

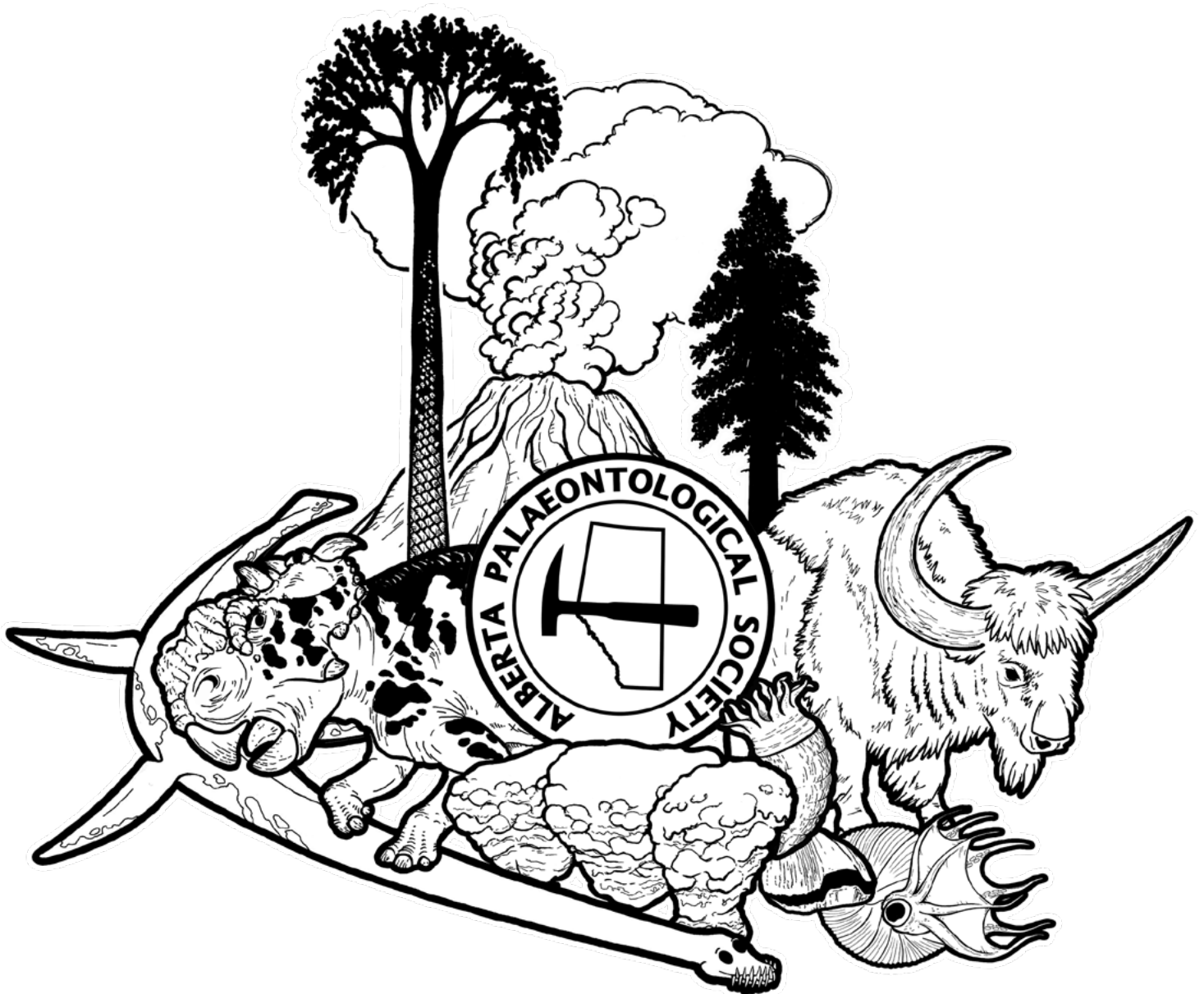
Alberta

Palaeontological Society Bulletin

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THE SOCIETY WAS INCORPORATED IN 1986

as a non-profit organization formed to:

1. Promote the science of palaeontology through study and education.
2. Contribute to the science by: discovery; responsible collection; curation and display; education of the general public; preservation of palaeontological material for study and future generations.
3. Work with the professional and academic communities to aid in the preservation and understanding of Alberta's heritage.

MEMBERSHIP: Any person with a sincere interest in palaeontology is eligible to present their application for membership in the Society. Please enclose membership dues with your request for application.

Single membership \$20.00 annually

Family or Institution \$25.00 annually

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NOTICE: Readers are advised that opinions expressed in the articles are those of the authors and do not necessarily reflect the viewpoint of the Society. Except for articles marked "Copyright ©," reprinting of articles by exchange newsletters is permitted, as long as credit is given.

Upcoming APS Meetings

Meetings take place at 7:30 P.M. in **Room B108,**
Mount Royal University, 4825 Mount Royal Gate SW, Calgary, Alberta.

Friday, December 8, 2023—Holiday Show-and-Tell Social

Bring your fossil specimens to show off or identify, and snacks to share with other members!

Friday, January 19, 2024—Kathleen Rust, University of Kansas.

Reading the fossil record: How fossils from China reveal the origin and evolutionary history of the last primate in North America before the arrival of humans. See Page 4.

Friday, February 16, 2024—Amber Whitebone and Dr. Nic Campione Ruben,
University of New England (Australia). *Two presentations!* See details, Page 5.

Saturday, March 16, 2024—Paleo 2024 (see Pages 21–23).

Check the APS website for updates! albertapaleo.org/events/monthlymeetings

ON THE COVER: Our new T-shirt design, by APS President **Cory Gross!** See story on Page 6.

In Memoriam

Life Member Steffie Negrich

1928 – 2023



With sadness we report the passing of APS Life Member Steffie Negrich on Wednesday, September 20, 2023, at the age of 95.

Steffie and Harvey were charter members of APS in 1986. Even earlier—from 1983—the Negriches hosted informal meetings of the core group of fossil-enthusiasts who eventually founded APS.

The Society's first Secretary and Treasurer (in those days the positions were combined as "Secretary-Treasurer"), Steffie served two terms in 1986 and 1987. She was also Membership Director in 1986 and again from 1988 through 1989, and assisted with *Bulletin* production in the early days.

