Nearly pristine ankylosaur fossil found in Montana

May 10 2017, by Bob Yirka

Life drawing of Zuul crurivastator. Credit: Danielle Dufault © Royal Ontario Museum

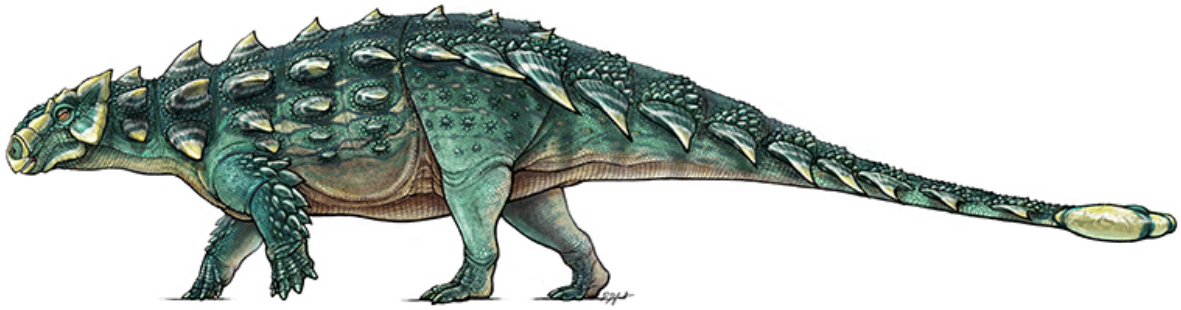
(Phys.org)—A team of researchers with the Royal Ontario Museum and the University of Toronto, both in Canada, has unearthed what is being described as one of the most complete ankylosaur fossilized skeletal remains ever from the Judith River Formation in Montana. In their paper published in the journal *Royal Society Open Science*, the group describes the find and why they believe study will reveal more about the diversity of the creatures that roamed the Earth not long before the end of the dinosaurs.

The researchers report that they were actually in the process of digging up another fossil that had been identified when they came across an ankylosaur tail. After excavation, the specimen was found to be approximately 20 feet long, and the team has estimated it would have weighed approximately 5,500 pounds, making it approximately the size of a modern white rhinoceros. It has been dated to approximately 75 million years ago, putting it in the Campanian Stage of the Late Cretaceous Period.

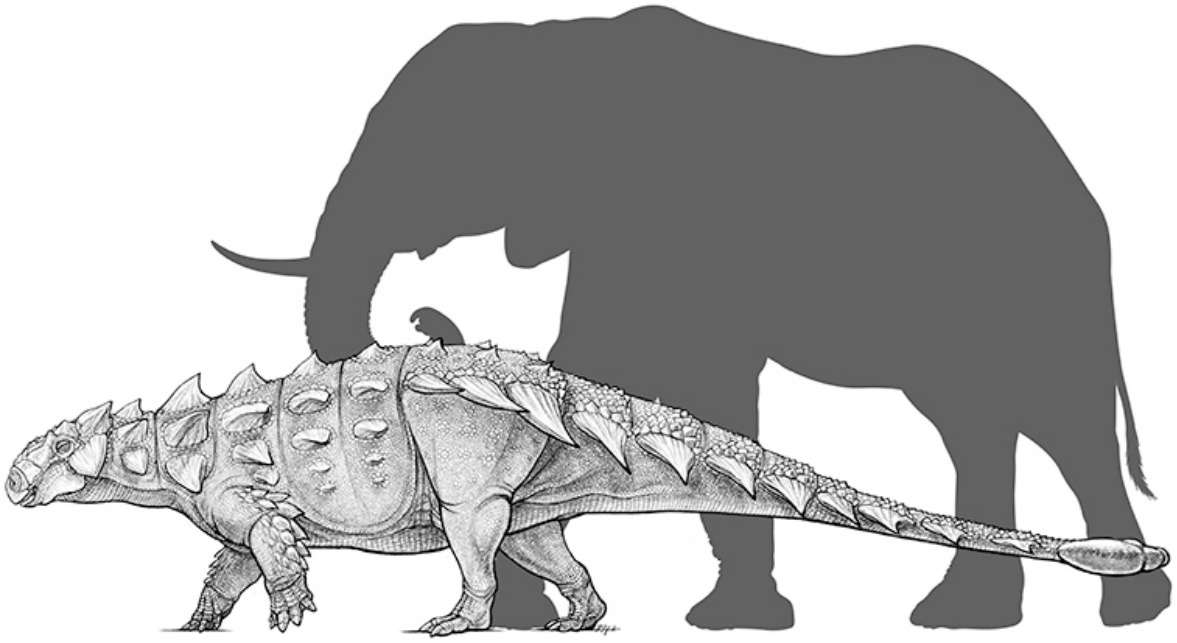
As with others of its kind, the specimen had a long, spiked tail that was clearly designed for striking enemies, but not prey— ankylosaur was a vegetarian. It also had a spiky head, which looks, depending on your view, either like a dragon or Zuul, the supernatural demigod depicted in the movie *Ghostbusters*. Because of that, the specimen has been officially named Zuul crurivastator—the second part of its name in rough translation means "destroyer of shins," a nod to its 6.7 foot, 13-vertebra-spiked tail, which also featured a knob or hammer-like end.

The researchers report that the dinosaur met its fate in a body of water of some sort and was quickly covered in sediment, which acted as a very good preservation material. In addition to bones, the team was also able to make out the remains of soft tissue which, included spike sheaths and scales. The sediment also helped keep the specimen together in its original configuration, offering an unprecedented representation of how

the creature looked while still alive. The team also notes that they are hoping that further study of the remains will help fill in gaps in the ankylosaurs record.



Life restoration of Zuul crurivastator. Credit: Danielle Dufault © Royal Ontario Museum



Zuul crurivastator size compared to an African elephant. Credit: Danielle Dufault © Royal Ontario Museum

Skull of Zuul crurivastator. Credit: Brian Boyle © Royal Ontario Museum

The knob of bone forming the sledgehammer-like tip of the tail in Zuul crurivastator. Credit: Brian Boyle © Royal Ontario Museum

ROM palaeontologists Victoria Arbour and David Evans study Zuul's tail for the first time. Credit: Brian Boyle © Royal Ontario Museum

More information: A new ankylosaurine dinosaur from the Judith River Formation of Montana, USA, based on an exceptional skeleton with soft tissue preservation , *Royal Society Open Science*, rsos.royalsocietypublishing.or … /10.1098/rsos.161086