

Itinerary

Days 1 - Arrive in Bozeman, Montana. Meet at a hotel near the airport at 18:00. Bozeman is the northern gateway to Yellowstone. It is possible to fly to Bozeman from several US cities including: Seattle, New York, Chicago, Denver, Salt Lake City, Las Vegas or Phoenix. If you are flying to Bozeman from outside the USA, you would first need to fly to one of those cities and change plane. You may consider arriving a day early to get to use to jet lag and to visit the excellent dinosaur exhibit in Bozeman's **Museum of the Rockies**.

Day 2 - Yellowstone National Park and World Heritage Site - We leave Bozeman and drive south making a few short geological stops in the Paradise Valley before entering **Yellowstone National Park** by the North Gate. Yellowstone is an active volcano and has produced some of the largest rhyolitic eruptions known on earth. It also hosts the world's largest concentration of hydrothermal features with more **geysers** than the rest of the world combined. Yellowstone is the world's first National Park, and a World Heritage Site. Our first stop in the park is **Mammoth Hotsprings** with its striking travertine terraces. We then proceed to **Sheepsteater Cliffs** to see columnar basalt before stopping at **Obsidian Cliffs**. We then have lunch at **Norris Geyser Basin**, Yellowstone's oldest and hottest thermal area with **Porcelain Basin**. Here we find the world's tallest geyser, the 400-foot **Steamboat Geyser**. We then drive to the **Grand Canyon of Yellowstone** making several stops on both sides of the gorge. This amazing canyon not only boasts 2 huge waterfalls but also allows us to examine the internal geology of a hydrothermal basin. We then drive on to **Tuff Cliff** to learn about the Yellowstone Caldera, with a final stop at **Terrace Spring** before spending the night in **West Yellowstone**. Drive time: 4hrs.

Day 3 - Yellowstone and Grand Teton National Parks. Our first stop of the day is **Firehole Canyon** where we examine rhyolite lava flows that have erupted since the caldera formed. We then travel on to **Fountain Paint Pots** in the **Lower Geyser Basin** and learn how acidic fluids attack the rock forming mud pots. Our next stop is the **Midway Geyser Basin**, famous for the gorgeous **Grand Prismatic Spring**, the park's largest hot spring. Midway is also home to Excelsior Geyser's 200ft by 300ft crater. We then proceed to the **Upper Geyser Basin**, home to at least 150 geysers packed into just one square mile, including the world's most famous, **Old Faithful**. Old Faithful erupts regularly and we will wait to see an eruption. We will also eat our lunch and take a walk around some of the other geysers. We then return to the car and pass along the **Yellowstone Lake**, briefly stopping at the **West Thumb Geyser Basin** before leaving the southern entrance of the Park and entering the **Grand Teton National Park** with its rugged mountain views. In Grand Teton we make several stops including at **Jenny Lake**. We spend the night in the nearby town of **Jackson**. Drive time: 3hrs30.

Day 4 - Fossil Butte National Monument. This morning we drive south along the Idaho and Wyoming boundary to reach Fossil Butte National Monument, the site of the famous **Green River fish fossils** which can be found in fossil shops and museums all around the world. The Monument has a wonderful museum and a scenic walk up to the old fossil quarry. The collection of fossils is not allowed in US National Parks and Monuments, however, if the weather conditions are suitable we plan to also visit a nearby '**pay to dig**' quarry on private land where we will be able to collect our own fish fossils. The night is spent in the nearest town, **Kemmerer**. Drive time: 4hrs.

Day 5 - Dinosaur National Monument. In the morning we drive through the **Bridger Basin** the discovery area of Eocene mammal fossils including the famous *Uintatherium*. We make a few short stops before crossing the **Uinta Mountains**. In the mountains we make some short geological stops before arriving in Vernal where we have lunch. After lunch we visit **Dinosaur National Monument**, and spend the whole afternoon at this wonderful site. In the Quarry Exhibit Hall, located over the world-famous **Carnegie Dinosaur Quarry**, we see a wall of approximately 1,500 dinosaur bones including *Allosaurus*, *Apatosaurus*, *Camarasaurus*, *Diplodocus* and *Stegosaurus*, along with several others. The rocks are from the famous **Morrison Formation** from the Late Jurassic, 149 million years ago. The monument was founded in 1915 and was the site of several important early dinosaur discoveries. We will also walk the 1.2 mile **Fossil Discovery Trail** that links the Quarry and the Visitor Centre. Along the trail a number of dinosaur bones can be seen eroding out of the rocks. The night is spent in the nearby town of **Dinosaur**. Drive time: 3hr45.

