

# 2023 MEMBERS' PALEONTOLOGY EXPERIENCE

The Academy of Natural Sciences  
of Drexel University and  
Elevation Science



July 30–August 5, 2023



The Academy of  
**Natural Sciences**  
*of* DREXEL UNIVERSITY

# INTRODUCTION

Dear Academy Member,

We are excited that you have chosen to join us on this adventure. We are looking forward to working with you before and after our trip as we dig into our collections and prepare the fossils you help us find. We are also thrilled to be taking you on an adventure-filled week digging for dinosaurs and other fossils in the Bighorn Basin as we take in the cultural and natural history of Montana and Wyoming. We are proud to continue our partnership with the Elevation Science (ES) through this exciting member opportunity. On this unique trip, you will work alongside scientists in fossil-rich landscapes. We are so glad that you are interested in joining us for this unforgettable experience!

Please read the information contained in this packet and feel free to contact us if you have any questions. If you would like to participate in the expedition, please complete all of the attached forms and return them to the address listed below. Completion of these forms is required before your participation can begin.

Once again, thank you for your interest, and we look forward to seeing you next summer!

Sincerely,

**Kim Reynolds**  
*Executive Director,  
Institutional Advancement*

The Academy of  
Natural Sciences of  
Drexel University

**Caitlin O'Brien**  
*Deputy Director,  
Development*

The Academy of  
Natural Sciences of  
Drexel University

**Jason P. Schein**  
*Executive Director*  
Elevation Science





## GENERAL INFORMATION

The Members-only Paleontology field experience gives you the opportunity to join others that share your passion for the sciences and the outdoors!

Ever wonder what it's like to be a paleontologist? Now you can experience it for yourself on a special members-only trip this summer! Academy members are invited to join us for an exciting adventure-filled week prospecting for fossils and exploring the culture and history of the Bighorn Basin of Montana and Wyoming.

Academy and ES paleontologists will lead members into the foothills of the Rocky Mountains, where we will collect Jurassic and Cretaceous terrestrial fossils, including dinosaurs. In the evenings after we dig, we'll prepare and label our fossils and learn about the geology and paleontology of the area from ES paleontologists.

Before our trip, participants will get a chance to attend a special reception at the Academy, meeting our paleontologists and the ES team who will be in the field with you. We'll also get you ready for the trip, covering what to expect and bring, and we'll get you set up with your field notebooks and guide and some Academy-branded field gear.

During the trip, we will also discover the natural history, human history, and culture of one of the most beautiful habitats in North America. The 2023 Members' Paleontology Field Experience will consist of finding, collecting and documenting fossils such as dinosaurs, crocodiles and turtles, as well as invertebrates and plants, from continental rocks of both Jurassic and Cretaceous periods.

**You will receive an accompanying field expedition guide from ES before the trip that goes into more detail about the geology and paleontology of the sites.**

Keep in mind that this expedition is more than a simple sightseeing field trip. By participating, you will gain knowledge of both geology and paleontology while helping both institutions to continue decades-long research projects.



## REQUIREMENTS

### **This is a members-only trip!**

**AGE:** Anyone at least 13 years old may attend, but those age 13–17 must be accompanied by an adult. Children must turn 13 by July 1, 2023.

Activities include both leisurely and strenuous tasks, and participants should be in good physical condition. Daily activities involved with the Field School can be strenuous and undertaken in harsh conditions. Extended hiking on steep and loose mountainsides and heavy lifting, as well as 90+ degree temperatures, are common. You must be able to complete these and similar tasks regularly to participate.

## EXPEDITION LEADERS

### **Jason P. Schein**

*Executive Director, Bighorn Basin Paleontological Institute*

Jason Schein will lead the expedition for the Elevation Science. He has extensive field experience throughout much of North America and Argentina, and this will be his eleventh season co-leading the Elevation Science Field Expeditions.

### **Kim Reynolds**

*Executive Director, Institutional Advancement, The Academy of Natural Sciences of Drexel University*

This will be Kim Reynolds' second trip to the field study site. Kim oversees all aspects of fundraising and contributed revenue to ensure the Academy has resources to meet its ambitious mission to be a force for nature. She, in partnership with Caitlin O'Brien, will be coordinating activities and assisting in the field.

