

Horse-dragon and colossal iguana: Scientists identify new beaked herbivorous dinosaurs

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Skull of Hippodraco (Andrew McDonald)

(PhysOrg.com) -- Paleontologists from the University of Pennsylvania and the Utah Geological Survey have described two skeletons representing two new species of beaked herbivorous dinosaurs, known as iguanodonts, from Utah. The new dinosaurs were preserved in rocks dating to the Early Cretaceous Epoch, ~145.5 – 99.6 million years ago. The new specimens help illuminate the natural history of North American iguanodonts.

One of the new dinosaurs has been named *Hippodraco scutodens*. The first part of the name is a combination of Greek and Latin words meaning “horse-dragon,” in reference to the long, low shape of the

animal's skull, overall resembling that of a horse. The second part of the name is from the Latin meaning "shield-tooth," in reference to the oblong, shield-shaped tooth crowns in the animal's jaws, said Andrew McDonald, a doctoral candidate in the Department of Earth and Environmental Science in Penn's School of Arts and Sciences.

Hippodraco is known from a nearly complete, though crushed, skull and bones of the vertebral column and limbs; this skeleton comes from an animal about 15 feet long, though it was probably not fully grown, McDonald said. A unique shelf of bone extending along the lower jaw parallel to the tooth row sets Hippodraco apart from other iguanodonts. Hippodraco lived approximately 125 million years ago, at the same time as the predator *Utahraptor*.

The other new iguanodont has been named *Iguanacolossus fortis*. When the namesake of the iguanodonts, *Iguanodon* itself, was named in 1825, its teeth were compared to those of the living iguana lizard. Thus, the name *Iguanacolossus* combines "iguana" with the Latin *colossus*.



Iguanacolossus (Lukas Panzarin)

The second part of the name, *fortis*, is a Latin word for "mighty." The name *Iguanacolossus fortis* evokes the great size of this animal; at around 30 feet in length, *Iguanacolossus* is among the largest known iguanodonts.

Iguanacolossus is known from a skeleton including parts of the skull, much of the vertebral column and bones of the pelvis and hind limbs. Iguanacolossus is distinguished from other iguanodonts primarily by a peculiar mix of primitive and advanced features on the bones of the pelvis, McDonald said. The exact age of the rocks in which Iguanacolossus was discovered is not yet determined, though it is probably a few million years older than Hippodraco.

The skeleton of Iguanacolossus was found at a site in eastern Utah near the town of Green River and the skeleton of Hippodraco at a site north of Arches National Park.

The rocks in which the skeletons of Hippodraco and Iguanacolossus were entombed indicate that eastern Utah had a seasonally dry climate; the landscape was dotted with small lakes and cut by slow moving rivers.

In addition to iguanodonts, Early Cretaceous Utah teemed with many varieties of dinosaurs, including armored ankylosaurs, giant long-necked brachiosaurs, and several types of predatory bird-like [dinosaurs](#), McDonald said. They have all been discovered in a vast package of rock layers known as the Cedar Mountain Formation.



Hippodraco (Lukas Panzarin)

The [skeleton](#) of Hippodraco was discovered by Andrew Milner of the St.

George Dinosaur Discovery Site and Iguanacolossus by Don DeBlieux of the Utah Geological Survey.

Both sites were excavated under permits on Bureau of Land Management land by staff of the Utah [Geological Survey](#) and volunteers of the Utah Friends of Paleontology, led by Utah State Paleontologist James Kirkland as part of his ongoing research on the Cedar Mountain Formation.

After several years of work by skilled UGS fossil preparers, the skeletons were freed from the surrounding rock and ready to be studied by McDonald, working under the supervision of Peter Dodson, a professor in Penn's School of Veterinary Medicine.

McDonald's work was part of a broader project investigating the evolution of iguanodonts and revealed that the two skeletons were distinct from each other and from other iguanodonts, prompting the new names.

McDonald's analysis also revealed that Early Cretaceous iguanodonts in North America are more primitive than iguanodonts that lived at the same time in Europe and Asia.

More information: McDonald, Kirkland and colleagues have published their findings in the online journal *PLoS One*, [dx.plos.org/10.1371/journal.pone.0014075](https://doi.org/10.1371/journal.pone.0014075)

Provided by University of Pennsylvania

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