

Section 4: Track Record

Fun Facts

- *T. rex* that made the negative footprint could weigh up to 6 ¾ tons and be up to 46 ft. long and had a massive 5-foot head and massive neck counterbalanced by a large stiff muscular tail.
- Negative footprints are not the direct imprint of the animal's foot, but the sediment that filled the footprint. Negatives are exposed when geological forces overturn and then fracture the rock. When a baker turns a cake out of a pan, you see the bottom of the cake; in case of the negative print, you see the bottom of a track maker's foot.
- *Coelophysis* went to outer space, in 1998 on the space shuttle, Endeavor. It is the state fossil of New Mexico.

Q&A

Q: What common mineral is often responsible for turning bones into stone and where does it come from?

A: Calcite (CaCO₃) and it comes from groundwater or seawater, sometimes near "mineral springs." Many fossils are also mineralized by silica or phosphate minerals which could also come from groundwater or seawater.

Q: Why do scientists study footprints of dinosaurs?

A: Fossilized footprints provide clues to dinosaur behavior, such as whether they lived in herds or singly, how they walked and how fast, and whether they dragged their tails; scientists have to be detectives to answer these questions.

Q: What is a "ghost" print?

A: Tracks below the surface, formed when a very heavy dino walked across sand, leaving impressions beneath the surface of a sandy beach. (Gallopers can leave ghost prints and some experts think it was done by dinos also).

Q: Why do some footprints leave lasting tracks, while others disappear quickly?

A: This depends on the surface the animal walked on and what happened to that surface subsequently. If the surface was damp and the soil rich in minerals that form natural cements, the animal heavy enough to leave tracks, and the site buried quickly enough to allow the track to survive, it may remain as a permanent record.

Q: In the Davenport Branch Track Site in Texas (4.3 b), are there any tail tracks?

A: No, these dinos kept their tails aloft.

Q: How did the giant *Apatosaurus* walk?

A: Look at the toe bone and toe claw; they had foot pads under the heels, so the weight didn't rest on tiptoes by itself, but functioned like the foot of an elephant.

Q: Did *Coelophysis bauri* (seal-of-FYE-sis BORE-eye) live at the same time as *T. rex*?

A: No. *T. rex* came about 133 million years later.

Q: How do we know the cast of the only documented footprint of *T. rex* (4.8) is of *T. rex*?

A: *T. rex* was predatory theropod dino and predatory dinos made distinctive tracks with three large pointed toes, a “heel” impression, and sometimes an imprint of the 1st toe (hallux); track is about the right size for *T. rex*, and it comes from rocks of the right age (65-70 mya), and from a place we’d expect to find it (New Mexico), and no other theropod this large lived in this place and time.

Q: Why include bird footprints in the exhibit?

A: If you look carefully, you can tell this theropod dino and this modern bird moved alike.

Q: How do we know sauropods had tough skin?

A: Well preserved impressions of dinosaur skin have been found at different sites; one of the latest was the discovery in 2006 by a graduate student from the U. of Kansas who discovered dino tracks with skin and foot-pad impressions of sauropods in Wyoming.