Steffie was famous for preparing goodies for the annual Christmas meetings for many years and served as Social Director from 2002 to 2003. She and Harvey regularly entered fossil displays at the May annual show of the Calgary Rock and Lapidary Club, where they were longtime members. She attended many field trips with Harvey in the earlier years of the Society. The two were "snowbirds" for many years, travelling throughout the United States, hunting fossils and making many friends along the way. A woman of many talents, Steffie took up and excelled at many hobbies, including sewing, knitting, quilting, painting and stone carving (an example of her carving is shown here).

Within the last year, Steffie's generosity to the Society is being seen in a final legacy, in which Harvey and Steffie made a major monetary commitment to APS, in partnership with the Canadian Energy Geoscientists Association (formerly CSPG).

Our heartfelt thanks and sympathy are extended to Harvey and to all of Steffie's family and friends. □

An obituary for Steffie can be read online at <https://www.arbormemorial.ca/en/mountain-view/obituaries/steffie-negrich/110012.html>

Thank You!

Members Anita Reilander, Dr. Lisa Bohach and Peter Meyer made monetary donations to APS this fall. Georgia Hoffman donated a copy of the Steve Brusatte book, *The Rise and Reign of the Mammals* to the APS library (see review in the *Bulletin*, September 2023). We appreciate your generosity! □

Upcoming Events

December

Holiday Show-and-tell Social

Bring your fossils to show off or identify, and snacks to share!

Friday, December 8, 2023, 7:30 P.M.
Mount Royal University, Room B108



Bison cow and calf, stone carving by Steffie Negrich. Photo: H. Allen.

Kathleen Rust

Ph.D. Candidate, University of Kansas

Reading the fossil record: How fossils from China reveal the origin and evolutionary history of the last primate in North America before the arrival of humans

Friday, January 19, 2024, 7:30 P.M.
Mount Royal University, Room B108.

VIRTUAL PRESENTATION—This talk will be streamed in Zoom format to meeting attendees at Mount Royal University and online to those watching from home. Members will be notified by email with instructions on watching from home.

Ekgmowechashala is a poorly documented but every distinctive primate known only from the late early Oligocene (early Arikarean) of western North America. Because of its unique dental anatomy and spatiotemporal isolation, the evolutionary and biogeographic affinities of *Ekgmowechashala* have long been debated.

Here, I will present the oldest known fossils of *Ekgmowechashala* from the Brown Siltstone Beds of the Brule Formation, White River Group of western Nebraska and a new fossil species, *Palaeohodites*, from the Nadu Formation (late Eocene) in the Baise Basin of Guangxi Zhuang Autonomous Region in southern China. Despite being widely separated through time and space, I will demonstrate how these two fossil species are closely related. Specifically, I will explain results from two independent phylogenetic analyses that unequivocally demonstrate that North American *Ekgmowechashala* and *Palaeohodites* are sister species that belong to a larger group of southern Asian adapiform primates called ekgmowechashalids.

The discovery of *Palaeohodites* not only elucidates the origin of *Ekgmowechashala* as an immigrant taxon from Asia, but also helps fill the considerable disparity in dental evolution between *Ekgmowechashala* and other extinct ekgmowechashalids known from southern Asia. I will also explain how this study of *Ekgmowechashala* and *Palaeohodites* underscores the fundamental role of southern Asia as a refuge for multiple primate groups during the cooler

and drier climatic regime that prevailed after the Eocene–Oligocene transition. The colonization of North America by *Ekgmowechashala* corresponds to an example of the Lazarus effect, whereby a taxon (in this case, the order Primates) reappears suddenly in the fossil record after a lengthy hiatus.

Biography

Kathleen Rust is a Ph.D. Candidate researching early primate evolution and systematics at the University of Kansas Biodiversity Institute and Department of Ecology and Evolutionary Biology. She received a B.A. (2012) with high honours in anthropology and German from the University of Texas at Austin. She earned an M.A. in anthropology (2018) from Hunter College City University of New York. Her master's thesis work involved collecting data from fossils to investigate the phylogenetic affinities and origins of sivaladapids—an extinct group of adapiform primates. Her thesis research suggests a new possible evolutionary scenario for the origins and evolution of Sivaladapidae. During her graduate studies in New York City, she was recruited as a biological anthropology educator at the American Museum of Natural History (AMNH). As a doctoral student, she conducts palaeontological fieldwork with her colleagues, collecting mammalian fossils from late Paleocene rock formations in Wyoming and Eocene rock formations in Turkey.

She continues to study and publish on adapiform systematics and her dissertation research investigates the purported evolutionary trade-off between vision and olfaction in early primate evolution. By studying the fossils of primates and genomes of living mammals, her research explores morphological integration of the maxillofacial skeleton to test if changes in the facial anatomy reflect this trade-off between the visual and olfactory sensory systems in the fossil record of primates. In addition to research, Rust remains active in outreach and education for local audiences through the KU Museum of Natural History and Biodiversity Institute. □

APS microfossil sorting bears fruit!

Our fossil pickers are acknowledged in a recent journal paper by **Dr. Jonathan Perry**, **Dr. Alex Dutchak** and **Dr. Jessica Theodor**:

<https://doi.org/10.26879/1246>

–Vaclav Marsovsky

Amber Whitebone

Ph.D. Candidate, University of New England (Australia)

Bone cells to big dinos: Using liquid crystal polarimetry as a new tool to learn about fossil vertebrates

— and —

Dr. Nic Campione Ruben

University of New England (Australia)

Unveiling ancient life through combined quantitative and traditional palaeontological approaches

Friday, February 16, 2024, 7:30 P.M.
Mount Royal University, Room B108

VIRTUAL PRESENTATION—These talks will be streamed in Zoom format to meeting attendees at Mount Royal University and online to those watching from home. Members will be notified by email with instructions on watching from home.

Visit our website for talk abstracts and updates when they are made available.

albertapaleo.org



Under the guidance of Dr. Alex Dutchak (foreground), volunteers search for fossils during a microfossil sorting session held on November 5, 2023. Photo by Mona Trick.