### **Caitlin O'Brien**

*Deputy Director, Development, The Academy of Natural Sciences of Drexel University*

This will be Caitlin O'Brien's third trip to the field study site. Caitlin works closely with our members and donors connecting them to the research of the Academy. She will be coordinating our extracurricular and educational activities and assisting the team in the field.

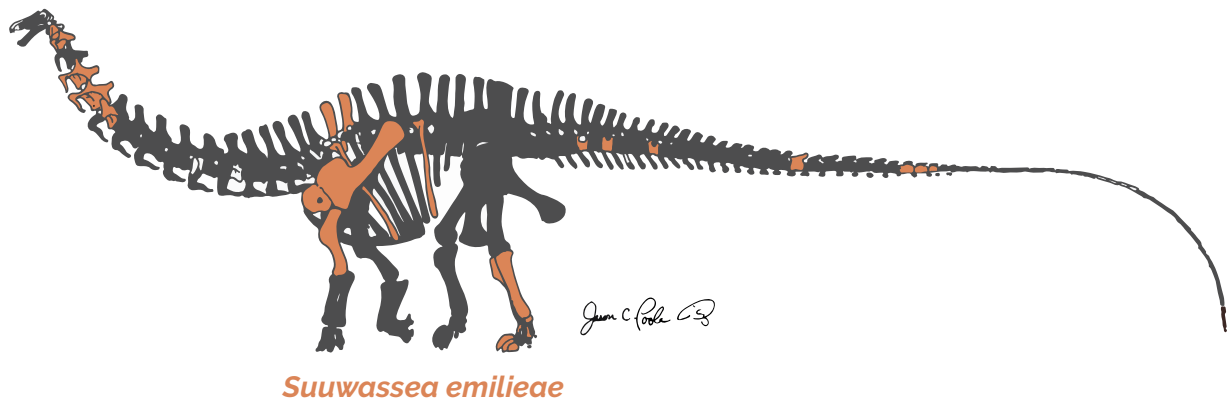
## WHAT WILL WE BE LOOKING FOR?

This is not just a fossil collecting trip! Attendees will participate in a decades-long research project to document the region's ancient organisms, which allow us to understand more fully these ancient ecosystems.

In 2016, we began extensive efforts in the late Jurassic Morrison Formation (~150 mya). Our original focus here was excavating at the original site of *Suuwassea emilieae*, a **SAUROPOD** dinosaur first found in 1999 and whose fossils reside at the Academy. This site yielded the only known skeleton of *Suuwassea*, and *Allosaurus fragilis* (**THEROPOD**) remains have been excavated from here as well. This area has proven to be so fossil-rich that it has become a major focus of our field and research efforts. In 2017 alone, we discovered the remains of a stegosaur, another *Allosaurus*, and several sauropods, as well as likely fossil-dense bone beds.

In 2017 the Academy/ES team also inherited the famous Mother's Day Site. This quarry, similarly in the late Jurassic Morrison Formation, includes the remains of dozens of juvenile *Diplodocus*, including rare skin impressions. This site is so densely packed with fossils that more than 2,500 bones were removed from it by teams from the Museum of the Rockies and the Cincinnati Museum of Nature over a 14-year period, and there is no end in sight.

Prior to the 2017 field season, our field and research efforts focused on nearby Late Cretaceous Lance Formation (70-65 million years old) and the dinosaur fauna contained within it, including *Triceratops*, *Pachycephalosaurus*, and *T. rex*. The fossil-rich Morrison rocks will keep us busy for the foreseeable future, but forays into the Late Cretaceous are always possible.



## CAN I TAKE FOSSILS HOME WITH ME?

Much of our fieldwork will be conducted on public lands (Bureau of Land Management), and there are very strict rules governing the collection of fossils from these areas. For a review of fossils on public lands and the rules concerning their collection, visit the Bureau of Land Management's site at [http://www.blm.gov/wo/st/en/prog/more/CRM/paleontology/fossil\\_collecting.html](http://www.blm.gov/wo/st/en/prog/more/CRM/paleontology/fossil_collecting.html).

These rules MUST be adhered to—revocation of our collecting permits, and even prosecution, may result if these rules are violated.

