LSA MUSEUM OF PALEONTOLOGY
UNIVERSITY OF MICHIGAN

2021 YEAR IN REVIEW

University of Michigan Museum of Paleontology
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DIRECTOR'S NOTE

Dear friends and colleagues,

Greetings on behalf of the University of Michigan Museum of Paleontology! 2021 presented a range of challenges, but the UMMP community rose to the occasion with a typical mix of determination and ingenuity. As you'll see in this newsletter, our students, postdocs, research fellows, staff, affiliates and faculty continue to innovate in our core missions of research, curation, and education.

The pandemic gave us opportunities to expand digital access to our holdings, but direct examination of physical specimens remains invaluable. The re-opening of our collections to external visitors was therefore a major highlight of 2021, and an important step to resuming some of the most significant aspects of our on-site activities. We were also able to welcome members of the broader University of Michigan community back into UMMP spaces. Curators and collections managers hosted groups at all levels, ranging from College leadership to a first-year biology course with several hundred undergraduates.

In the past year, we bid a fond farewell to several affiliated graduate students who have gone on to pursue the next phases of their careers. At the same time, we've seen an influx of new people, ideas, and approaches, all of which will ensure that the museum remains a center of cutting-edge paleontology. We welcomed several new students to our vibrant graduate community, as well as a new NSF research fellow and two Fulbright fellows from Morocco and Mexico. Undergraduates are once again working in our collection spaces and preparation labs. As I write, we are wrapping up the final stages of a search for a new faculty curator jointly appointed between the UMMP and the Department of Earth and Environmental Sciences. I hope to share more details with you in our next newsletter.

Our strong ties with the avocational paleontological community continued this past year, with the Friends of the UMMP making the most of their virtual meetings to host speakers from both near and far. The UMMP took formal possession of a remarkable set of Ordovician echinoderm fossils collected and prepared by Friend Joe Koniecki. This includes several holotype specimens named over the past few years. 2021 also saw a special honor for two of the longest-serving Friends. The Paleontological Research Institution named Sally Labadie and Dave Thompson as co-awardees of the Catherine Palmer Prize, which recognizes avocational paleontologists for excellence in contributions to the discipline.

I welcome you to learn a little more about events at the UMMP over the past year on the following pages. Thank you again for your continued interest in—and sustained support of—our mission. On behalf of all of us here at the UMMP, may 2022 be a safe and healthy one for you and your loved ones.

- Matt Friedman, Director of the U-M Museum of Paleontology

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Discoveries from the Sands and Sea

Ancient Elephant from the Desert

The discovery of a massive 4.5 million year old skull found near Lake Turkana in Kenya provided new insights about elephant evolution. Belonging to an adult male elephant, this Pleistocene skull help fills a gap between the origin of elephants around 8 million years ago and younger fossils dated at 3.5 million years old.

Comparative study of the cranium was undertaken by UMMP Associate Research Scientist and Chief Vertebrate Preparator William Sanders, who has worked widely in Africa and Arabia for nearly 40 years investigating the evolution and ecology of fossil elephants and their proboscidean relatives. Results of this work are published in the journal *Palaeovertebrata*.

Learn more at: *https://news.umich.edu/fossil-elephant-cranium-reveals-key-adaptations-that-enabled-its-species-to-thrive-as-grasslands-spread-across-eastern-africa/*

Right lateral and frontal view of fossil elephant cranium KNM-ER 63642, Loxodonta adaurora*, from Ileret, Kenya. Greatest length of the cranium is 1367 millimeters (mm) and greatest width is approximately 914 mm. Images originally produced as 3D scans by Timothy Gichunge Ibui, National Museums of Kenya and Turkana Basin Institute. Photo courtesy of William Sanders, University of Michigan Museum of Paleontology.*

Meave Leakey and William Sanders examining the Loxodonta adaurora cranium KNM-ER 63642 in its plaster jacket at the Ileret research facility of the Turkana Basin Institute. Photo courtesy of Steve Jabo, Smithsonian Institution.