Microfossil sorting sessions January thru March, 2024

By Mona Trick

Winter blues? You can still find fossils in the dark depths of winter at the APS microfossil sorting sessions on the following **Sunday** afternoons:

- January 14, 2024**
- January 28**
- February 11**
- February 25**
- March 10**

We will be using microscopes in Room B213 at Mount Royal University (Main Building) from 1:00 until 3:30 P.M. We will be aiding the research of **Dr. Jessica Theodor** and **Dr. Alex Dutchak** of the University of Calgary by finding tiny fossils in the matrix (sediment) from the Cypress Hills Formation (Middle Eocene) of Saskatchewan. APS is very grateful to Mount Royal University for allowing us to use their microscopes and lab.

Due to the use of expensive microscopes and the delicate nature of the fossils we're collecting, there is a minimum age of 12 for all participants.

Registration is not required, but if you contact **Mona Trick** at (587) 578-4579 or **giftshop@albertapaleo.org** and let me know that you are planning

to attend, then I can inform you if we need to cancel a session. No experience is required. Bring tweezers (with pointed ends) or a small paint brush to pick the tiny fossils from the samples and a pen to label your finds. Parking is free at Mount Royal University on Sundays. ☐

New T-shirts on sale now!



We're excited to offer a new APS T-shirt design! Artist (and APS President!) Cory Gross describes his design:

"The new T-shirt design is meant to celebrate the diversity of Alberta's prehistory and connections with our neighbouring regions. Flanking the APS logo to the left and right are a *Pachyrhinosaurus lakustai* from Pipestone Creek and a *Bison latifrons*, the Ice-age longhorn buffalo that ranged across North America. Beneath the *Pachyrhinosaurus* is the marine reptile *Albertonectes vanderveldei* from the Bearpaw Formation, which is the world's longest known elasmosaur. Beneath the *Bison* are a representative rugose coral, brachiopod, and scaphitoid ammonite.

"Directly beneath the APS logo are stromatolites, referencing the 1.1-billion-year-old Siyeh Formation fossils found in the Waterton-Glacier International Peace Park and Castle Wildland Provincial Park area. Above the *Pachyrhinosaurus* is a giant lycopod tree like *Lepidodendron* or *Sigillaria*, representing the *Stigmaria* site that used to exist in Canyon Creek. *Stigmaria* is the name assigned to the root fossils of these ancient lycopods. One of less than a handful of *Stigmaria* localities in Canada, the site in Canyon Creek was apparently buried by the 2013 floods.

"Above the *Bison* is a *Metasequoia* tree, the

leaves, twigs and cones of which are common Late Cretaceous and Early Cenozoic fossils in Alberta. Between them is a volcano representing the 110-million-year-old eruption in the Cranbrook, B.C., area that deposited the Crowsnest Volcanics here in Alberta. *Blairmorite* is a rare volcanic rock known only from the Crowsnest Volcanics site in the Crowsnest Pass and the Lupata Gorge in Mozambique, Africa. The volcano is also a tribute to late APS member **Phil Benham**, who had a passion for climbing volcanoes around the world and passed away earlier this year."

You can purchase T-shirts at APS general meetings, or by mail order. An order form is included on the back page of this *Bulletin*, or on the APS website: <https://albertapaleo.org/store/>

Your Initials Please!

By Mona Trick

As part of your APS membership renewal every year, we require your permission to continue to send you e-mails about APS events. This is required by the federal anti-spam law. We need your initials on the renewal form to be sent either by mail or e-mail to myself at giftshop@albertapaleo.org or to Howard Allen at membership@albertapaleo.org. When sending via e-mail, you can scan the renewal form or take a picture of it (JPG, PDF, PNG, BMP, DOC, DOCX formats are all fine).

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Kemmerer, Wyoming

Review of Field Trip 2023-3, July 14 – 16

By Walter DiMattia

Palaeontology in Wyoming is a rich field of study that spans nearly every geologic time period. The state is home to many fossil sites, and this was the APS's first trip to Wyoming (and the third to the US). Our three-day visit was to explore the world-famous fossil beds of the Green River Formation exposed near Kemmerer (pronounced "Kem-myhr").

The Green River Formation (Eocene ~ 50 million years ago) is known for its well-preserved fossil plants and vertebrates (fish, turtles, rays, birds and even horses). The Green River Formation records the largest and best-preserved fossil lake ecosystem in the world consisting of three ancient lakes spanning parts of Wyoming, Colorado and Utah. Of the three lakes "Fossil Lake" is the most important from a palaeontology perspective.

The unusual chemistry of Fossil Lake, whereby the upper portion of the lake was fresh and the lower portion was saline, prevented decay and scavenging of dead organisms. Essentially, when the fish died, they sank down into the deeper and more saline portion of the lake where they were better preserved,

in an environment that scavengers could not access. This resulted in the highest concentration of articulated fossil fish in the world. These fish, other fossilized aquatic organisms and associated geologic features make Fossil Lake the world's best Paleogene record of a freshwater lake ecosystem.

Day 1—Friday, July 14

Our trip began at Fossil Butte National Monument Visitor Center (although it's called a visitor centre it has the look and feel of a museum). From the parking lot, a timeline of planet Earth starts on the road leading up to the Visitor Center, with the formation of Earth, 4.54 billion years ago. The timeline is set to scale, with every 2.3 cm equaling 1 million years in time.* Along the road, major geologic and biologic events are displayed, thus setting the context when you enter the Visitor Center (<http://www.nps.gov/fobu/index.htm>).

* The scale given by the Visitor Center signage and the NPS website, "9 inches per 1 million years" is wrong by a factor of 10. That would make the display over a kilometre long! It should read "0.9 inches per 1 million years."



Figure 1. View from the Fossil Butte trail. As you can see, the skies were clear. Given the poor air quality in western Canada from all the forest fires this year, the air quality in Wyoming was excellent.



Figure 2. Keith, Shane and Les view one of the several posted signs as they begin ascending several flights of stairs to the top.

Inside there are more than 2,000 Green River Formation fossils displayed and park rangers on hand to answer any questions. The fossils on display include primitive fishes, turtles, crocodiles and birds along with fossilized plants, flowers and seeds to help understand ancient climates. Even inside the men’s and ladies’ washrooms you’ll find fossils displayed—coprolites!

After touring the Visitor Center, half of our group embarked on one of the hiking trails that highlighted the geology of Fossil Butte. I was struck by the elevation—at over 2,100 m above sea level, I found the 4 km loop strenuous but well worth the effort. This particular hike included the historic fossil quarry (Figure 1).

