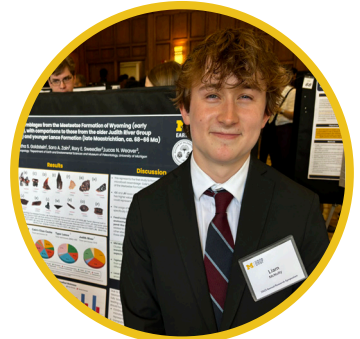
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AWARDS & DISTINCTIONS

- **Anna Zhao and Abigail Waller** - Stocker-Nesbitt Professional Development in Paleontology Award
- **Tariq Abdul Kareem** - Outstanding GSI Award, Department of Earth and Environmental Sciences
- **Mónica Carvalho** - Arthur James Boucot Grant, Paleontological Society
- **Sanaa El-Sayed** - Rackham Predoctoral Fellowship
- **Sanaa El-Sayed** - Lewis and Clark Fund Award, American Philosophical Society
- **Rodrigo Figueroa** (PhD 2024) - ProQuest Distinguished Dissertation Award
- **Rodrigo Figueroa** (PhD 2024) - John Dorr Dissertation Award, Department of Earth and Environmental Sciences
- **Anjali Goswami** (BS 1996) - Chief Science Advisor at the Department for Environment, Food and Rural Affairs, UK
- **Abigail Kohn** - best poster, Geobiology Division, Geological Society of America
- **Abigail Kohn** - Undergraduate Excellence in Paleontology award, the Association of Women Geoscientists
- **Theodore Matel** - Rackham International Grant, University of Michigan International Institute
- **Theodore Matel** - Gold Star Award for Best Turner Award Proposal by First-year Graduate Student, Department of Earth and Environmental Sciences
- **Liam McNulty** - Blue Ribbon Poster Winner, Undergraduate Research Opportunity Program (UROP)
- **Jerónimo Morales-Toledo** - Rackham Predoctoral Fellowship
- **Jerónimo Morales-Toledo** - Case Student Paper Award, Museum of Paleontology
- **James Saulsbury** (PhD 2021) - KU Research Achievement Award, University of Kansas
- **Jared Shiffert** - Russell B. King Memorial Award, Museum of Paleontology
- **Ella Squire** - Best Student Poster, Michigan Geophysical Union
- **Abigail Waller** - Best Student Talk, Michigan Geophysical Union
- **Benjamin Woodmansee** - Undergraduate Academic Excellence Award, Earth and Environmental Sciences



Liam McNulty



Top: (L to R) Ben Woodmansee, Lynnea Jackson, Zack Lyons-Weiler, Jerónimo Morales-Toledo, Tariq Abdul Kareem, Jie Gen; Bottom: Theodore Matel, Rodrigo Figueroa



Jerónimo Morales-Toledo with Jeffrey Wilson Mantilla



PUBLICATIONS

Al-Ashqar, S.F., Borths, M., El-Desouky, H., Heritage, S., Abed, M., Seiffert, E.R., **El-Sayed, S.** and Sallam, H.M., 2024. Cranial anatomy of the hypercarnivore *Bastetodon syrtos* gen. nov. (Hyaenodonta, Hyainailourinae) and a reevaluation of *Pterodon* in Africa. *Journal of Vertebrate Paleontology*, 44(3), p.e2442472.

Andrews, J.V., Shirley, E.A. and Figueroa, R.T., 2025. Vertebrates of the Blue Ridge Esker (Mississippian, Marshall Sandstone) of Michigan. *Contributions from the Museum of Paleontology, University of Michigan*, 36, pp.43-58.

