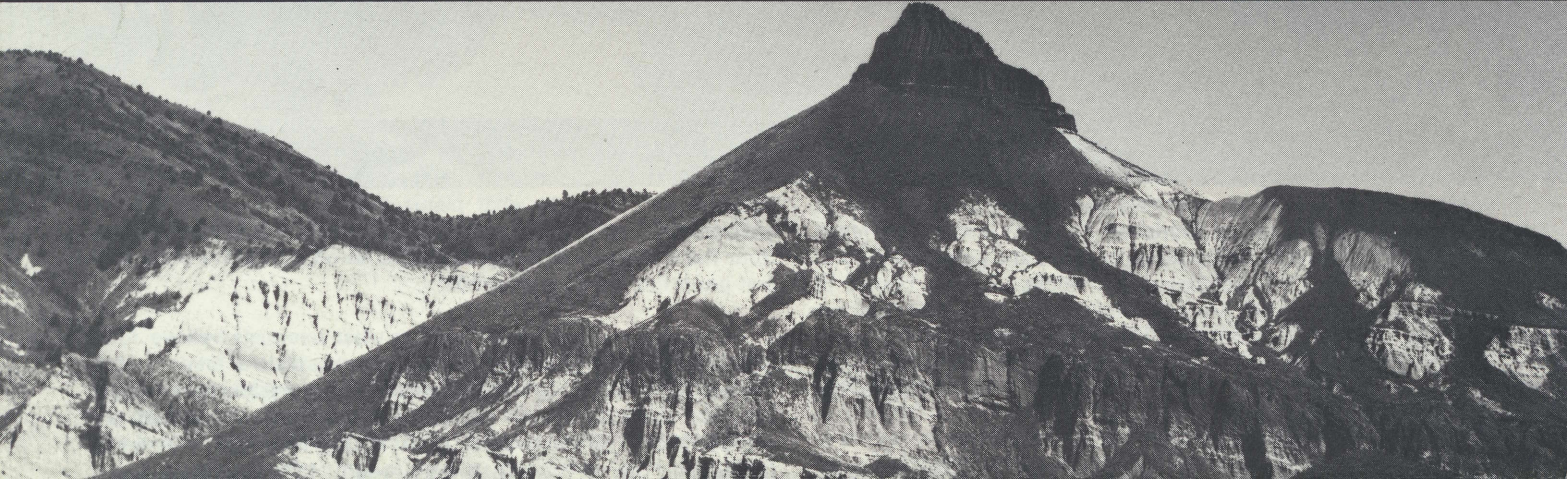


John Day Fossil Beds

National Monument
Oregon

National Park Service
U.S. Department of the Interior



The history of life on Earth stretches back to more than 3.5 billion years ago. Life as we know it today, however, has essentially evolved over the last 65 million years. It has been during this recent geologic time, called the Cenozoic Era, or the Age of Mammals, that mammals rose to become the dominant form of animal life on Earth and flowering plants the dominant form of plant life. John Day Fossil Beds National Monument preserves one of the most complete fossil records of this significant span of geologic time in the world. Here, in the volcanic and sedimentary rocks, is the story of ancient life from the time dinosaurs disappeared to the time just before the last Ice Age began.

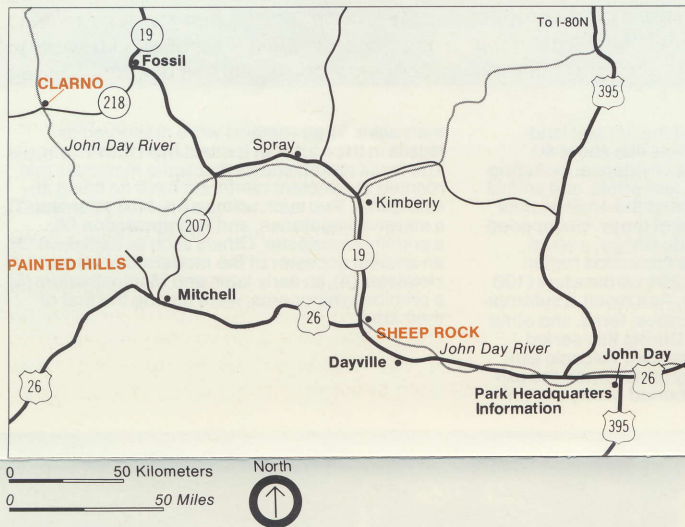
Fossil bones and petrified wood were found in the John Day country of eastern Oregon as early as the 1860s, about 40 years after pioneer explorer and trapper John Day traveled through the area. Among the first who came to investigate was Thomas Condon, a frontier missionary and natural history buff from The Dalles, Oregon. Self-taught in the science of paleontology—the study of fossils—Condon recognized the significance of the vast collection of fossils in the canyons and hills of the region and shared his findings with