After an exhausting day our group of eight headed back to Kemmerer and we had dinner at a very busy Mexican restaurant called El Jaliciense. It was interesting to learn that Kemmerer (population 2,214) has more Hispanic/Latinos than African Americans and Native Americans combined.

Day 2—Saturday, July 15

Our second day began with a visit to Warfield Fossil Quarry (“Fossil Safari” <http://www.fossil-safari.com>) to hunt for fossils in the “Split Fish layer”

within the Fossil Butte Member of the Green River Formation. Once we paid the US\$90.00 entrance fee, tools were provided and after a brief orientation we were quickly on our way. The site is on private land and therefore you can keep any fossils you find unless it is rare or of scientific value.

While most of us found ample fish fossils (usually *Knightia* or *Diplomystus*—distantly related to modern-day herrings and sardines), Keith did find a sting-ray fossil (Figure 10; still being prepared at the time of this writing) which he had to relinquish so it could be prepared. Keith will likely be given the first option to buy it.

After a day of splitting rocks and getting covered in dust we cleaned up and headed for dinner at the Caribou Café. Kemmerer

has a surprising variety of restaurants given its small size.

That evening, the group participated in a “VIP” night dig (http://www.fossil-safari.com/fossil-safari_vip_dig.html). This portion of the trip, although

optional, is what I feel makes this experience very unique as I am not aware of anything like this elsewhere. It’s focussed on the Fossil Butte Member of the Green River Formation, but more specifically, the so-called “18-inch member,” which produces the largest and best-preserved fossils. The dig begins just before sunset and continues after sundown under artificial lighting, which makes it easier to spot the fossils. Strips of steel bars are hammered in between the rock layers to allow the sheets to separate and expose the fossils. The exposed fossils are then collected for preparation. It was well past midnight by the time we had completed our work,

for which we paid US\$500 per person—a steep price, one might add, but it’s a rare opportunity to gain this sort of hands-on experience. Figure 4 illustrates the site and the layer splitting needed to expose the fossils.

Figure 5 was taken close to midnight after the

FUN FACTS
 The Eocene fish *Knightia* is the Wyoming state fossil and *Triceratops* is the state dinosaur.



Figure 3. Your correspondent at the quarry with other APS members of the group in the background. Photo: Esther Rodzinyak.



Figure 4. The owner of Warfield Fossil Quarries, Rick Hebdon, cuts out a fish fossil while APS member Shane looks on. Steel shims hammered along the edge of the slab force the layers to split along a single plane. Photo: Keith Mychaluk.



Figure 5. The “VIP” crew poses in the quarry after dark. Photo: Rick Hebdon.

other quarry, “American Fossil” (<http://www.fishdig.com>) which also focusses on the “Split Fish Layer” within the Fossil Butte Member of the Green River Formation. Like the previous site it is on private land, which means you can keep any fossils you find. But unlike the previous site, the procedures at this location were highly structured and more suited for children (a lot of rules!). Along with everyone else at the site our group was

group had completed exposing and recovering the fossils. Our work was done, but the preparation work done by the professionals had yet to begin.

Figures 6 through 9 show the progress of a fossil through the preparation lab, from the “raw” fossil-bearing slab to the completely prepared specimen.

Day 3—Sunday, July 16

On the third day we visited an-

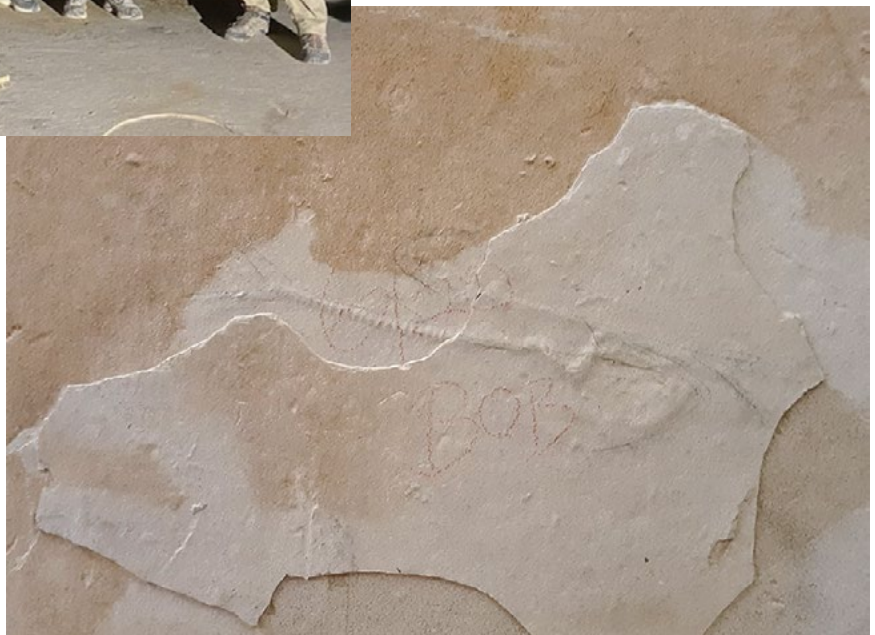


Figure 6. An unprepared fossil fish, on first discovery. The spinal column is faintly visible as a line of bumps on the surface of the slab. Photo: Rick Hebdon.

confined to a roped-off area where the staff could keep a close watch on everyone. We were pleased to learn of an “adults only” section which was better suited for experienced fossil enthusiasts.

Our last dinner together was at the Kettle Restaurant in Kemmerer. It was a chance to reflect on the trip. We were delighted with all aspects of the trip and that all went well. It speaks to the amount

of planning and preparation that goes into the effort. Thank you, Keith! ☐

Reference

Grande, L. 1984. Paleontology of the Green River Formation, with a review of the fish fauna. Geological Survey of Wyoming, Bulletin 63, pp. 24–30. <http://npshistory.com/publications/fobu/gsw-bul-63.pdf>



Figure 7. In the preparation lab, a pair of fish fossils is partially exposed using an air scribe to remove most of the superficial matrix. Photo: Rick Hebdon.



Figure 8. In the next stage of preparation the specimen is partially cleaned of matrix using the air abrasive (“sand blaster”) tool. Photo: Rick Hebdon.



Figure 9. The pair of fishes shown in figures 7 and 8 is now fully prepared with the air abrasive tool. Photo: Rick Hebdon.



