

# New duck-billed dinosaur gives scientists clues to evolution of head ornamentation and provinciality

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A new genus and species of hadrosaur (duck-billed) dinosaur – the oldest duck-billed dinosaur known from North America – has been named by scientists who expect the discovery to shed new light on dinosaur evolution.

The most striking feature of *Acristavus gagslarsoni*, the name given to the new dinosaur, is that its head lacked the distinctive ornamentation common to later duck-billed relatives. *Acristavus* means "non-crested grandfather." The genus name is symbolic of the animal's unadorned skull and the fact that it preceded later hadrosaurs.

All other hadrosaur fossils come with some kind of adornment on their skulls (with one exception from the end of the Cretaceous Period, the time just before the K-T extinction.) Ornamentation varied among hadrosaurs. Some adornments were hollow and part of the creatures' breathing apparatus, whereas others were solid. Scientists speculate the crests played a role in species recognition where one species could tell another apart by unique embellishments.

The new fossil hints that the two different styles of hadrosaur headgear evolved independently from an ancestor that did not possess ornamentation.

Especially exciting is that the two fossils of the 79.3 million-year-old

dinosaurs were discovered in different locations, suggesting that earlier species of duck-billed [dinosaurs](#) roamed over a much larger region of North America than their successors four million years later.

"To find two specimens 650 miles apart that lived at virtually the same time, and were discovered within one year of one another is extremely rare in dinosaur paleontology," said Terry Gates, a research associate at Chicago's Field Museum, and a member of the team that documents the discovery in the July issue of the Journal of Vertebrate Paleontology.

The first fossil specimen was found in Montana in 1999 by the Old Trail Museum staff and volunteers, including a group of "junior paleontologists" from the University of Chicago and was excavated in 2001 and 2002 by study coauthor Rebecca Hanna for the Museum of the Rockies in Bozeman, Montana, where it now resides.

The Utah specimen was found in the year 2000 in Grand Staircase Escalante National Monument by study coauthor C. Riley Nelson, an entomologist from Brigham Young University, who reported his finding to a local paleontologist. The Utah Museum of Natural History in Salt Lake City excavated the specimen in 2003.

The researchers who described the new dinosaur are grateful to the family owning the Montana land where the first of the two fossils of *Acristavus* was found. "These private land owners are to be commended for their generosity because the dinosaur found on their property is an exceptionally important piece of the paleontological puzzle," says Hanna.

The Montana specimen was found on land originally owned by Cowboy Hall of Fame Member Russell Ellsworth "Gags" Larson (deceased) and his wife Nora Bush Larson of Choteau, Montana. It was donated to the Museum of the Rockies by their children. To honor the family patriarch, the scientists gave the species the scientific name *gagslarsoni*.

Provided by Field Museum

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