Badgley, C., Morgan, M.E., and Pilbeam, D., 2025. Fishes in the Siwalik Record. Pp 108 - 116 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Badgley, C., Morgan, M.E., and Pilbeam, D., 2025. Highlights of the Siwalik Record and Future Research Opportunities. Pp 527 - 536 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Badgley, C., Morgan, M.E., and Pilbeam, D., 2025. Preamble to Faunal Chapters. Pp 97 - 98 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Badgley, C., Morgan, M.E., and Pilbeam, D., 2025. Preamble to Framing Chapters. Pp 1-2 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Badgley, C., Morgan, M.E., and Pilbeam, D., 2025. Preamble to Synthetic Chapters. Pp 389 - 408 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Badgley, C., Morgan, M.E., and Pilbeam, D., 2025. Siwalik Taphonomy: Fossil Assemblage Preservation. Pp 54 - 85 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Badgley, C., Morgan, M.E., and Pilbeam, D., 2025. Taxonomic and Ecological Dynamics of Siwalik Mammalian Faunas. Pp 481-526 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Berv, J. S., Singhal, S., Field, D. J. Walker-Hale, N., McHugh, S. W., Shipley, J. R., Miller, E. T., Kimball, R. T., Braun, E. L., Dornburg, A. Parins-Fukuchi, C. T., Prum, R. O., Winger B. M., **Friedman, M.,** and Smith, S. A. 2024. Genome and life-history evolution link bird diversification to the end-Cretaceous mass extinction. *Science Advances*, 10(31), p.eadp0114.

Cadena, E.A., Atuesta-Ortiz, D.A. and **Mantilla, J.A.W.,** 2025. New pterosaur fossils from the Early Cretaceous of Colombia. *Journal of South American Earth Sciences*, 151, p.105273.

Carter, B. E., and Alroy, J., 2024. Energy use of modern terrestrial large mammal communities mirrors Late Pleistocene megafaunal extinctions. *Frontiers of Biogeography*, 16(2).

Curley, A.N., **Petersen, S.V.,** Fricke, H. and Gleason, J., 2025. Insight into climate and hydrology of the late cretaceous western interior basin from clumped isotope Paleothermometry and strontium isotopes. *Earth and Planetary Science Letters*, 651, p.119180.

D'Emic, M.D., Finch, S.P., Britt, B.B. and **Wilson Mantilla, J.A.,** 2024. Increased sampling reveals the complex evolution of sauropod dinosaur tooth replacement rates. *Journal of Anatomy*. 2024 Dec 20. doi: 10.1111/joa.14169. Epub ahead of print. PMID: 39706808.

Fiebig, J., Bernecker, M., Meijer, N., Methner, K., Staudigel, P.T., Davies, A.J., Bayarjargal, L., Spahr, D., Winkler, B., Hofmann, S., Granzin, M., and **Petersen, S.,** 2024. Carbonate clumped isotope values compromised by nitrate-derived NO₂ interferent. *Chemical Geology*, 670, p.122382.

Gomes, L.D., **Petersen, S.V.,** Portell, R.W. and Riemersma, P.E., 2025. Plio-Pleistocene stratigraphy, paleoenvironments, and sea-level history at Florida Shell Quarry, Charlotte County, Florida, USA. *Journal of Sedimentary Research*, 95(2), pp.367-382.

Hardy, F.C. and **Badgley, C.,** 2024. Mammalian faunal change of the Miocene Dove Spring Formation, Mojave region, southern California, USA, in relation to tectonic history. *Geological Society of America Bulletin*, 136(7-8), pp.2646-2660.



PUBLICATIONS CONTINUED...

Hardy, F.C. and Rowland, S.M., 2024. Stable isotopic analysis of fossil Bison tooth enamel indicates flexible dietary ecology across Pleistocene North America. *Quaternary Science Reviews*, 334, p.108741.

Hardy, F.C., Wang, X., Bowman, C., Wang, Y., **Badgley, C.**, 2025. Dietary fidelity of Miocene ungulates in the context of environmental change in the Mojave Region, western North America. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 673, 1-11.

Herrera, F., **Carvalho, M.R.**, Stull, G.W., Jaramillo, C. and Manchester, S.R., 2024. Cenozoic seeds of Vitaceae reveal a deep history of extinction and dispersal in the Neotropics. *Nature Plants*, 10(7), pp.1091-1099.

Hilton, E.J., Bemis, W.E., and **Friedman, M.**, 2025. Interconnected Patterns of Natural History: The career and contributions of Lance Grande. *Contributions from the Museum of Paleontology, University of Michigan*, 37, 1-11.