Figure 10. Spectacular fresh-water ray fossil found by field trip leader Keith Mychaluk. Probably *Heliobatis radians*, female (Grande, 1984; pers. comm. V. Marsovsky). His find, missing most of the tail, was inserted into a slab with a "spare" tail, to create this composite specimen. Unfortunately for Keith, this is considered a "rare or scientifically important" find, so he will have to pay a premium if he wants to keep it. Total length of the specimen is about 70 cm. Photo: Rick Hebdon.

Danek Bonebed, Alberta

Review of Field Trip 2023-4, August 19

By John Koning

My earliest memories go back to growing up on a farm near Whitemud Creek, which at that time would have been on the outskirts of Edmonton. For me these were pretty happy times, so when **Tako Koning** suggested I join him for a field trip to tour the Danek Dinosaur Bonebed along the Whitemud Creek, feelings of nostalgia compelled me to sign up. Of course, time changes a lot of things and the city limits have moved at least 10 km further south, thus the locale for our get-together was nowhere near my childhood playground. That put a quick end to those warm and fuzzy thoughts!

Had it not been for our guides, **Dr. Phil Currie** and **Dr. Eva Koppelhus** I would have felt miffed that the ever-expanding city's growth had slaughtered those childhood landmarks. These two renowned researchers shared their knowledge not only about this fossil collection site but also about what this all

means to our increasing understanding of dinosaurs. With worldwide fascination about dinosaurs having exploded over the last fifty years, spending a morning with these leaders in the field had me dreaming in a completely different direction.

While the actual bone bed required a short walk down a wet and slippery neighborhood path, Phil spent some time in the makeshift parking lot explaining the history of the site and its use as a palaeontological field school offered to students at the University of Alberta (U of A). A local fossil enthusiast and area resident, **Danek Mozdzenski**, contacted the Tyrrell Museum in 1989 suggesting that he thought he could identify dinosaur bones along the outcrops in the ravine. Things progressed slowly or not at all for a variety of reasons until today it has become recognized as a site where many animals, mostly *Edmontosaurus*, are preserved and studied. Perhaps some of that time was dedicated to choosing



Figure 1. Dr. Currie (right) gives the attendees an introduction to the Danek Bonebed site.



Figure 2. Dr. Currie and Dr. Eva Koppelhus discuss the palaeontology of the Danek site.

the right name, and attaching the finder's surname would not have received my vote.

If I had any regrets about missing out on a field course like this during my tenure in school, they were quickly laid to rest when we toured the actual bone bed excavation. Hauling overburden for a week before you lay eyes on a dinosaur leg bone seems daunting enough, but establishing a stable grid and working in soft sediment, which, on our visit, would have been nothing but mud, puts real context on what is involved.

After expressing our gratitude to Dr. Currie and Dr. Koppelhus, we set off for the University of Alberta to visit a fossil preparation lab in the BioScience Building as well as the Earth Sciences Museum. By this point, I was prepared to accept the fact that it wouldn't be the same as the place I studied at for four years.

Dr. Koppelhus focuses on palaeobotany and palynology, and her displays of fossilized plants and spores, along with showcases of other researchers, dot the halls of the BioScience building. In the bowels of the edifice are the storage and working areas for receiving and preparing the materials that arrive here. It is a bit of an eye-opener to see how much time and effort goes into transforming a field specimen into something that you might see on display in a museum. Trying to put a 2D puzzle together is nothing compared to the work of gluing or chiseling out even one fossilized bone!

Then there are the models constructed to deter-

mine the kind of teeth marks that might be inflicted and still visible on prehistoric remains. Some of our tour participants took this time to determine whether their heads would be more than a morsel for one of these meat eaters (Figure 3).

Our last stop of the day was the rock and fossil museum in the basement of the Earth Science building that is curated by **Lisa Budney**. The place has expanded enormously since I last visited it, especially the amazing palaeontology portion, which would not have happened without many contributions from folks who taught me during my undergrad years. Besides the fossils is a vast array of rock, minerals and

information generally dedicated to Alberta geology that is free to the public to visit and a good stop for



Figure 3. Tako uses his noggin to figure out the crushing force of a *Tyrannosaurus rex* jaw at the U of Alberta palaeo lab.



Figure 4. Hands-on time with specimens at the Earth Sciences Museum.

parents and kids alike.

Many thanks to Lisa and two grad students as well as a staff member who opened up their facilities and answered questions on their day off to provide our group with this tour on the campus. Chatting one on one with passionate folks on all things fossil-related expands my knowledge so much more than a book

could ever do! Everyone who attended the trip likely took home something different but for me it was great to connect my past to the present. What's often underappreciated is all the background work our trip organizer, **Keith Mychaluk**, puts into making the day possible in the first place. □

Tyndall Stone, Calgary

Review of Field Trip 2023-5, September 16

By Eric Campbell

When most people think of fossil hunting, they think of the same types of locations. Perhaps dry badlands nearly empty of vegetation and with a clear blue sky above, or maybe a desert stretching out to the horizon. For this last field trip of 2023 however, longtime Alberta Palaeontological Society member Tako Koning took us on a fossil hunting trip

in an unexpected location: downtown Calgary!

While the location may have been far removed from other fossil hunting localities, the weather certainly wasn't! On what some might pessimistically call the last warm day of the year, we met downtown at the legacy Alberta Government Telephones (AGT) building on 119 6 Ave SW. As is his wont, Tako began the tour with a thorough explanation of what we



Figure 1. Examining the AGT building for fossils.
Photo: Eric Campbell.

would be seeing, accompanied by many pictures taped up to the side of the building. The aim of the tour would be to see some of the buildings in downtown and inner-city Calgary whose outside cladding is Tyndall stone, a type of Ordovician (approximately 450 million years old) limestone originally quarried near the town of Tyndall, Manitoba. In addition to being highly sought after for its natural beauty, it is

highly fossiliferous. As Tako explained, although the blocks we were seeing were vertical, they would have originally been horizontal and so as we examined them we should think of ourselves floating in the waters of a warm, shallow sea, looking down at the seafloor below us.

Right away, we were able to see some of the more common fossil types. Most common were the *Thalassinoides*, an ichnofossil (trace fossil) hypothesized to be some sort of worm or arthropod bur-



Figure 3. Fragments of rugose (horn) coral.
Photo: Eric Campbell.



