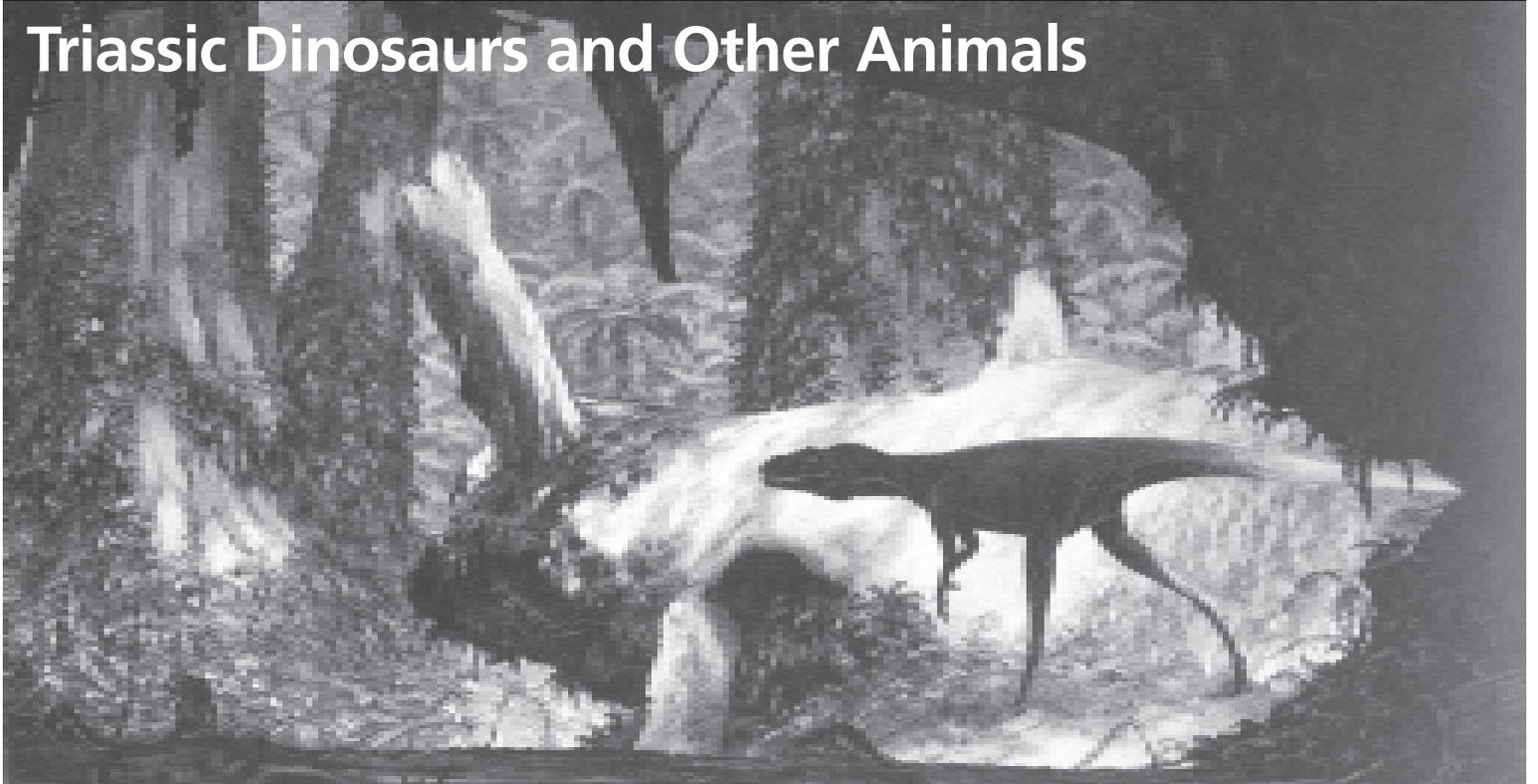




Triassic Dinosaurs and Other Animals



Fossils are clues to the past, allowing researchers to reconstruct ancient environments. During the Late Triassic, the climate was very different from that of today. Located near the equator, this region was humid and tropical, the landscape dominated by a huge river system. Giant reptiles and amphibians, early dinosaurs, fish, and many invertebrates lived among the dense vegetation and in the winding waterways. New fossils come to light as paleontologists continue to study the Triassic treasure trove of Petrified Forest National Park.