A Mammoth from the Deep

In 2019, scientists from the Monterey Bay Aquarium Research Institute (MBARI) aboard the R/V Western Flyer off the coast of California observed what appeared to be an elephant tusk resting on the bottom of the Pacific Ocean at a depth of over 3000 meters. Their remotely operated vehicle was able to retrieve a piece of the tusk and bring it back to the surface for studies that confirmed it was from a mammoth.

A multi-institutional team including researchers from MBARI, the UMMP, and UC Santa Cruz was assembled to study the specimen, and on a second expedition in July of 2021, the team successfully recovered the remainder of the tusk from depth. The tusk has been CT scanned at the U-M CTEES (Computed Tomography in Earth and Environmental Science) facility, and the team expects to report their findings later in 2022.

Read more in this article from the *New York Times*: *https://www.nytimes.com/2021/11/22/science/mammoth-tusk-ocean.html*

Randy Prickett (left) pilots the Monterey Bay Aquarium Research Institute's remotely operated vehicle Doc Ricketts while MBARI Senior Scientist Steven Haddock documents the mammoth tusk before beginning the retrieval operation. Image credit: Darrin Schultz © 2021 MBARI

A Mastodon at Dinosaur Hill

In early September of 2021, six-year-old Julian Gagnon was wading in a creek at the Dinosaur Hill Nature Preserve in Rochester Hills, MI looking for interesting rocks, sticks, and maybe even a "dragon tooth". Despite the fast current and limited visibility, he spotted something strange on the creek bed and pulled it from the water to add to his collection.

Later that day, Julian's mother sent photographs of the object to the UMMP, thinking that it might actually be a large tooth. Museum Collection Manager and 3D Specialist Adam Rountrey confirmed that the specimen was actually an upper molar of a mastodon and made arrangements with the family and representatives from the nature preserve to visit the site with Curator Dan Fisher to determine if any more of the animal's remains might be present.

While no additional material was found, the tooth alone is informative and can contribute to our understanding of how mastodons lived. So, when Julian's family later made a visit to the UMMP, he decided to donate it for study and preservation.

A 3D model of the tooth can be viewed on our UMORF website (https://umorf.ummp.lsa.umich.edu/wp/specimen-data/?Model_ID=1617), and a 3D-printed replica will be produced for display at the nature preserve.

Julian Gagnon, and younger brother, tour the UMMP Collections with Vertebrate Collection Manager, Adam Rountrey. Credit: Benjamin Hess, UMMZ

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Reopening the Collections

Students in the Collections

As part of an Introductory Biology Lab course, over 700 U-M undergraduates visited the UMMP collections at the Research Museums Center in November. Student favorites included two-billion-year-old *Grypania spiralis* from Michigan's Upper Peninsula and a mosasaur-bitten ammonite.

Photos: UMMP Collection Manager Jen Bauer gives a tour of the vertebrate collections, *Photos courtesy of Benjamin Hess and Carly Nowicki.*

Visitors in the Collections

In September of 2021, UMMP welcomed its first external visitors to the collection for more than a year and a half. Anne Kort (pictured left) and Charles Salcido (pictured right), graduate students from Indiana University working with former Michigan Fellow David Polly, came to study Paleogene mammals housed at the museum. Since then, we've hosted visitors from the University of Edinburgh, George Mason University, and Michigan State University.