Figure 2. A receptaculitid fossil, pen for scale. The *Thalassinoides* burrows surrounding it are dolomitic, so are more resistant to weathering than the limy matrix, causing them to stand out in relief on weathered surfaces. Photo: Eric Campbell.



Figure 4. Tako (right) explains what fossils we might find (but didn't) in the Paleocene Paskapoo sandstone of Central United Church. Photo: Eric Campbell.

row, whose brown colour contrasting with the white limestone around it is part of what makes Tyndall stone so striking. We were also able to see some receptaculitids (“sunflower coral,” potentially a type of calcareous algae)—whose spiralling shape is so reminiscent of the sunflower for which it is named—along with some horn corals.

The next stop in the tour was the Bank of Montreal building (now a Goodlife Fitness) on Stephen Avenue (140 8 Avenue SW). On the way we passed the Central United Church, on whose outside we found many blocks of Paskapoo sandstone. While no fossils were found there, we were told that it is possible to find plant imprints and some coal chunks.

Once we arrived at the Bank of Montreal building, we were able to continue our fossil hunting. The majestic nature of the outside columns along with the guitar tunes from a nearby busker led to a very different



Figure 5. The Bank of Montreal building, showcasing the beauty of Tyndall stone. Despite decades of weathering, the carvings are still extremely detailed. Photo: Eric Campbell.



Figure 6. An orthocone nautiloid cephalopod.
Photo: Eric Campbell.



Figure 7. Massive blocks of Tyndall stone. On the stone in the foreground you can see a cut-through section of a *Favosites*-like "honeycomb" tabulate coral head. Photo: Eric Campbell.

feel from other fossil hunting trips!

Continuing on, we headed to the Kensington Safeway. At the front of the building they had put massive blocks of Tyndall stone (potentially as benches?) which proved to have many interesting fossils in them. Particularly interesting was the ability to see the 3D structure of a receptaculitid fossil, as some blocks had been cut in a way to allow us to view the interior of the specimens. There was also a spectacular sponge, some gastropods and several nautiloids. One passerby asked what we were doing, as apparently a group of people staring intently at some stone blocks wasn't a common sight, but seemed tragically uninterested in learning more after he was told that we were fossil hunting.



Figure 8. The starburst shape in the centre is a sponge, *Aulacopella*. Photo: Eric Campbell.

The final stop on the tour was the Senator Patrick Burns building at SAIT. These blocks were especially impressive, as their comparatively recent installation meant that there was less weathering than at other locations. Since there were so many blocks, we were able to find many finely-preserved specimens, including some that were so high up that we could just make out their outlines. What a waste, to put such beautiful fossils in a place where we could just barely see them! Surely an oversight on the part of the architect.

Continuing our perambulation of the building (which doesn't seem that large until you are walking



Figure 9. An orthocone (straight-shelled) nautiloid next to a receptaculitid. The through-section of the receptaculitid demonstrates the 3D structure beautifully. The interior sections (camerae) of the nautiloid have been filled by some sort of crystal (calcite?), making them especially striking. Photo: Eric Campbell.

around the outside examining every piece of stone for more fossils), Tako shared with us that he had been accosted by security several times on previous visits, continuing the theme of people staring intently at rocks being an unusual sight. While we looked nervously at the security guards, they left us alone—perhaps being in a large group made us seem more normal. Once we had circumnavigated the building, the tour was at an end. While some continued to Tako’s house to continue talking about fossils, others had to head home. Regardless, it was a beautiful day and a wonderful way to end the 2023 field trip season—a tour of fossils within walking distance of where many of us live, work, and play and a reminder that fossils can be found in the most unexpected locations! □

Bibliography

Koning, T. 2020. Tyndall Stone: Hunting Ordovician fossils in downtown and inner-city Calgary. *Alberta Palaeontological Society Bulletin*, 35(4), 27 – 37.

Your Society needs Volunteers!

**Please THINK about
volunteering for APS!**

Figure 10. The group! More fossils are visible in the walls on the right of the photo. Photo: Tako Koning.



Confusion on APS Field Trips

Why it's worth paying attention to details!

By Tako Koning

Grassy Lake Field Trip, June 25, 2022

My wife **Henrietta** and I are both APS members. On June 25, 2022, my wife and I attended the APS Grassy Lake field trip in the Taber, Alberta area. The objective was to look for amber in Cretaceous-age sediments in the abandoned Grassy Lake coal mine. The mine operated in the late 1960s but is now inactive. This site is well-known in the palaeontological community since an interesting variety of insects have been found in the amber.

At 9:00 A.M., in the village of Grassy Lake, we joined a small group of APS members who were waiting for everyone else to arrive. Our esteemed field trip leader was **Keith Mychaluk**. One individual who had signed up for the field trip had not yet arrived. Shortly after 9:00 we heard Keith's phone ringing and we overheard someone asking Keith where we were. The person said, "I am at Grassi Lake waiting for all of you to arrive." We heard Keith telling him, "We are already at the meeting place here in Grassy Lake and *we're* waiting for *you*." The person replied, "No—I don't see you." Then he added, "I am at Grassi Lake, near Canmore." Keith responded, "We're at Grassy Lake, near Taber!"

Needless to say, our confused APS member missed out on the field trip. Funny how a single letter in a place name can be so important.

Moose Mountain Field Trip, August 17, 2022

Later that summer, I signed up for the APS field trip to Moose Mountain. I had always wanted to go on the Moose Mountain field trip to see the fossiliferous Mississippian strata. To be sure that I would be included as an attendee, I signed up for the trip way ahead of the deadline. The meeting place was at a parking lot just west of Bragg Creek. On Friday evening I told my wife that I would be attending the field trip and would be leaving early the next morning to meet everyone near Bragg Creek.

Early Saturday morning I drove to Turner Valley and continued westward for some time, looking for the meeting spot. I said to myself, "This is taking a long time to find that meeting location." Then I sud-

denly realized that I had mixed up Bragg Creek with Turner Valley and was on the wrong road. By then it was too late to join the field trip. Very embarrassed, I drove back to Calgary. I have always heard of the expression of an older person like myself experiencing a "senior moment." I realized that I had experienced a "serious senior moment." It took me about a week to get over it.