professional paleontologists and geologists. Expeditions followed, and as more and more fossilized remains of primitive animals and plants were unearthed, the story of ancient life locked in the rocks was slowly revealed. Scientists were able to piece together what forms of life existed in prehistoric days and how they had evolved over millions of years. The fossils also provided evidence as to what the environment of the region had been like, and how it, too, had changed.

To protect this valuable scientific resource, John Day Fossil Beds National Monument was created in 1974. Today it encompasses more than 5,800 hectares (14,030 acres), including the fossil beds and the surrounding semi-desert landscape of scattered junipers, sagebrush, and bunchgrass. John Day Fossil Beds is a place to contemplate the age-old history, and mystery, of life. You can examine the fossils that have been removed from the rocks for study and display and begin to understand the past. And you can speculate about the untold story, the story that still lies hidden in John Day Fossil Beds, where scientists believe many more fossils will one day be discovered.

Visiting the Park

Three widely separated areas of John Day Fossil Beds—Sheep Rock, Painted Hills, and Clarno—preserve fossil beds and other geologic evidence of ancient times. Each area offers a variety of opportunities for recreation and study. The map directly below shows all the park areas. The maps below and to the right show each individual area in detail.



Sheep Rock

Cant Ranch This is the monument's primary information center. It is also the best place to see fossils, because it is difficult to see them in the field. In nearby buildings there are exhibits on the history of the scientific explorations of the fossil beds and a laboratory where at times a museum technician can be observed preparing fossils for display. Outside you can walk about the grounds or enjoy a picnic. From the roadside nearby you can see the picturesque John Day River. A 170-meter (200-yard) trail leads from this area to Sheep Rock Overlook.