Invertebrates



Scattered throughout the sedimentary layers of the Chinle Formation are fossils of many types of invertebrates. Trace fossils include insect nests, termite galleries, and beetle borings in the petrified logs. Thin slabs of shale have preserved more delicate animals such as shrimp, crayfish, and insects, including the wing of a cockroach!

Clams

Various freshwater bivalves have been found in the Chinle Formation, some

species forming vast colonies in the muddy beds of the ancient lakes and rivers. *Antediplodon thomasi* is one of the clam fossils found in the park.

Horseshoe crabs

Horseshoe crabs have been identified by their fossilized tracks (*Kouphichnium arizonae*), originally left in the soft sediments at the bottom of fresh water lakes and streams. These invertebrates probably ate worms, soft mollusks, plants, and dead fish.

Freshwater Fish

The freshwater streams and rivers of the Triassic landscape were home to numerous species of fish. Bony fish of the Late Triassic included *Turseodus* sp., *Semionotus* sp., and *Hemicalypterus weii*.

Freshwater Sharks

Lissodus humblei was a blunt-toothed shark about 6-9 inches (15-23 cm) long that was probably a bottom dweller. The blunt teeth indicate the shark survived on clams and clam shrimp. "*Xenacanthus*" *moorei* was a 3 foot (1 m) long prong-toothed shark that fed on smaller fish, aquatic reptiles, and amphibians.

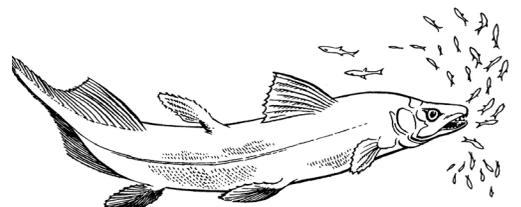
Coelacanth

Living species of coelacanths (seal-kanths) are still found in the world today. The fossil species found in Petrified Forest National Park is *Chinlea sorenseni*

(pictured). This large lobe-finned fish could reach up to 5 feet (1.5 m) long and weigh up to 150 pounds (68 kg). Its jaws were equipped with large, sharp teeth for catching and holding prey.

Lungfish

Arganodus dorotheae were massive fish up to 3 feet (1 m) in length and weighing up to 70 pounds (32 kg). They had fascinating, comb-shaped teeth used as crushing plates for clams. Some lungfish living today are able to leave the water for periods of time and breathe air.



Amphibians



Metoposaurs (meh-toe-poe-sores) were giant amphibians. A common fossil animal found in the older layers of the park is the large flat-headed amphibian *Koskinonodon perfectum* (pictured), 10 feet (3 m) long and weighing up to half a ton. These animals were most likely voracious predators feeding on fish and smaller animals. With their flat heads and upward directed eyes, *Koskinonodon*

probably settled in the muddy bottom of ponds and ambushed prey from below. *Koskinonodon* does not occur in the northern section of the park, which contains sediments younger than the Blue Mesa and Rainbow Forest. Giant amphibians are represented in these layers by a smaller yet similar animal named *Apachesaurus gregorii*.

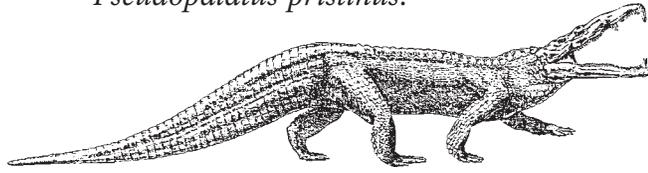
Archosaurs

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Archosaurs are a specialized group of animals that includes birds and crocodiles. In the late Triassic, archosaurs were represented by aetosaurs, phytosaurs, rauisuchians, and dinosaurs.

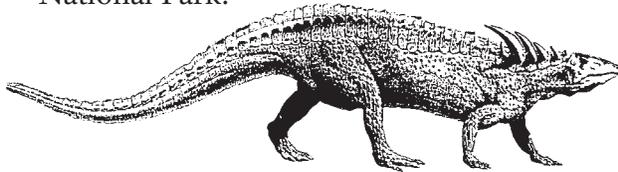
Phytosaurs

Phytosaurs (fie-toe-sores) were crocodile-like reptiles, some species reaching lengths up to 40 feet (12 m). Distantly related, phytosaurs probably filled similar ecological niches as crocodiles, feeding mainly on fish and any other animals that came too near. Phytosaurs are the most common fossil animal found in the park, species including *Leptosuchus gregorii* (pictured) and *Pseudopalatus pristinus*.