There may be opportunities to collect fossils for your personal collection. However, since this is primarily a research project, all materials collected for personal use must first be approved by the field school leaders.

# ITINERARY

Once we receive all the registrants, we will schedule a reception at the museum for you to meet each other, as well as to meet with the field team. You will get to see the fossils that have been collected in previous years on the trip, and we will orient everyone as to what to expect on the upcoming field experience. We'll also give you your field notebooks and some Academy-branded field gear as we go over expectations for keeping good scientific records for our research.

For the field experience in Montana and Wyoming, the following is a general daily itinerary. The schedule each day is highly flexible and dependent on a number of factors.

## DAY 1 (Sunday, July 30)

Arrive in Billings/Red Lodge, MT. If you are flying, a staff member will collect you as a group and drive you to the base camp, Yellowstone Bighorn Research Association (YBRA) in Red Lodge, Montana. Following dinner there will be an orientation in one of the classrooms, giving a basic summary of regional geology, paleontology, and local history.

## DAY 2–6

In the field

### GENERAL

Our days begin early with breakfast at 7:00 a.m. and a typical rollout time of 7:45 a.m. On some mornings, we will have optional morning bird walks starting at 6 a.m. We pack our lunches before breakfast to take them into the field with us. Dinner at YBRA is at 6 p.m.

### FIELD DAYS

Following breakfast, we will depart YBRA each morning at 7:45 a.m. and head out to our field sites. Throughout the week, we will be orienting you to the local geology, paleontology, and geography throughout the Bighorn Basin.

By the end of this week, you will be familiar with the landscape that existed in this area 150–50 million years ago, including its inhabitants, after personally collecting dinosaurs and other fossils for the Academy's research, exhibition, and education programs.

### EVENINGS

In the evenings, we will meet in a classroom to review and label our fossils, record information about the day's fieldwork in our notebooks, and learn more about the geologic history of the basin. We will also find time to roast marshmallows around the campfire!

### FRIDAY NIGHT

We will have the opportunity to enjoy the famous pig races and dinner at the historic Bear Creek Saloon!

## DAY 7 (Saturday, August 5)

After breakfast, we will transport you to the Billings airport, if needed. Please try to schedule your flight home for early to midafternoon so that no one is rushed for time.

In the fall after the fossils return to the Academy, we'll schedule a time for you to come back to the museum to help us open the jackets and begin preparing the fossils you found on your trip. We'll also set up a special Members' Night experience to celebrate your efforts.



## WHAT TO EXPECT IN THE FIELD

We will be conducting all manner of paleontological field activities in rugged and potentially hazardous terrain. Many of these activities involve long hikes over steep and loose hillsides and escarpments. Large excavations require heavy lifting and repetitive movements. All activities are conducted at high altitudes (over 5,000 feet).

***Participants must be in good physical condition to participate in the Members' Paleontology Field Study. Potential participants should consult their physicians' advice before registering.***

All participants must complete the Waiver of Liability Statement and submit it, along with the completed Registration Form, Medical Release Form, proof of medical insurance, and a 10% registration deposit.



## WEATHER

Base camp is located at approximately 6,800 feet in elevation. As a result, weather conditions are often cool during the day and can be chilly or cold at night.

Most of our field sites are at approximately 4,500 feet in elevation and are significantly hotter and more arid than the field camp. Conditions here are often hot, sunny, breezy, and very dry.

Average high and low temperatures are below. Please note: daytime temperatures often approach 100 degrees Fahrenheit and snow is not unheard of in the higher elevations in June or mid-August.

	Powell, WY	Red Lodge, MT
Average High	89°	79°
Average Low	53°	49°

## ACCOMMODATIONS

Members' Paleontology Field Study participants will stay at the Yellowstone-Bighorn Research Association (YBRA) in Red Lodge, Montana. Located on the edge of the front range of the Beartooth Mountains overlooking Red Lodge, the field station is a comfortable facility with cabins, home-style cooking, and spectacular views. Most showers are shared facilities (think campground). Pets are not allowed.

There are no laundry facilities in camp. However, if time is available, trips to the laundromat in Red Lodge can be arranged.

Detailed information about the field camp can be found here: <http://www.ybra.org/>.

Lodging and meals are covered by the fees.





