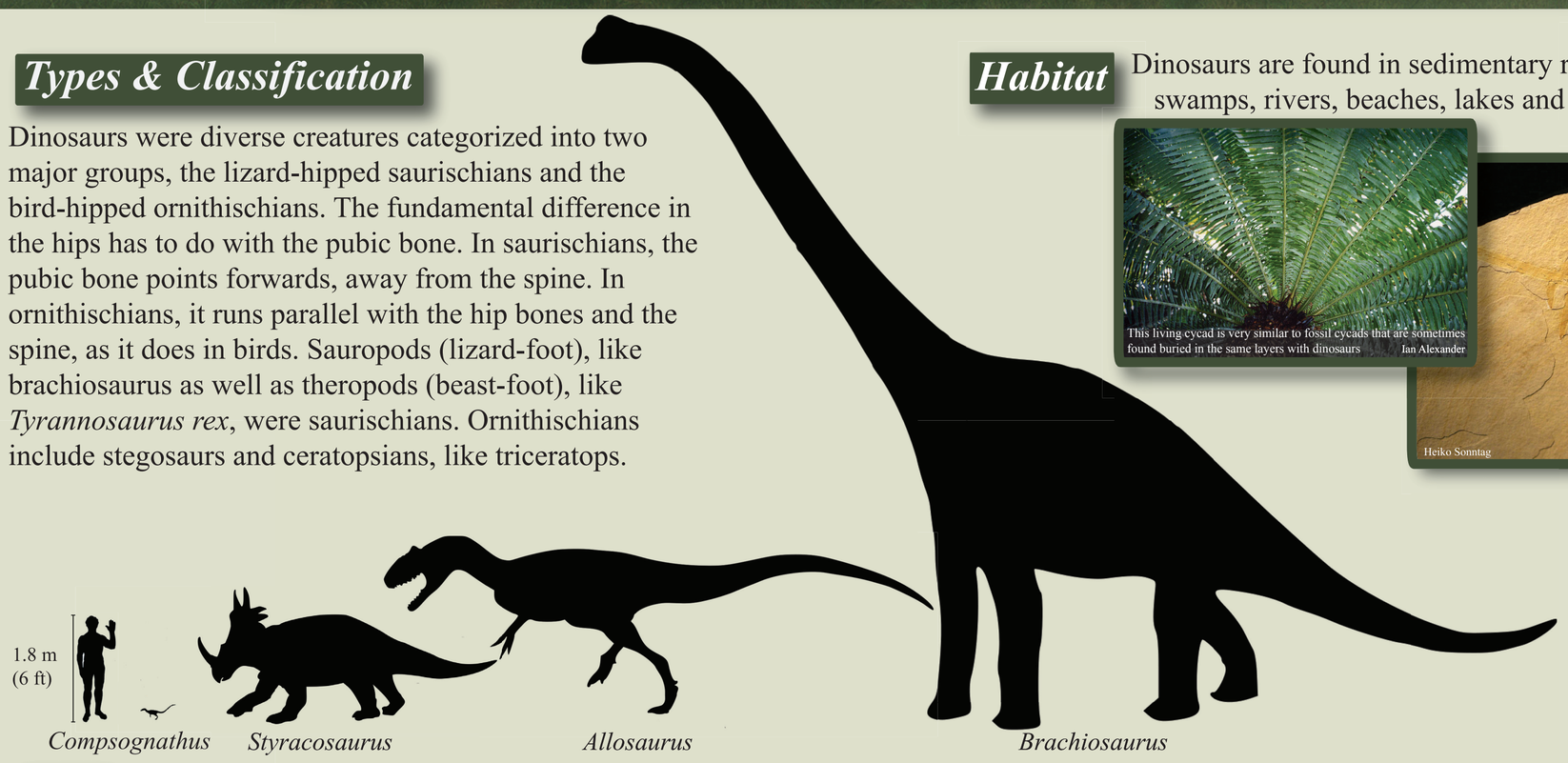
Dinosaurs

Evidence that dinosaurs once lived on Earth has been found in sediments from all the continents. This evidence consists of bones, eggs, nests, and footprints.

Types & Classification

Dinosaurs were diverse creatures categorized into two major groups, the lizard-hipped saurischians and the bird-hipped ornithischians. The fundamental difference in the hips has to do with the pubic bone. In saurischians, the pubic bone points forwards, away from the spine. In ornithischians, it runs parallel with the hip bones and the spine, as it does in birds. Sauropods (lizard-foot), like brachiosaurus as well as theropods (beast-foot), like *Tyrannosaurus rex*, were saurischians. Ornithischians include stegosaurs and ceratopsians, like triceratops.

