

Hands-on Paleontology in the Land of Color: A Fossil Survey of Petrified Forest National Park

with the paleontological staff at Petrified Forest National Park, and Christa Sadler, M.S.
September 23-28, 2018

CLASS INFORMATION AND SYLLABUS

Petrified Forest National Park is deservedly known as one of the best records of Late Triassic paleontology and geology in the world. New paleontological discoveries are made with impressive regularity expanding the knowledge of this important time in the history of life on our planet. In addition, the archeological record at the park is an integral piece of the regional pre-history. Moreover, it is one of the most beautiful and fantastical landscapes anywhere!

Join Petrified Forest NP paleontologists and paleontologist Christa Sadler for an exploration of the geology and paleontology of some of the newly acquired park lands. We will car-camp in a remote area of the park (one which does not receive tourist visitation), and from this base camp we will prospect in the surrounding badlands for new fossil localities and excavate fossils at a known locality.

We will also have time to explore the region for petroglyphs, incredible scenery and whatever else we discover.

General Subjects:

- Regional geology and Mesozoic stratigraphy
- Geology and Stratigraphy of the Chinle Formation and relations to other Late Triassic formations worldwide
- History, Geology and Stratigraphy of Petrified Forest National Park
- An overview of the Permian-Triassic extinction and Mesozoic paleontology: what changed and what didn't?
- Paleontological investigations in the Chinle Formation and at Petrified Forest in particular
- Timeline of prehistory at Petrified Forest National Park

DAY 1 - SEPTEMBER 23

Meet at the Rainbow Forest Museum at the south entrance of the park ([Google Map](#)) at 10:00 AM. This day will be an introduction to the geology and paleontology of the region and of the park, and a chance to explore some nearby areas of the park on the way up to our campsite. Later in the day we will move to our base camp in the Cedar Tank Badlands and set up camp. Pack a lunch for today.

Note: We will need to carpool to camp in as few high-clearance vehicles as possible. Cars can be left at the Painted Desert Visitor Center at the north end of the park. If we need to go there to drop off cars before we head to camp, we will do that. Depending on what the condition of the road is, we will remain flexible as to how much we do before we head out to camp.

DAY 2 - SEPTEMBER 24

We will visit the paleontological collections and lab at the Painted Desert Visitor Center in the morning, to acquaint ourselves with what fossils look like in the field. In the afternoon, we will take a longer hike to acquaint ourselves with the landscape.

DAY 3 - SEPTEMBER 25

We will excavate at the Billings Gap Fossil Site and prospect for new sites nearby.

DAY 4 - SEPTEMBER 26

We will spend the day excavating and prospecting. We may take a hike at some point just to stretch our legs and visit some other areas in the vicinity, such as Red Basin and the Paulsell Clambeds.

DAY 5 - SEPTEMBER 27

Part of the day we will excavate and/or prospect, and we will take a hike to visit the Billings Gap Petroglyph Site.

DAY 6 - SEPTEMBER 28

We will return to the paleontology lab and learn some lab techniques for working with fossils, including screen washing and microscope work for very small fossils, as well as some preparation techniques. We will finish up with a quick wrap-up and goodbyes and be done by early afternoon.

***Note:** We will provide all the dinners for the trip, and you will be responsible for your own breakfasts and lunches. We will provide a cooler with ice for any refrigerated food, and for any drinks you'd like to bring and keep. We will have a full kitchen with stove and water, rain/sun tarp, as well as a toilet set up.*

Gear and Clothing List:

- Sleeping bag, pad, ground cloth, pillow, blanket, etc.
- Tent
- Camp chair
- Hiking boots
- Camp shoes
- Lightweight pants
- Pair of warm pants or sweatpants
- Knee pads or pad to sit on while excavating
- Two liters of water (at least)
- Daypack
- A roll of toilet paper
- Sun hat with a brim
- Warm jacket and a lightweight fleece or sweatshirt
- Long sleeved sun shirt
- T-shirts
- Rain gear
- Warm hat and gloves
- Work gloves. Something like Atlas or other Nitrile style gloves or lightweight cotton garden gloves. Something that will protect your hands but not be too thick to work with for finer detail.
- Headlamp, binoculars, camera, toiletries, sunscreen, notebook, etc. (the usual kit)
- Mess kit, mug and eating utensils

***Note:** Petrified Forest NP will provide excavation tools, but we can always use a few extra things: whisk broom and dustpan, rock hammer, awls or icepicks, small paintbrushes. If you have any of these things that can be*

used fairly hard, please bring them, but you don't need to buy them specifically for this trip.

The temperatures during the day could be in the low 90's and at night in the mid-50s. We may still get some monsoon weather, although it's less likely, but it's always a good idea to bring raingear.

ABOUT YOUR INSTRUCTOR

Christa Sadler has worked with the Petrified Forest Field Institute since its inception. She is a geologist, educator and naturalist with a serious addiction to rivers, deserts and mountains. She has pursued research in archaeology, geology and paleontology across much of the globe. Christa teaches geology and guides in the canyons and on the rivers of the Southwest in the spring and fall, and escapes to Alaska in the summers. She also runs This Earth, a small business that takes geology and fossil programs to children around the country, and designs Earth science exercises, programs and field trips for students in grades K–12. Christa's writing and photographs have appeared in *Plateau Journal*, *Sojourns*, *Sedona Magazine* and *Earth Magazine*. She is the author of *Life in Stone* and the editor of the anthology *There's This River ... Grand Canyon Boatman Stories*. Her book about the paleontology of the Chinle Formation, *Dawn of the Dinosaurs: The Late Triassic in the American Southwest*, was published by Petrified Forest Museum Association. She is also the author of *Where Dinosaurs Roamed: Lost Worlds of Utah's Grand Staircase*, published by the Glen Canyon Natural History Association.

RECOMMENDED READING

Ash, Sid. *Petrified Forest: A Story in Stone*.

Blakey, Ron and Wayne Ranney. *Ancient Landscapes of the Colorado Plateau*.

McCreery, Patricia and Ekkehart Malotki. *Tapaveni: The Rock Art Galleries of Petrified Forest and Beyond*.

Sadler, Christa and William Parker, *Dawn of the Dinosaurs: The Late Triassic in the American Southwest*.

Sadler, Christa. *Life in Stone, Fossils of the Colorado Plateau*.

Thybonny, Scott. *The Painted Desert: Land of Wind and Stone*.

Many of these books and other interpretive aids can be purchased at Petrified Forest Bookstore, through the Petrified Forest Museum Association online at www.petrifiedforestbookstore.com or from This Earth Press, at www.thisearthpress.com.

RECOMMENDED PLACES TO STAY IN HOLBROOK

Since you will be meeting on the morning of the 17th, you may want to spend the previous night in Holbrook. We recommend the Globetrotter Lodge, 902 West Hopi Dr. Holbrook, AZ 86025 (hotelsholbrookaz.com.)