Stanley Glacier Field Trip, August 21, 2021

Another field trip where I made a mistake in my palaeontological knowledge was the APS field trip to Stanley Glacier, in Kootenay National Park, BC. This was one of my first APS field trips since returning to Canada after thirty years of living and working as a geologist in Asia and Africa. My knowledge of Western Canadian geology and palaeontology had become rather rusty.

Along the trail, I saw some dark coloured limestones with a lot of thin coral-like lineaments on them. They looked to me like the stromatoporoid *Amphipora*. The field trip leader was **Dr. Chad**



Figure 1. *Leaverite* on the Stanley Glacier trail. Photo by Tako Koning.

Morgan who was with the Department of Geoscience, University of Calgary. The other field trip leader was the esteemed **Keith Mychaluk**. I asked, “Are these fossils *Amphipora*?” Dr. Morgan looked at me and said, “Nope, we are in the Cambrian here and *Amphipora* grew in the Devonian so it is impossible that these rocks have *Amphipora*.” Then he patiently told me to look more closely at the “fossils.” He explained that these streaks in the limestone were scratches caused by the hiking poles of those walking along the footpath; in fact this was an



Figure 2. Real *Amphipora*. Scale bar = 2 cm. U. Devonian, Cairn Formation, Rocky Mountains, Alberta. APS 2014-003, file photo.

example of a *leaverite*. I told him I had never heard of “leaverite.” He said it’s an abbreviation for “leave ‘er right here,” meaning don’t even think of taking it home and just leave it right where you found it.

Manyberries Field Trip, June 26, 2021

My wife very much enjoys the APS field trips. She is not especially interested in fossils. She is more interested in birds, flowers and plants. But she loves that the APS field trips brings a person to off-the-beaten-path places like the field trip on June 26, 2021 to the area south of Manyberries, Alberta just north of the USA border. This area which we explored was remote, isolated beautiful prairie.

On APS field trips, I am always looking down on the ground searching for fossils. With my geological hammer I am bashing the rocks open and looking for fossils. I have my geological hand lens available for detailed examination of fossils or for any kind of fossilized critters. At the same time, my wife has her binoculars focused up on the sky and trees looking for birds. We really look forward to being on some of next year’s APS field trips. □



Figure 3. The Editor and his hiking pals have taken to calling this modern trace fossil “*Pseudoamphipora*” thanks to the number of times we’ve been fooled by it. On the right is the “trace maker”—hiking boot ice-spikes. Upper Devonian, Palliser Formation, East End of Rundle (EOR) trail, near Canmore, AB. Photo: Howard Allen.

Paleo 2024

Alberta Palaeontological Society's
27th Annual Symposium

The Symposium

Paleo 2024 is a one-day event with talks, posters and displays on Saturday, March 16. Programs are free and open to the public. Main events will be centred in the lower level corridor at Mount Royal University. Lectures will be held in the Jenkins Theatre.

Call for posters and abstracts

You are invited to present a poster at Paleo 2024. The symposium will feature presentations from avocational, student and professional palaeontologists from all over western Canada. We welcome posters or displays associated with palaeontology. Our aim is to showcase palaeontology to the general public. There is no fee to submit a poster and abstract.

A 5 × 6 foot display panel will be supplied to each presenter. You should bring push pins or tape for attaching posters, but we will try to have some on hand for those who forget. Special requirements such as electricity to operate a display or a larger display area should be identified when you request a space. Presenters are requested to provide an abstract (see below). We request that poster presenters be set up by 8:30 A.M. Saturday, March 16. During the day a poster session period will be specified; please be available at least during this time for discussion of your exhibit. **Deadline for submitting requests for poster space is February 15, 2024.**

Paleo 2024 abstracts volume

A symposium abstracts volume will be published and sold at a price to cover costs. We request all speakers and poster presenters to submit abstracts or short papers for publication. **Submissions may be any length:** less than a full page is fine, multi-page abstracts or short papers will be accepted. **Contributors are encouraged to include photos and other illustrations**, but note that colour images will be converted to black and white. Documents are not edited for content but will be formatted for publication. The authors' mailing and email addresses should be included. **Submission deadline is February 15, 2024.** Download guidelines for authors (PDF) from our website, albertapaleo.org or contact the Editor (see contact information, next page).

Contact Information

Paleo 2024 Committee Chairperson: Mona Trick, (587) 578-4579, symposium@albertapaleo.org

Posters & displays: Matthew Rhodes (403) 336-0554, posters@albertapaleo.org

Presentations: Lacey Holoboff (403) 894-0698, programs1@albertapaleo.org

Abstract submissions: Howard Allen (403) 862-3330, editor2@albertapaleo.org

Advertising: Mona Trick, (587) 578-4579, symposium@albertapaleo.org

Visit the APS website for confirmation of lecture times and speakers: albertapaleo.org/events/symposium/

Helpful Hints for Poster Presenters

Definition

A poster is a visual medium to express results or an overview of one's research work on a topic they have chosen to study, or to provide an overview of a researched topic.

Who should do a poster?

Anyone who has an interest in sharing their work and who likes feedback from the audience (symposium attendees) should consider doing a poster.

What should be considered for a poster?

Any topic that ties in with palaeontology can be considered for a poster.

Why posters?

Oral or written presentations are mechanisms to convey past and recent developments in a field of study that is essential to the investigator. An effective written presentation is a poster presentation.

What is a poster?

A poster is something that you pin up on a board. The dimensions of a poster can vary. It can consist of individual letter size sheets to as large as 1.2 m × 2.4 m. It contains text and figures relevant to one's work. It follows the same pattern as any scientific article that appears in a journal.

A typical poster format:

- Title, Author(s), Affiliation
- Summary—sum up the study in one paragraph
- Introduction—reasons behind the work
- General information
- Geographical location where the fossils were found.
- Description and interpretation
- Conclusions
- References

Dedicate a box to each of the above categories. Within the box, include the text and figures relevant to that category. Number the boxes in such a way that the reader can follow from one box to the next in a sequence the presenter wishes. The structure of the framework may change from topic to topic.

How does one make a poster?

Posters can be made manually or digitally. Drafting a poster by hand involves some manual labour but does not require computer access. Creating a poster on a computer can be done entirely with graphics and word processing software, open source alternatives, or even online graphic design websites. Either way, when designing a poster, think visually—use graphics and visuals to tell your story, supported by clear and concise text where needed.

How should the poster look?