Updates from the Friends

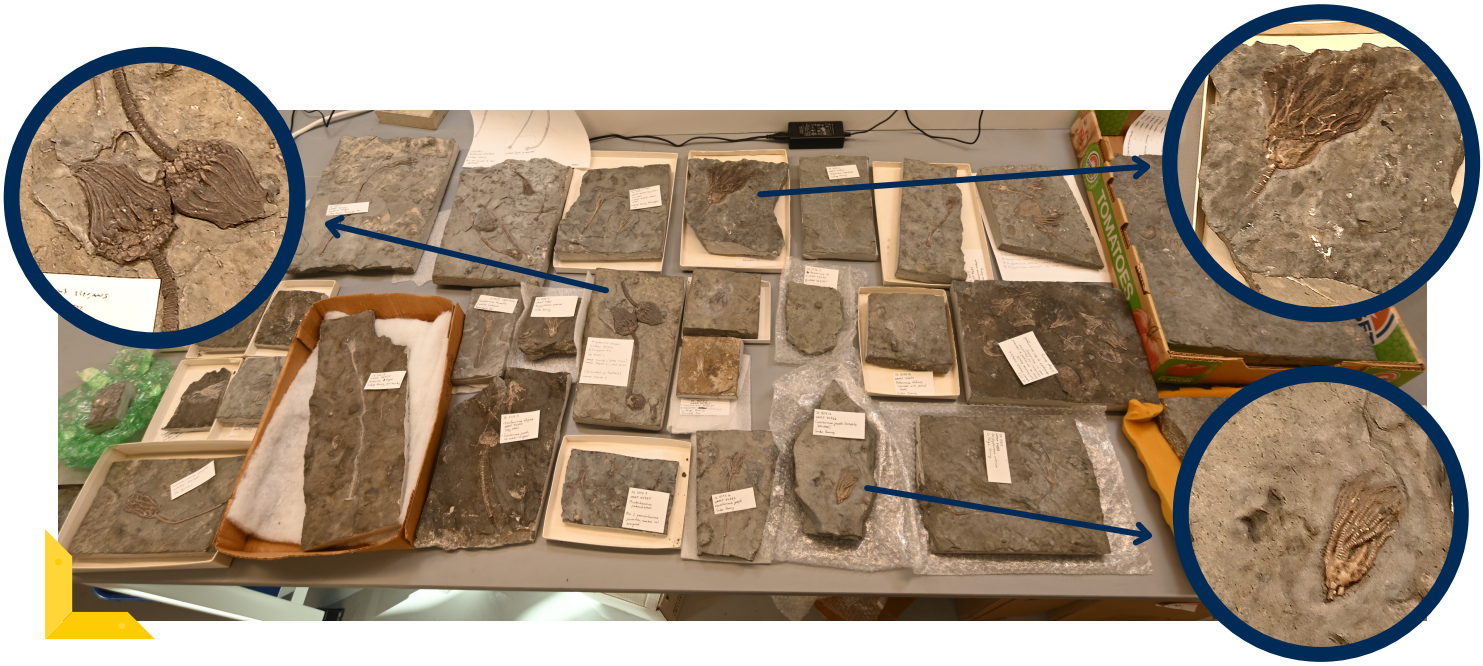
The Friends of the U-M Museum of Paleontology (FUMMP), also known as 'The Friends', is a group of avocational paleontologists, fossil enthusiasts, and collectors who support the activities, research and study of fossils at the UMMP.

You can learn more about the FUMMP, including how to join and their meeting schedule, on the UMMP website by clicking the 'About Us' tab in the top menu. To look into the Friends' personal collections head to MichiganBasinFossils.org.

The Koniecki Crinoid Donation

Long-time FUMMP member Joe Koniecki generously donated a collection of immaculate crinoid (also known as sea-lilies) specimens to the UMMP Invertebrate Collection. Specimens include several specimens preserved intact, as well as crinoid calyx, columnals, and stems.

The collection will be housed at the Research Museums Center. The entire donation is pictured below. Some portions of the image have been enlarged for detail. *Photo courtesy of Jen Bauer, UMMP.*



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HAPPENINGS WITH THE U-M MUSEUM OF PALEONTOLOGY

NEW AND FAMILIAR FACES

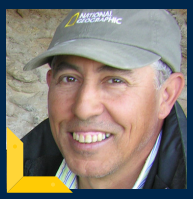
CURATOR EMERITUS TOMASZ BAUMILLER RETIRES

Curator Emeritus Tomasz Baumiller announced his retirement in 2020. Baumiller served as curator at the museum since 1996, specifically in the invertebrate collections. A celebration of his work and research is forthcoming.

RESEARCH VISITORS

Jesús Alberto Díaz-Cruz

From Mexico, Jesús earned his bachelor's degree in Biology from the Universidad de Ciencias y Artes de Chiapas. He is a PhD candidate in the Universidad Nacional Autónoma de México (UNAM), with research focused on Cretaceous fishes of Mexico. Jesus's work at UMMP with Mat Friedman on fossil and living lizardfishes is supported by a Fulbright-Comexus fellowship.