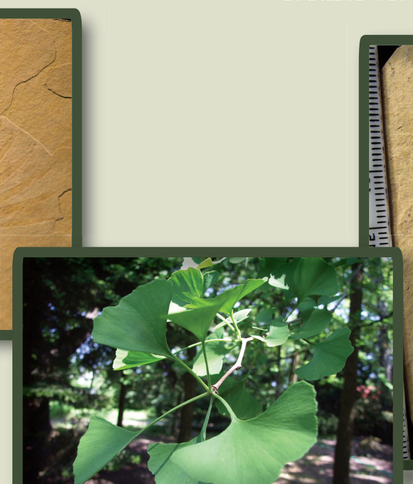


Habitat

Dinosaurs are found in sedimentary rocks thought to have been deposited in diverse habitats including: swamps, rivers, beaches, lakes and deserts. Plants and other organisms buried with dinosaurs provide further clues to their habitat.

This living cycad is very similar to fossil cycads that are sometimes found buried in the same layers with dinosaurs — Ian Alexander


Heiko Sonntag


This living gingko plant is very similar to fossil gingkos that are sometimes found buried in the same layers with dinosaurs — Investigo


Kevmin

Size

Most dinosaurs ranged in size from large rabbits to cow-sized creatures; a few were exceptionally large. Sauropods (lizard-hipped dinosaurs) were the largest known land animals. *Dreadnoughtus*, the largest sauropod yet discovered, is thought to have weighed 59 tons and to have been 26 m (86 ft) long. Small dinosaurs, such as *Compsognathus*, weighed only a few kilograms and were around 1 m (39 in) long.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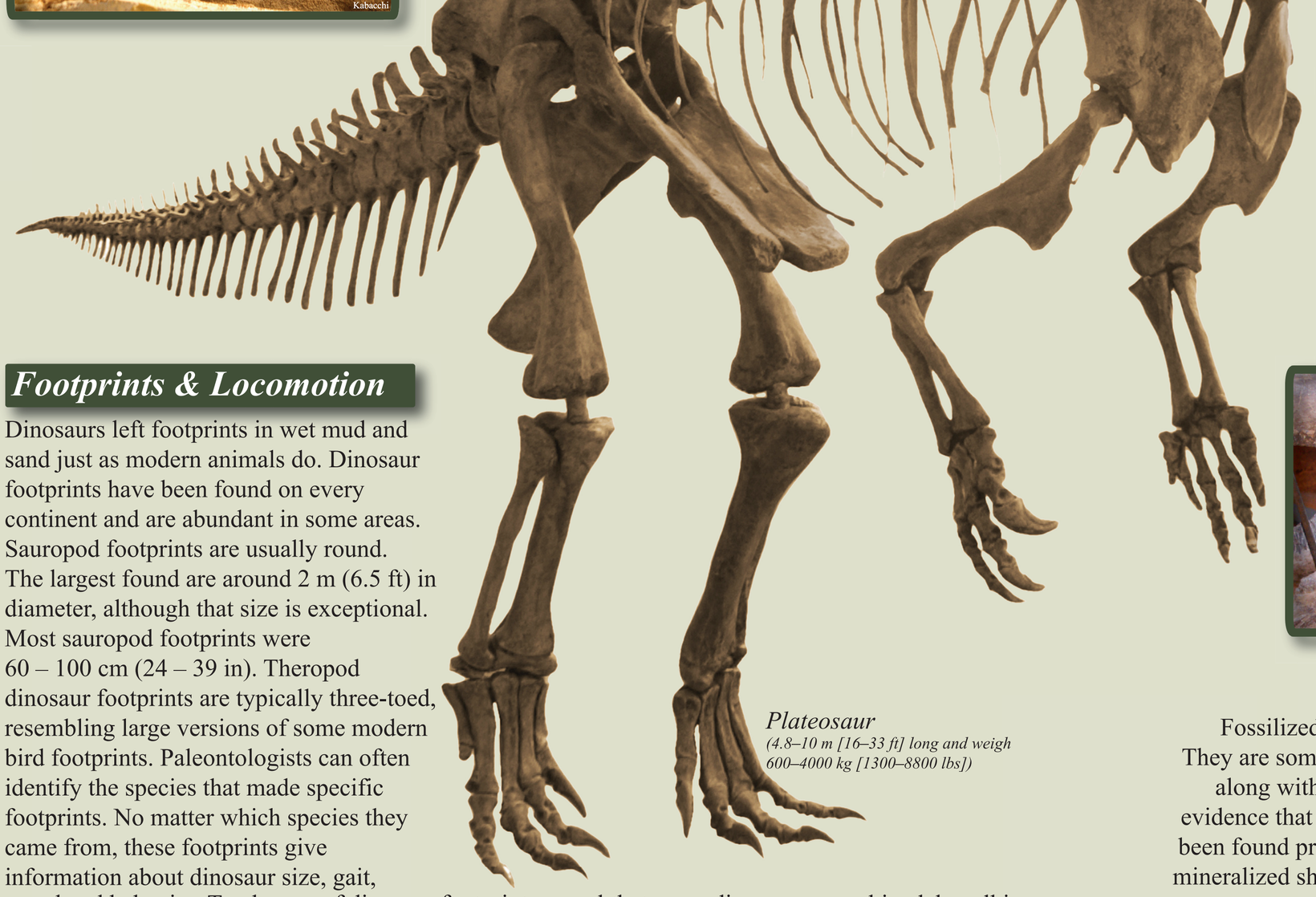
Appearance