The poster is typically viewed from 1 to 2 metres away, therefore the letter (or font) size must be large enough that the text can be easily read. Also, figures should be reasonably large. Think about when the eye doctor wants you to read off the letter chart from a distance. Adding colours makes a difference to the poster, and can lure attendees to your poster or drive them away.

A great blog article with tips for poster presenters is available here: <http://blogs.lse.ac.uk/impactofsocialsciences/2018/05/11/how-to-design-an-award-winning-conference-poster/>

What's an abstract?

An abstract is just a summary of your work, from introduction to conclusion, boiled down to one or a few paragraphs. We'd like to have an abstract from each of our poster presenters and speakers, to include in the Symposium Abstracts Volume. Illustrations are encouraged (they will be converted to black-and-white).

Most of all, have fun!

New location for APS videos on YouTube

By Mona Trick

After several missteps, I have reconfigured the APS YouTube channel. It can now be found at:
<https://www.youtube.com/@AlbertaPaleo>

To make it easier to find a particular video, they are arranged in the following playlists:

- *2023 Friday Night Talks*
- *Paleo 2023*
- *Paleo 2018*

The old APS channels have been removed.

Palaeontologist jobs at Stantec

Member **Dr. Lisa Bohach** informs us that Stantec consulting company is hiring palaeontologists, based at their Calgary office, to start in 2024. "An advanced degree is preferred, but the company would consider experienced individuals without an advanced degree."

<https://stantec.jobs/calgary-ab/senior-paleontologist/8BBBB37BA0F04B9C966673B0C8DCBC83/job/>

APS Paleo 2024

Mount Royal University
4825 Mount Royal Gate SW, Calgary, Alberta

Presented in conjunction with the CEGA Palaeontological Division
and Mount Royal University Department of Earth and Environmental Sciences

Lectures and poster displays—**Saturday, March 16, 2024, 9:00 AM to 4:30 PM**

Events are free to the public

There will be fossil displays and activities of interest to a wide audience including families.

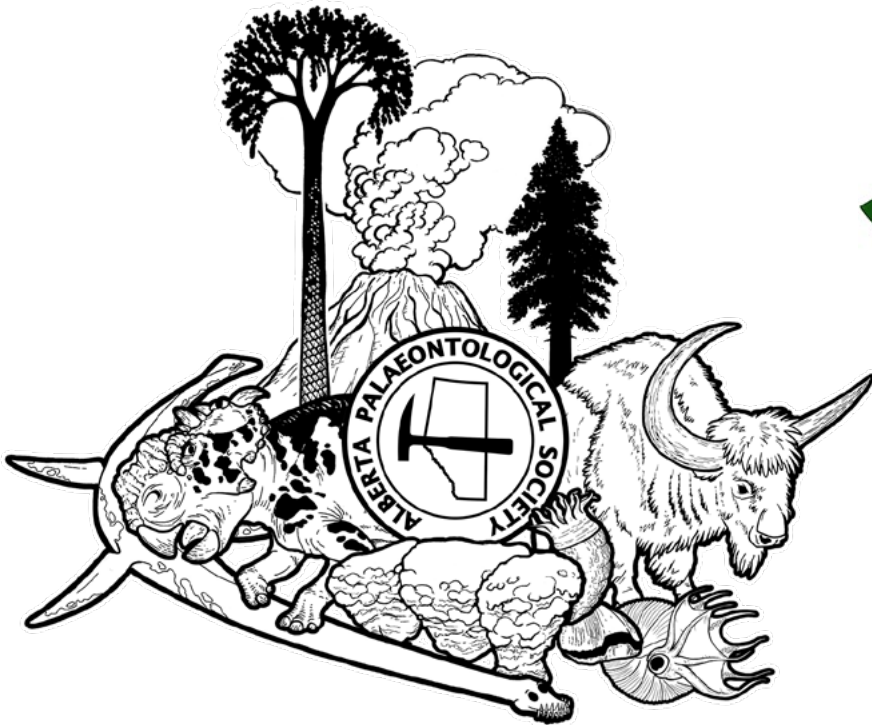
Saturday, March 16 speaker schedule. Times and titles may change.
All talks will be held in Jenkins Theatre, lower level of main building, Mount Royal University

- 9:00 AM** Opening statement by **APS President Cory Gross**
and symposium instructions by **APS Programs Coordinator Lacey Holoboff**
- 9:15 AM** *The Messel Pit, central Germany—Fossilized treasures of the Eocene.*
Tako Koning, Consulting Geologist
- 9:55 AM** *Palaeontology of the Springbank off-stream reservoir project: The Alberta Heritage Act at work.*
Dr. Jon Noad, Stantec Consulting
- 10:30 AM** Coffee Break.
- 10:45 AM** *The problem of protoceratids—the first horned artiodactyls.*
Dr. Jessica Theodor, University of Calgary
- 11:25 AM** *Lizard brained or bird brained? New insight into the evolution of the theropod brain.*
Jared Voris, University of Calgary
- 12:00 PM** Lunch Break and Poster Displays.
- 1:00 PM** *Ichnodiversity and taphonomy of continental bioerosion traces on Triceratops bones from the Frenchman Formation of Saskatchewan.*
Jack Milligan, University of Saskatchewan
- 1:45 PM** Poster session, coffee break. Poster presenters are requested to be with their posters.
- 2:45 PM** *(Tentative title) Update on the Kaskie Hadrosaur fieldwork.*
Darren Tanke, Royal Tyrrell Museum of Palaeontology
- 3:15 PM** Coffee Break.
- 3:30 PM** *(Tentative title) Stratigraphy and fossil sites.*
Dr. Jenni Scott, Mount Royal University
- 4:15 PM** *Closing remarks for Paleo 2024.*
Lacey Holoboff, APS Programs Coordinator

Check our website for updates: albertapaleo.org/events/symposium/

APS T-Shirts!

Design by Cory Gross



T-shirts are printed with white design on forest green fabric. Available in sizes S, M, L, XL, XXL. Some sizes may be available in limited quantities—please inquire. Pick yours up at the next meeting, or use the order form below.

Shipping and handling is charged at cost. Email giftshop@albertapaleo.org or phone or text **Mona** at **(587) 578-4579** with your full mailing address, for a quotation on shipping charges.

APS Members: \$15.00 Non-Members: \$20.00

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Email a scan or photo of this completed order form to **giftshop@albertapaleo.org**.

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