



Fifty-two million years ago, three great lakes covered areas of present-day Wyoming, Utah, and Colorado—Lakes Gosiute and Uinta, and Fossil Lake, the smallest. The sediments they left behind created the limestone, mudstone, and volcanic ash layers of the Green River Formation. These rock layers preserve many remarkable fossils of plant and animal life in the Eocene Epoch of geological time.

Some fossils come from Fossil Butte (above), the flat-topped rock that rises above the valley floor. Congress designated it a national monument in 1972. Its detailed fossil record shows a broad spectrum of species—plants, snails, crustaceans, spiders, millipedes, insects, reptiles, birds, mammals, and over 20 kinds of fish. The fossils tell a story of ancient life and a different landscape.

Since the mid-1800s paleontologists and others have unearthed millions of specimens from Fossil Lake’s sediments. Billions more lie buried in the butte and surrounding ridges, protected and preserved for future study.

Fossil Lake, 60 miles long and 40 miles wide, nestled among mountains in a lush forest. Willows, beeches, oaks, palms, maples, and ferns grew on the lower

slopes, and spruce and fir on the cool mountainsides. The habitat supported many animal species that lived in and around the warm lake waters. Fish swam in the tributaries, shallows, and deep waters of the lake. Gars, paddlefish, bowfins, and stingrays survive elsewhere today, as do herring, perch, and mooneyes. The lake shore bustled with crocodilians; primates and dog-sized horses roamed the land; birds and bats took to the air.

Fossils of Ancient Fossil Lake

Figures refer to maximum size of fossils found in Fossil Lake.



Above: *Atractosteus simplex* (gar) to 3 ft

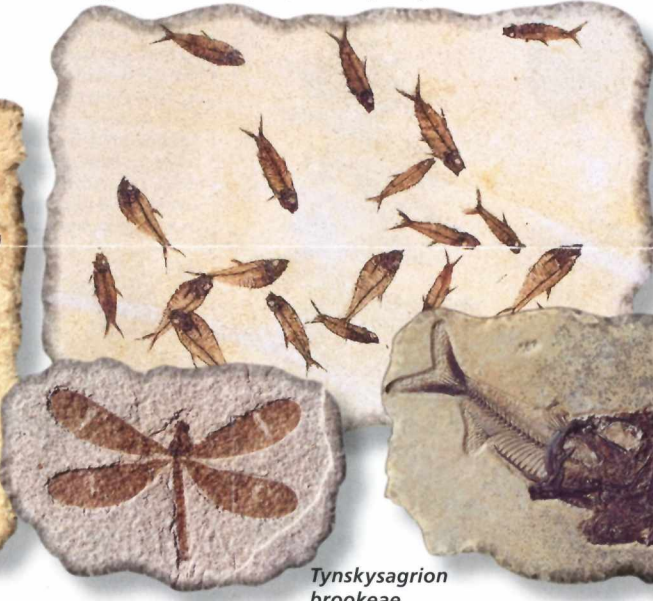


Left: *Plastomenus thomasi* (turtle) shell 6 in



Left: Palm frond 9 ft
Below: *Cockerellites liops* 6 in

Knightia eocaena (8 in) with *Diplomystus dentatus*



Diplomystus dentatus 2 ft

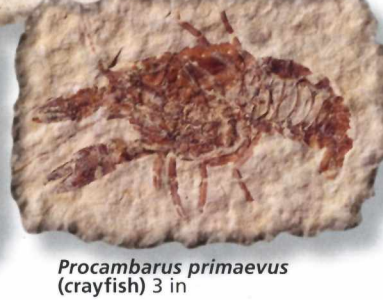


Tynskysagrin brookeae
4-in wingspan



Diplomystus dentatus with *Knightia eocaena* in mouth (see sizes above)

Procambarus primaevus (crayfish) 3 in



Onychonycteris finneyi (bat) 6 in

The unusual number, variety, and detail of freshwater fish fossils provide a window into life at Fossil Lake 52 million years ago. Millions of herring, swimming in schools, are preserved in stone. Bigger predator fish, like six-foot-long gars and four-foot-long bowfins, are less common. Most fish have complete skeletons with delicate scales and skin. Many of the over 20 species are ancestors of or related to present-day species.