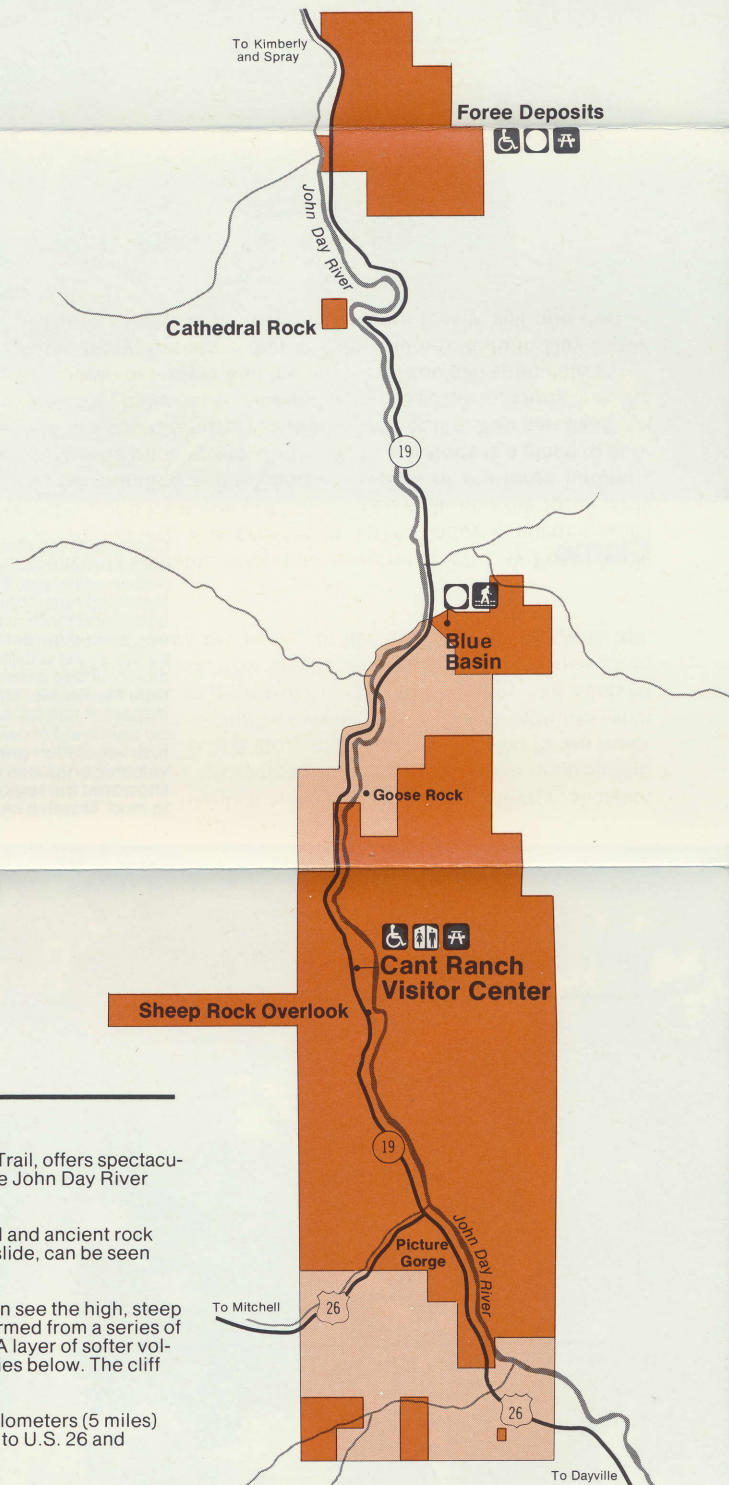
Blue Basin You can learn more about the fossil story of John Day on the Island in Time Trail, a 0.8-kilometer (0.5-mile) walk into Blue Basin with traiside exhibits. Another trail, the 3.2-kilometer

(2-mile) Blue Basin Overlook Trail, offers spectacular views of Blue Basin and the John Day River Valley.

Cathedral Rock This colorful and ancient rock formation, a huge active landslide, can be seen from the road.

Foree Deposits Here you can see the high, steep eroded face of a basalt cliff formed from a series of extensive ancient lava flows. A layer of softer volcanic rock, formed from ash, lies below. The cliff can be seen from the road.

Access Sheep Rock lies 8 kilometers (5 miles) west of Dayville. It is adjacent to U.S. 26 and Ore. 19.



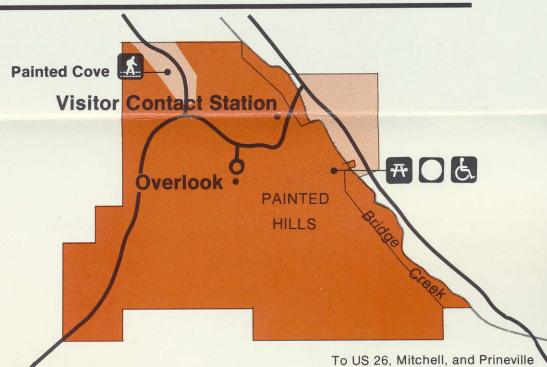
Painted Hills

Painted Hills Overlook This dramatically eroded landscape of volcanic ash is part of the fossil-bearing John Day Formation. Mineral-bearing clays display shades of red, pink, buff, gold, bronze, and black. Colors are brightest at dawn and dusk or after a rain. A trail 0.8 kilometer (0.5 mile) long leads uphill to a scenic viewpoint overlooking Carroll Rim to the north. The Painted Hills Overlook Trail begins to the south of the overlook. A picnic area with water is available.

Painted Cove Trail A loop trail of 170 meters (200 yards) provides an opportunity to closely examine an outcrop of the Painted Hills. A printed trail guide is available at the trailhead.

Carroll Rim Trail A 1.1-kilometer (0.75-mile) trail to the top of this ledge of welded volcanic ash provides a scenic panorama of the Painted Hills.