Hoffman, J.J., **Petersen, S.V.** and Jones, M.M., 2025. Traditional and clumped isotope oyster sclerochronology: Implications for sub-annual temperature and water chemistry variation in the Western Interior Seaway during the mid-Cretaceous Thermal Maximum. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 664, p.112778.

Howard, C.M., Sheldon, N.D., **Smith, S.Y.** and Noffke, N., 2024. Interpreting an Archaean paleoenvironment through 3D imagery of microbialites. *Geobiology*, 22(3), p.e12601.

Johnson, A.L., Schöne, B.R., **Petersen, S.V.**, de Winter, N.J., Dowsett, H.J., Cudennec, J.F., Harper, E.M. and Winkelstern, I.Z., 2025. Molluscan isotope sclerochronology in marine palaeoclimatology: Taxa, technique and timespan issues. *Quaternary Science Reviews*, 350, p.109068.

Kareem, T., Chakraborty, S., and **Wilson Mantilla, J. A.**, 2024. Sauropod tail clubs from the Kota Formation (Lower to Middle Jurassic) of India and their implications for early sauropod evolution. *Journal of Vertebrate Paleontology*, 44(1). <https://doi.org/10.1080/02724634.2024.2396814>.

Korin, A., Allam, S., Humphrey, J.D., Amao, A.O., Ayranci, K., Najjar, M.I., Bahameem, A.A., **Zalmout, I.S.**, Memesh, A.M. and Kaminski, M.A., 2025. The genus Hantkenina in Saudi Arabia: Implications for biostratigraphy and paleoecology across the Bartonian–Priabonian transition. *Revue de Micropaléontologie*, p.100844.

Lewis, J.E., Ward, C.V., Kimbel, W.H., Kidney, C.L., Brown, F.H., Quinn, R.L., Rowan, J., Lazagabaster, I.A., **Sanders, W.J.**, Leakey, M.G. and Leakey, L.N., 2024. A 4.3-million-year-old Australopithecus anamensis mandible from Ileret, East Turkana, Kenya, and its paleoenvironmental context. *Journal of Human Evolution*, 194, p.103579.

Machesky, M.D., Sheldon, N.D., Hren, M.T. and **Smith, S.Y.**, 2025. The sensitivity of reconstructed carbon dioxide concentrations to stomatal preparation methods using a leaf gas exchange model. *Applications in Plant Sciences*, p.e11629.

Markowska, M., Vonhof, H.B., Groucutt, H.S., Breeze, P.S., Drake, N., Stewart, M., Albert, R., Andrieux, E., Blinkhorn, J., Boivin, N. and Budsky, A., Clark-Wilson, R., Fleitmann, D., Gerdes, A., Martin, A.N., Martínez-García, A., Nicholson, S.L., Price, G.J., Scerri, E.M.D., Scholz, D., Vanwezer, N., Weber, M., Alsharekh, A.M., Al Omari, A.A., Al-Mufarreh, Y.S.A., Al-Jibreen, F., Alqahtani, M., Al-Shanti, M., **Zalmout, I.S.**, Petraglia, M.D. and Haug, G.H. 2025. Recurrent humid phases in Arabia over the past 8 million years. *Nature*, pp.1-8.

Matel, T.P., Gandolfo, M.A. and Mitchell, J.D., 2024. Cuticular morphology of Schinus L. and related genera. *Botanical Journal of the Linnean Society*, 208 (1), pp 91-123.

Minnebo, L., Winkelstern, I., Zhang, J. and **Petersen, S.V.**, 2024. Last Interglacial coastal hydroclimate variability in Bermuda revealed by clumped isotope oyster sclerochronology. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 643, p.112195.

Neves, M.P., Hugi, A., Chan, H., Arnold, K., Titus, K., Westneat, M.W., **Zelditch, M.L.**, Brandl, S. and Evans, K.M., 2024. Ecological shifts underlie parallels between ontogenetic and evolutionary allometries in parrotfishes. *Proceedings B*, 291(2033), p.20241897.



PUBLICATIONS CONTINUED...

Quirk, Z.J., **Smith, S.Y.**, Paul Acosta, R. and Poulsen, C.J., 2024. Where did they come from, where did they go? Niche conservatism in woody and herbaceous plants and implications for plant-based paleoclimatic reconstructions. *American Journal of Botany*, 111(11), p.e16426.