Hundreds of life forms other than fish are also captured in stone. Here are the oldest complete fossil bats in the world and remarkably complete fossil snakes. Snail shells, insects, crocodilians, freshwater turtles, birds, feathers, and plant remains—leaves, seeds, stems, and flowers blown or washed into the lake—are all part of the buried story of ancient Fossil Lake.

Ideal conditions in Fossil Lake led to the abundance of fossils. The lake had fresh water on top and salt water at the bottom. The fresh water was rich in dissolved limestone, which recombined into lime mud when winds stirred up the lake surface. A microbial mat formed, and the salt water prevented it from being eaten by snails. Over time thin layers of the lime mud and

microbial mat preserved dead organisms that had sunk to the bottom.

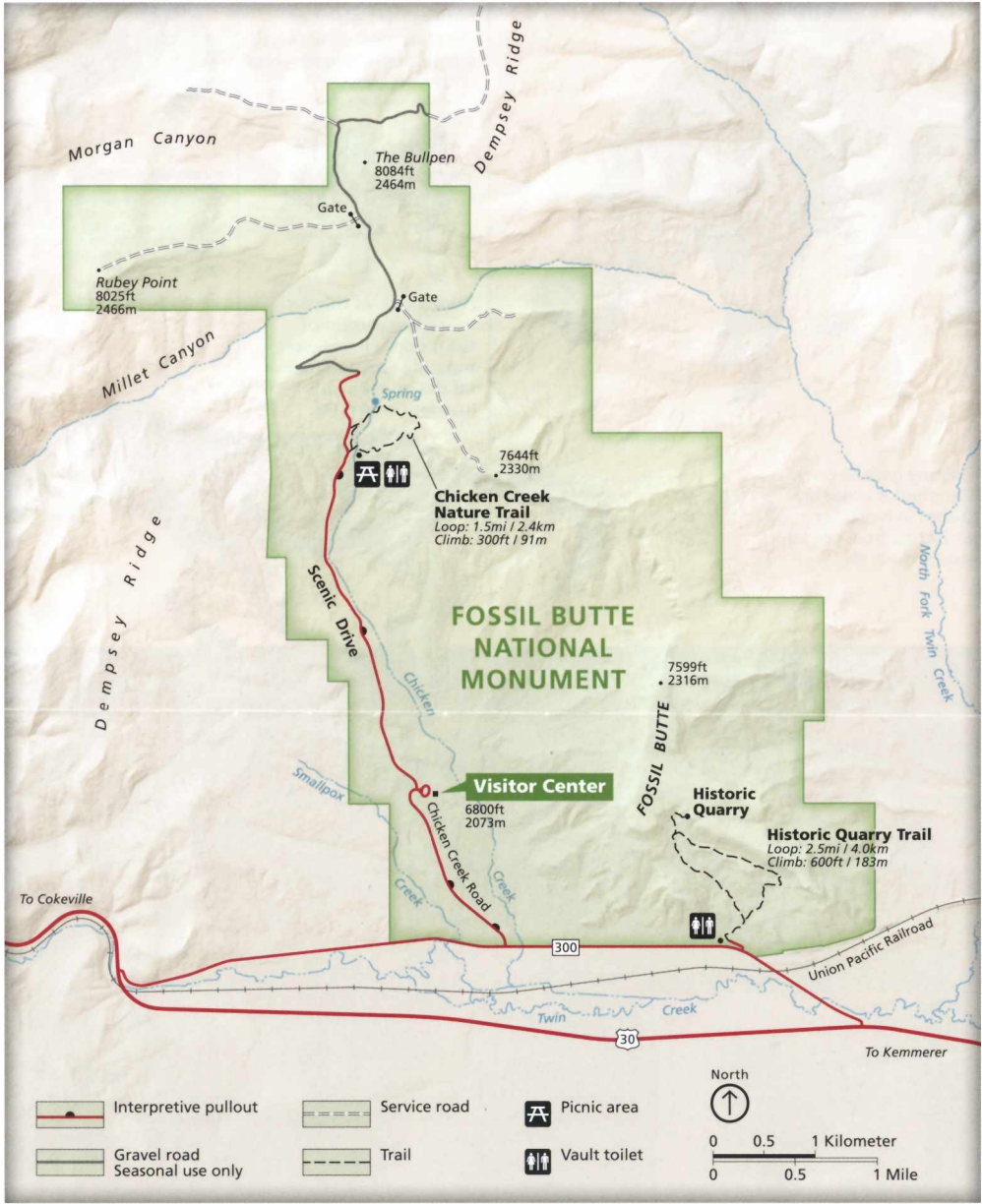
Some of the largest fish fossils come from the deep-water sediment layer, called the 18-inch layer. These fossils are composed of whitish to gray limestone alternating with brown organic material.