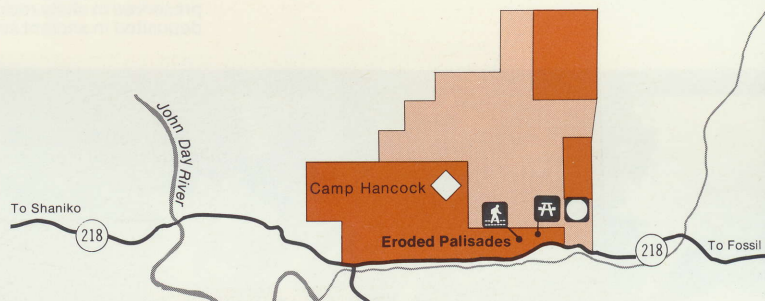
Access Painted Hills is 9.5 kilometers (6 miles) west of Mitchell. It lies north of U.S. 26 along a marked county road.



Clarno

Palisades Eroded ancient mudslides are the principal geologic feature at Clarno. Along two trails that begin at the base of the palisades you can see many plant fossils preserved in the mudstone, evidence of an ancient forest. Each trail is 0.4 kilometer (0.25 mile) long and has trailside exhibits. Wear sturdy shoes and watch for snakes if you leave the developed area. There is also a picnic area. Water is available.

Access Clarno is 30 kilometers (20 miles) west on Ore. 218 from Fossil, or 50 kilometers (30 miles) east on Ore. 218 from Shaniko.



Private property exists within the authorized boundary of John Day Fossil Beds NM. Please respect private property rights.

Scale for park maps

0 1 Kilometer

0 1 Mile



General Information

Park headquarters, located in the city of John Day, has orientation information and a display of fossils representative of some found in the park. Publications on natural history and history are on sale here. The mailing address is 420 W. Main, John Day, OR 97845.

Transportation Limited commercial bus service is available in the region. A small-aircraft airport serves the city of John Day.

Things to See and Do Ask the staff for information on loop drives, trails, museums, and opportunities for fishing and wildlife observation. Some activities are listed above.

Camping There are no campgrounds in the park. Ask for information on local campgrounds. Camping information is also posted.

Accommodations and Services Lodging, food, gasoline, and telephones are available in nearby communities. These services are not available in the park.

Regulations and Safety Information The park was established to preserve part of the past for present and future generations to see, study, and enjoy. Scientific and educational research is allowed with appropriate permits, but individual collecting, digging, or removal of fossils or other geological materials is prohibited. ● Fishing is permitted with an Oregon state fishing license, but hunting and other uses of firearms are prohibited on federal lands within the park boundary. ● When hiking, stay on established trails. Walking off-trail or climbing rocks is dangerous and damages the fragile fossil beds. Sturdy shoes are recommended for hiking the often rocky and uneven trails. ● Off-road vehicles are prohibited. ● Private lands are not fenced or marked. Please respect property owners' rights and use trails wherever possible. Avoid grazing animals and keep your pets away from them for the safety and welfare of all concerned. ● Pets must be kept under physical control at all times. ● Please be careful with fires and cigarettes—grass fires are a constant hazard. ● Water is available at Cant Ranch, park headquarters, and all picnic areas. ● If you need help or more information, ask a member of the park staff.

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Ancient Life and Landscapes

John Day Fossil Beds National Monument preserves a vast record of the past, from more than 50 million years ago to about 5 million years ago. It is the story of the height of the Cenozoic Era, the most recent geologic era, when mammals and flowering plants rose to their supremacy on land and flourished. The story is told in the many layers of rock that make up the steep canyons and gentle hills. John Day has four principal geological formations—distinct bodies of rock—that contain fossils. From the oldest to the youngest, they are known to scientists as the Clarno Formation, the John Day Formation, the Mascall Formation, and the Rattlesnake Formation. Each represents a span of time—millions of years—in the history of life and the history of the Earth.