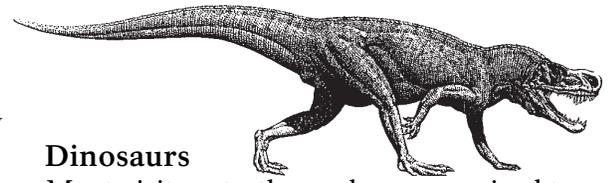
Aetosaurs

Aetosaurs (a-ee-toe-sores) were 10-15 feet (3-4.5 m) long, herbivorous reptiles with broad flat bodies protected by plate-like scutes. Some species had large spikes on their sides or back that were possibly used for defense. Aetosaurs had short limbs and small skulls with a pig-like snout for rooting in soil for plants and roots. *Desmotosuchus haplocerus* (pictured) or *Stagonolepis wellsi* are two of the aetosaurs found in Petrified Forest National Park.



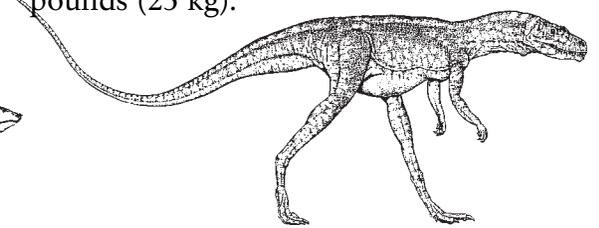
Rauisuchians

Rauisuchians (rau-i-su-key-ans) ranked as the top terrestrial predators of the Late Triassic, thanks to huge skulls armed with powerful biting jaws and 3 inch (7.6 cm) long serrated teeth. Species of rauisuchians found in the park include *Postosuchus kirkpatricki* (pictured) and *Poposaurus gracilis*. Some rauisuchians could grow up to 20 feet (6 m) in length.

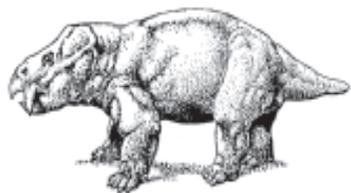


Dinosaurs

Most visitors to the park are surprised to learn that dinosaurs are a relatively rare and minor component of the Triassic fauna preserved at the park. Separated from the other archosaurs by characters of the pelvis and ankle, Late Triassic dinosaurs were mainly small, bipedal predators. Dinosaurs found in the park include *Chindesaurus* (pictured) and *Coelophysis*. Ornithischian (“bird-hipped”) dinosaurs are not known from the park or from the Triassic of North America. Isolated teeth from the park previously believed to represent ornithischian dinosaurs, were found instead to belong to crocodile-line archosaurs. *Coelophysis* (seal-o-fie-sis) was an early carnivorous dinosaur that probably walked on two legs. It was about 8 feet (2.4 m) long and could weigh 50 pounds (23 kg).



Therapsids



Therapsids were large reptiles that possessed many mammalian characters including a “cheek” bone, enlarged canine teeth, pelvis, and a specialized attachment of the skull to the spine. *Placerias hesternus* (pla-seer-ee-us) was a dicynodont therapsid. This massive plant-eater was up to 9 feet (2.7 m) long and might have weighed as much as two tons.

Placerias had a short neck, barrel-shaped body, small tail, and a beak-like skull with large tusk-like bones protruding from its upper jaw. The beak-like jaws helped them pull up and tear tough plants and roots. A large numbers of *Placerias* fossils were found in a single quarry near St. Johns, just southeast of the park.

Like pieces of a puzzle, fossils have long provided clues to the past. Paleontologists are reconstructing the Triassic ecosystem in Petrified Forest National Park by piecing together fossil records. The scientific and educational value of a fossil can only be interpreted when it is properly documented and studied. The displacement of a specimen from its surroundings reduces it to a mere curiosity. Help us by not disturbing any fossils you find during your visit. Report your fossil discoveries to any uniformed employee.