An equally important layer is a tan limestone that splits easily. Called the split-fish layer, it averages 6½ feet in thickness. Smaller fish, crayfish, and stingrays, all of which lived in shallow water near the lake’s edge, are more common here.

While many of Fossil Lake’s animals and plants probably died natural deaths, some

fish died suddenly and in huge numbers. These die-offs are recorded in the Green River Formation’s mass mortality layers. What killed these fish? A superbloom of red algae that released toxins? A sudden change in water temperature or salinity? All of these? Continuing research may solve the mystery.

Fossil photos—NPS / ARVED AASE



More Information
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The Park Today

The park is a semi-arid landscape of flat-topped ridges dominated by sagebrush, other desert shrubs, and grasses. North-facing slopes have conifer groves. Aspen groves form at seeps where the Green River and Wasatch formations meet.

Green River Formation Tan sedimentary rock layers near the top of Fossil Butte and surrounding ridges preserve millions of fish and other fossils. The formation is 200 to 300 feet thick.

Wasatch Formation The red, pink, and purple formation of river sediments preserves fossils of plants, primitive horses, a rhino-sized mammal called *Coryphodon*, early primates, crocodilians, turtles, and lizards.

Collecting Fossils—Past and Present

In 1856 geologist Dr. John Evans collected some of the first fossil fish from the Green River Formation. Paleontologist Dr. Joseph Leidy identified the fossils and gave them scientific names.

Not all early collectors were scientists. In the 1860s Union Pacific Railroad workers discovered the Petrified Fish Cut near the Green River station in Wyoming. In 1881 the Oregon Short Line Railroad was routed near Fossil Butte, improving access to the area.

People came here for what became a life’s work. Robert Lee Craig spent 40 years (1897–1937) quarrying and preparing fossils for museums and private collections throughout the world. David C. Haddenham worked here from the 1920s to the 1950s.

Plan Your Visit

Visitor Center Find 30 exhibit cases displaying more than 2,500 rocks containing over 3,000 fossils. Open year-round; check the park website for days and hours.

Picnic Area A wheelchair-accessible picnic area has tables and a restroom.

TRAILS
Historic Quarry Trail *Strenuous: 2½-mile loop.* Climb Fossil Butte to a fossil quarry worked for three years in the 1960s. Exhibits describe the geology and history of collecting.

Nature Trail *Moderate: 1½-mile loop.* This trail winds through sagebrush and aspen groves. Exhibits explain the area’s natural history.

Fossils quarried here are exhibited in museums across the United States, including the Field Museum, Chicago; the American Museum of Natural History, New York; and the National Museum of Natural History, Smithsonian Institution, Washington, DC.

You may collect outside the park for a fee in some commercial fossil quarries on state and private land. Less common fossils on state land are curated at the Wyoming Geological Survey for study.

You may collect within Fossil Butte National Monument only by special permit for a research project that advances scientific understanding of Fossil Lake.

Today’s Natural World Watch for mule deer, pronghorn, elk, coyotes, garter snakes, and eagles in this land of sagebrush, aspens, pines, and willows. Wildflowers bloom seasonally.

Climate Temperatures range from 90s°F in summer to subfreezing in winter. Strong afternoon winds are common.

Accessibility We strive to make facilities, services, and programs accessible to all. For information go to the visitor center, call, or check the park website.

Food, Lodging, Services Find food, lodging, campgrounds, and other services in Kemmerer. You may camp on nearby public lands but check for regulations first.

Stewardship

Fossil Butte National Monument was established to protect the fossils and geologic features within its boundary. Do not take, disturb, or damage any fossil; if you find a fossil, leave it in place and report it to a ranger.

Federal laws protect all natural and cultural features in the park. Violators will be prosecuted.



Thamnophis elegans vagrans (garter snake)
© WILLIAM FLANNINGTON



One of three snake fossils from the Green River Formation
© RON WOLF