Fossils removed from each of the formations by paleontologists have been used to recreate what ancient life and landscapes were like in John Day country. Because this well-preserved record is uninterrupted and contains a varied and abundant collection of fossils, these scientists have been able to present detailed descriptions of what ancient scenes probably looked like. Fossilized bones and teeth of primitive mammals have enabled them to deduce what

early creatures looked like, what types of food they ate, and other characteristics. Some animals have proved to be very early evolutionary ancestors of animals living today; others have no living descendants. Clues to what plants grew here, to what type of environment prevailed, and to what the climate was like have come from the fossilized nuts, seeds, fruits, wood, flowers, pollen, and leaf-prints that have been found.

The three illustrations below indicate what scientists believe John Day country was like during three representative times in the ancient past—about 40 million years ago, about 30 million years ago, and about 25 million years ago. These geologic periods are represented in different areas of John Day Fossil Beds National Monument. Clarno fossils present a record of the most distant past shown here, the past about 40 million years ago. Painted Hills is a record of about 30 million years ago. And Sheep Rock is a record of the more recent past here—about 25 million years ago. Notice the many changes that occurred in the life and landscape over the millions of years from the earliest time up to today.



Clarno

Clarno tells the story of what the life and landscape of John Day country was like about 40 million years ago. From fossil evidence, including fossilized nuts, fruit, seeds, leaf-prints, and animal bones and teeth, it appears that the environment was quite different from that of today. Unimpeded by the as-yet unborn Cascade Range, a warm, moist climate extended into this inland region from the Pacific. More than 254 centimeters (100 inches) of rain fell each year. As a result, a subtropical rainforest of palms, avocados, ferns, and other lush vegetation grew here. During this period volcanic eruptions were common. Volcanic ash showered the region. Heavy rains turned the ash to mud. Massive mudflows buried plants and ani-

mals alike. Their remains were preserved as fossils in the rock that formed from these deposits. The fossil record shows that some mammals that roamed the ancient rainforest have no living descendants. Two such animals are **Notiotitanops** (1), a massive vegetarian, and **Hemipsalodon** (2), a primitive meateater. Others such as **Epihippus** (3), an ancient ancestor of the modern-day horse; **Helaletes** (4), an early tapir; and **Meninatherium** (5), a primitive rhinoceros, were among the first of their kind.



Painted Hills

Painted Hills tells the story of what the life and landscape of John Day country was like about 30 million years ago. Painted Hills contains fossil evidence that the environment of the time was different from today's. Fossilized wood, leaf-prints, and the few animal fossils found from this period indicate that the climate of the region at this time was temperate. The Cascade Range had begun to rise, and as it had, weather patterns had slowly changed, reducing rainfall to about 150 centimeters (60 inches) a year. A deciduous hardwood forest evolved. During this period volcanic eruptions continued to occur. The fossils of this time are preserved in shaly rock formed from volcanic ash deposited in ancient streambeds. The fossil record

shows that members of the now-extinct family of **oreodonts** (1), short-legged browsers, dwelled in the forest. Plants included **Quercus consimilis** (2), an early oak, and **Umbellularia oregonensis** (3), a close relative of the present-day Oregon-myrtle. **Metasequoia occidentalis** (4), or dawn redwood, a tree similar to a rare redwood now found in China, grew here, too, as did the alder **Alnus carpinoidea** (5).



Sheep Rock

Sheep Rock tells the story of what the life and landscape of John Day country was like about 25 million years ago. Of all the ancient scenes represented in John Day Fossil Beds, this was the one most like ours today. The rising Cascade Range had further cut off the inland from moist Pacific winds, restricting annual rainfall to about 75 centimeters (30 inches). The forests were giving way to grasslands. As indicated by the large collection of fossils preserved in the rock formed from volcanic ash, life was diverse and abundant. There were many members of the family of **oreodonts (1)**, some as small as a jackrabbit and others as large as

a cow. **Sabertooths (2)**, cat-like predators, hunted here. **Miohippus (3)**, an early evolutionary form of today's horse that grew no bigger than a colt, and pig-like **entelodonts (4)**, ranged through the area. The primitive collection of wildlife also included **Diceratherium (5)**, a cow-sized ancestral rhinoceros, and **Hypertragulus (6)**, a mouse-deer that has living relatives in Africa and Asia. Most of the animals of this period have descendants living somewhere in the world today.

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