Professor Samir Zouhri

Professor Samir Zouhri of the Faculty of Sciences Ain Chock, Université Hassan II, in Casablanca, spent the months of September through November working with Philip Gingerich in the Museum of Paleontology (RMC). The two completed studies of Eocene sirenian and cetacean fossils from the western Sahara of southern Morocco. Samir's research in Ann Arbor was supported by the Fulbright Foundation.Visiting Scholars Program.

NEW RESEARCH FELLOW

Lucas Weaver

With an interest in the field of paleobiology, sedimentology/stratigraphy, and taphonomy, Luke is an NSF Postdoctoral Research Fellow in Biology working with Catherine Badgley. His research examines the causes and consequences of major transitions in early mammlian evolution.

ALUMNI SPOTLIGHT

Michelle Stocker

This year's spotlight focuses on alumna Dr. Michelle Stocker, an Assistant Professor of Geobiology at Virginia Tech. Now an internationally recognized expert in Triassic reptiles, Michelle got her first taste of paleontology as a U-M undergrad working with Bill Sanders in the UMMP prep lab. "I think I can confidently say that if it wasn't for my time working in the museum I would never have become a paleontologist. Everything really happened because of my time in the museum, and specifically in the fossil preparation lab." Her time at UMMP has also influenced her approach as a mentor to her own students. "I want my students to feel as much a part of the process of science as I felt, and also to feel like they matter as a person, which was what I remember more."

HAPPENINGS WITH THE U-M MUSEUM OF PALEONTOLOGY

GRADUATE STUDENTS & POSTDOCS

NEW AND FAMILIAR FACES

Graduate Students:



Defended in 2021: Alessio Capobianco, James Saulsbury (currently a postdoc at the University of Olso), Bian Wang (currently a postdoc at the Institute of Vertebrate Paleontology and Paleoanthropology, Bejing)






Begin in 2021: Kate Brooks (Advisor: Selena Smith), Lindsey DeHaan (Advisor: Matt Friedman), Sanaa El-Sayed (Advisor: Matt Friedman), Michael Machesky (Advisor: Selena Smith), Hadeel Saad (Advisor: Matt Friedman), Jerónimo Morales Toledo (Advisor: Selena Smith).

2021 HELPING HANDS

2021 Museum Techs

Guajinico Alvarez-Lopez, Lian Anderson, Austin Babut, Karter Burgdorf, Lili Calderon-Moscrip, Seamus Callaghan, Paloma Calvin, Marisa Clarke, Andrew Colon, Danielle Goodvin, Jacob Lusk, Justin Marshall, Molly Rose Powers, Lydia Sandefur, Cole Selman

UROP Projects in the Collections

Treating pyrite disease in fossils

- Giana Maniaci and Addy Alexopoulos (chemistry majors) are helping to design a characterization schema and experimental protocol for stabilizing fossils with pyrite disease.

Georeferencing fossil locality data

- Anna Hipp Kaplan (math major) and Paloma Calvin (Earth and Environmental Sciences major) are working to write a protocol for georeferencing fossil localities for our type specimens and are using ArcGIS Online to explore land ownership in the United States.

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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ACCOMPLISHMENTS

Awards & Distinctions

- Luke Weaver, Romer Prize, Society of Vertebrate Paleontology
- James Andrews, Graduate Student Research Award, Society of Systematic Biologists
- Hadeel Saad, Rackham Merit Fellowship, University of Michigan
- Kate Brooks, Rackham Merit Fellowship, University of Michigan
- Sanaa El-Sayed, Full PhD Scholarship, Egyptian Ministry of Higher Education
- Kevin Velez, Tinker Field Research Grant, Center for Latin American and Caribbean Studies, University of Michigan

Special Congratulations

Selena Smith was promoted to Associate Research Scientist in the Museum of Paleontology and Associate Professor with tenure in the Department of Earth and Environmental Sciences

FUMMP Members **Dave Thompson** and **Sally Labadie** were recipients of the 2021 Katherine Palmer Award

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