Day 6 - Dinosaur bones and trackways. In the first part of the morning we drive south crossing the **Bookcliff Mountains** via Douglas Pass to reach the Grand Valley at Fruita. In Fruita we visit **Dinosaur Hill**, the discovery site of *Brontosaurus* now called *Apatosaurus*. We then drive on to the **Rabbit Valley Trail Through Time**. Here we have a picnic lunch and walk the trail and can see dinosaur bones still in the rocks. After lunch we visit the **Copper Ridge Dinosaur Tracksite**, where the tracks of a sauropod dinosaur can be seen turning. Our final stop of the day is the **Mill Canyon Dinosaur Tracksite** where more than 200 individual tracks from 8 different types of dinosaurs, along with a crocodile resting trace can be seen. We spend the night in the nearby town of **Moab**. Drive time: 5hrs.

Day 7 - Arches National Park and Monument Valley. We make an early start and visit nearby Arches national park. We spend 3 hours in the park visiting **Delicate Arch** and **Double Arch** and many other stops. We leave the National Park by mid morning and drive on to **Goosenecks State Park** where we see wonderful incised meanders in the San Juan River. We have a picnic lunch at Goosenecks. We then continue to **Monument Valley Tribal Park**, here we go on a tour around the monuments with a local Navajo guide. The night is spent in the nearby Indian Reservation town of Kayenta. Drive time 4hrs40.

Day 8 - The Grand Canyon National park and World Heritage Site. We drive via the **Tuba City dinosaur trackway** along the East Rim of the Grand Canyon stopping at several photo stops to reach the South Rim of the Grand Canyon. The **Grand Canyon** is both a World Heritage Site and National Park and is one of the world's most famous geosites. Once we arrive, we walk the gentle and flat '**Trail of Time**'. The trail is 1.3 miles long, and 1 metre represents 1 million years. The trail goes from the visitor centre to the **Yavapai Geology Museum**, which has interpretive boards and stunning views. In the late afternoon / early evening it is possible optionally walk with James part way down into the Canyon. We will walk the first 1.5 miles of the **South Kaibab Trail**, descending 1,140 feet (350m) and then turning around at Cedar Ridge, to walk the 1.5 miles back. The night is spent in **Tusayan** which is a short drive south of Grand Canyon Village. Drive time: 3hrs.

Day 9 - Sunset Crater Volcano National Monument and Meteor Crater. Our first stop is the **Sunset Volcano Crater National Monument**. Here we see the visitor centre and take a short walk to examine the lava flows and cinder cones. We then drive on to **Meteor Crater**, one of the best preserved meteor impact craters in the world. The night is spent in **Holbrook**. Drive time: 3hr45.

Day 10 - Petrified Forest National Park. This National Park is so named because of its fossil trees. We enter the park at the southern entrance stopping first at the visitor centre which has an excellent museum. Here we walk the 0.4 mile **Giant Logs Trail** which features some of the largest and most colourful logs in the park. **Old Faithful**, at the top of the trail, is almost ten feet wide at the base. We then proceed on to the 0.75 mile **Crystal Forest Trail**, named for the presence of beautiful crystals that can be found in the petrified logs; this trail offers one of the best opportunities to experience the petrified wood deposits. The next stop is Jasper Forest where we have a panoramic view over an area with a high concentration of petrified logs. The next stop is Blue Mesa where we get wonderful views. Our final stop is Newspaper Rock where 2000 year old petroglyphs can be seen. We then exit the National Park from the north entrance and drive via the scenic **Tonto and Apache-Sitgreaves National Forests** to reach **Phoenix** where we will spend our last night. Drive time: 5hrs.

Day 11 - Depart from Phoenix, Arizona. Phoenix has an international airport with direct flights to several US and European airports.