# FIELD GEAR AND PACKING LIST

This list of required and recommended items is based on our own experiences and is not intended to be comprehensive. You will have ample opportunities to pick up anything you need at local stores.

Weather conditions change quickly and unexpectedly throughout the field areas. Participants should be prepared for a range of weather conditions each day, regardless of the forecast.

## REQUIRED EVERY DAY

- Field Book: Other than personal safety equipment, this is the **MOST** important item. The Bureau of Land Management (BLM) requires that we submit copies of field notes from every participant. **We will supply each of you with the field book!**
- Hat(s) to protect you from the **very strong** sun and to keep your head warm and dry in the event of rain or wind.
- Loose-fitting, light-weight, light-colored clothing
- Sunscreen, preferably with a high SPF and waterproof
- Sturdy and comfortable hiking or work boots
- Water bottle(s): there may not always be plenty of water available, so you need to carry at least three liters of water with you each day.
- Backpack
- Sleeping bag and pillow: our cabins at the Yellowstone-Bighorn Research Association camp are dormitory style (i.e., bunks with springs and mattresses, but you will need a sleeping bag or bed roll arrangement).
- Jacket or coat: It can get cool at night!
- Whistle (preferably one with a compass)
- Compass
- Sharpies, or any kind of permanent pen or marker that will write on just about any surface.

## SUGGESTED

- Camera
- Binoculars: In addition to dinosaurs, Montana has a variety of wildlife that may be found near our site, such as pronghorn antelope, mule deer, coyote, black bear, prairie rattlers, golden eagles, etc., as well as spectacular mountain and desert scenery.
- Rain gear
- At least two pairs of long work pants or jeans
- T-shirts
- Work shirts/sweatshirts: enough to create layers
- Headband or bandana
- Light and heavyweight socks
- Work gloves
- Chapstick with SPF
- Insect repellent
- Eyeglasses (contact lenses are not recommended)
- Sunglasses
- Kneepads or cushion: a lot of sitting and/or crouching on the ground is possible
- Personal items such as toiletries, towel, etc.
- Flashlight and batteries for reaching your cabin or the wash house at night
- Flip-flops/water shoes for the wash house
- Zip-Lock baggies

**\*\*All excavation tools and supplies will be provided to you.**

## TRAVEL INFORMATION AND ITINERARY

Remember that you are responsible for your own transportation to Montana. A member of our staff will meet you at the airport and transport you to the camp. Please inform the Academy of Natural Sciences staff of your travel plans as soon as possible.

Please don't forget to contact us with any last-minute changes!

**Participants should plan to arrive early on Sunday, July 30, between 10 a.m. and 3 p.m. Departures from the airport in Billings should be scheduled for no earlier than 10 a.m. the following Saturday, August 5.**

### HOW TO GET TO RED LODGE, MONTANA

**BY PLANE:** There is no scheduled air service directly to Red Lodge from Philadelphia. Arrange to fly into the Billings International Airport (BIL). Participants who arrive by plane will be met at Billings International Airport and transported as a group to the Yellowstone-Bighorn Research Association camp, which is just south of Red Lodge. At the end of the week's expedition, a similar return trip will be provided for those traveling by plane.

**BY CAR:** Red Lodge is an interesting drive from Billings and takes about one hour and fifteen minutes. The Yellowstone-Bighorn Research Association camp is just south of Red Lodge on the Beartooth Highway (U.S. 212). The camp is high up on the hillside, above the tree line to the east (left) of the highway. As you leave town and enter the Rock Creek Valley, you will pass a large gray rock formation on the right. About 100 yards beyond this is Howell Gulch Road. Howell Gulch Road crosses Rock Creek over a small bridge and climbs steeply about a mile to the camp. The road to the camp is steep and very rough, but can be reached by regular automobile in good weather. If lost, call the camp lodge at 406-446-9949 or 406-446-1333. The latter number has an answering machine.



## QUESTIONS

If you have any questions about the trip experience and if it's right for you, please don't hesitate to contact us.

**For registration and payment questions, please contact**

Tessa Edgren  
edgren@ansp.org  
215-299-1022

**To learn more about the trip experiences, please contact**

Caitlin O'Brien  
obrien@ansp.org  
215-405-5079



*SEE YOU THERE!*