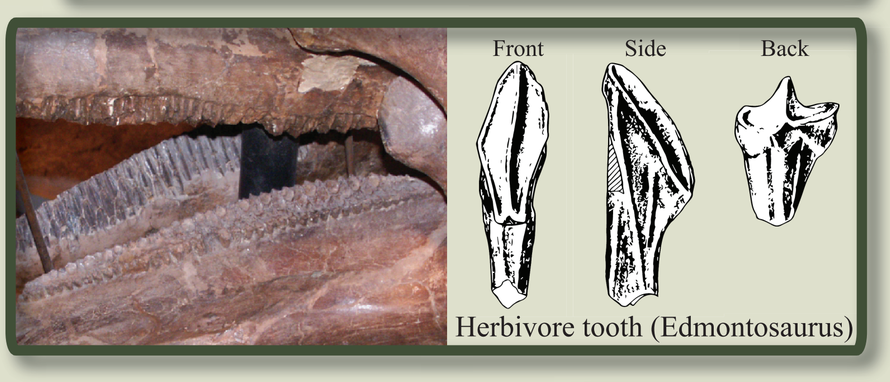
Dinosaur bones and fossilized skin impressions give us a good idea of their appearance. Bones tell us a dinosaur's basic dimensions, and muscle attachment scars provide information about their muscles. Rare skin impressions (left) show their skin texture, but skin color is currently a guess based on modern reptile coloration.


Plateosaur
(4.8–10 m [16–33 ft] long and weigh 600–4000 kg [1300–8800 lbs])

Diet

Fossilized dinosaur dung (called "coprolites") along with the shape of dinosaur teeth and their fossilized stomach contents, provides information about dinosaur diets. Sharp serrated teeth are found in meat-eating dinosaurs, both in hunters and scavengers. While some carnivores, like *Tyrannosaurus rex*, grew very large in size, the biggest dinosaurs ate plants. Plant-eating dinosaurs tended to have more teeth than carnivores, and these teeth were either flat for crushing or chisel-shaped for cutting vegetation.

Carnivore tooth (Theropod)

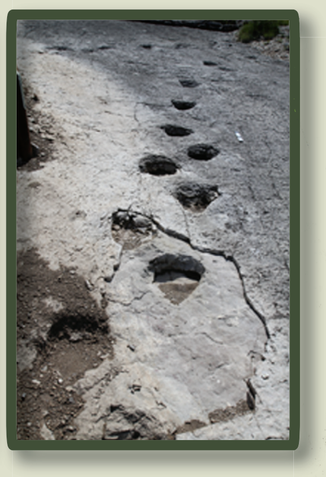


Herbivore tooth (Edmontosaurus)

Footprints & Locomotion

Dinosaurs left footprints in wet mud and sand just as modern animals do. Dinosaur footprints have been found on every continent and are abundant in some areas. Sauropod footprints are usually round. The largest found are around 2 m (6.5 ft) in diameter, although that size is exceptional. Most sauropod footprints were 60 – 100 cm (24 – 39 in). Theropod dinosaur footprints are typically three-toed, resembling large versions of some modern bird footprints. Paleontologists can often identify the species that made specific footprints. No matter which species they came from, these footprints give information about dinosaur size, gait, speed and behavior. Trackways of dinosaur footprints reveal that some dinosaurs were bipedal, walking on just their back legs, such as the *Tyrannosaurus rex*, and others walked on all fours, like the stegosaur. Both saurischian and ornithishian dinosaurs had species in both categories. Stride length, along with other characteristics can tell us if the dinosaur was running or just ambling along. It may also indicate the size of the dinosaur. In some areas, side-by-side trackways show that some dinosaurs traveled in herds.


USGS



Eggs and Nests

Fossilized dinosaur eggs have been found in many places around the world. They are sometimes arranged as in a nest (top picture below) and may be found along with adult skeletons (bottom left picture). This has been interpreted as evidence that dinosaurs cared for their offspring. In some cases, the embryo has been found preserved inside the egg (bottom right picture). Dinosaur eggs had a mineralized shell, like bird eggs, rather than the leathery shells of living reptiles.

Questions:
Dinosaur footprints are very abundant, much more than skeletons. Why are they so abundant? What evidence is used to infer the habitat in which a dinosaur lived?