Rosenbach, K.L., Goodvin, D.M., Albshysh, M.G., Azzam, H.A., Smadi, A.A., Mustafa, H.A., **Zalmout, I.S.** and **Wilson Mantilla, J.A.**, 2024. New pterosaur remains from the Late Cretaceous of Afro-Arabia provide insight into flight capacity of large pterosaurs. *Journal of Vertebrate Paleontology*, 44(1), p.e2385068.

Ryan, B.H., **Petersen, S.V.**, Rivers, J.M. and Kaczmarek, S.E., 2024. Clumped-isotope evidence for the formation of nonplanar dolomite textures at near-surface temperatures—Reply. *Journal of Sedimentary Research*, 94(6), pp.901-902.

Saber, S., Salem, B.S., Ouda, K., Gohar, A.S., El-Sayed, S. and Sallam, H.M., 2025. A long-snouted dyrosaurid (Crocodyliformes, Mesoeucrocodylia) from the Campanian Quseir Formation of Egypt. *Cretaceous Research*, 165, p.105982.

Santaquiteria, A., Miller, E.C., Rosas-Puchuri, U., Pedraza-Marrón, C.D.R., **Troyer, E.M.**, Westneat, M.W., Carnevale, G., Arcila, D. and Betancur-R, R., 2025. Colonization Dynamics Explain the Decoupling of Species Richness and Morphological Disparity in Syngnatharian Fishes across Oceans. *The American Naturalist*, 205(3), pp.E000-E000.

Scholz, S.R., **Petersen, S.V.** and Anderson, B.M., 2024. Modern reconstructions of mean and seasonal-scale climate from coastal marine gastropods (Turritellidae). *Palaeogeography, Palaeoclimatology, Palaeoecology*, 655, p.112553.

Tassy, P. and **Sanders, W.J.**, 2025. Siwalik Proboscidea. Pp 249-259 in Badgley, C., Morgan, M. E. and Pilbeam, D. (eds) *At the Foot of the Himalayas: Paleontology and Ecosystem Dynamics of the Siwalik Record*. Baltimore: Johns Hopkins.

Thomas, G.W., Hughes, J.J., Kumon, T., **Berv, J.S.**, Nordgren, C.E., Lampson, M., Levine, M., Searle, J.B. and Good, J.M., 2025. The genomic landscape, causes, and consequences of extensive phylogenomic discordance in murine rodents. *Genome Biology and Evolution*, 17(2), p.evaf017.

Troyer, E.M., Evans, K.M., Goatley, C.H., **Friedman, M.**, Carnevale, G., Nicholas, B., Kolmann, M., Bemis, K.E. and Arcila, D., 2024. Evolutionary innovation accelerates morphological diversification in pufferfishes and their relatives. *Evolution*, 78(11), pp.1869-1882.

Walker, Z., Stockey, R.A., Rothwell, G.W., Atkinson, B.A., **Smith, S.Y.** and Iglesias, A., 2024. A fossil dicranid moss from the Late Cretaceous of Antarctica. *The Bryologist*, 127(3), pp.342-352.

Weaver, L.N., Kelson, J.R., Holder, R.M., Niemi, N.A. and **Badgley, C.**, 2024. On the role of tectonics in stimulating the Cretaceous diversification of mammals. *Earth-science reviews*, 248, p.104630.

Weiss, A.K. and **Berv, J.S.**, 2025. Habitat-associated evolutionary rates in deep-sea invertebrates. *Evolution*, p.qpaf080.

Zaher, H., Pol, D., Larsson, H.C. and **Wilson Mantilla, J.A.**, 2024. Special volume 'Cretaceous tetrapods from South America'. *Zoological Journal of the Linnean Society*, 202(4), p.zlae149.

Zhang, J.Z., **Petersen, S.V.**, Lavis, S. and Williams, B., 2024. Quantifying variations in $\delta^{18}\text{O}$ and salinity in modern Bermudan waters on hourly to monthly timescales. *Frontiers in Marine Science*, 11, p.1441113.

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