

# Researchers claim a third of dinosaurs might never have existed

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Tyrannosaurus rex, a theropod from the Late Cretaceous of North America, pencil drawing. Image: Wikipedia.

(PhysOrg.com) -- A new ten-year study by US paleontologists suggests that up to a third of dinosaur fossils may have been incorrectly identified as new species, when they are actually juveniles of species in which there was a dramatic change as they developed.

Jack Horner, of Montana State University, said in a new documentary to be aired on the National Geographic channel, that one example was the Nanotyrannus, which was identified as a separate species but which may in fact be a juvenile [Tyrannosaurus Rex](#), whose [skull](#) changed dramatically as it matured, becoming much less elongated. This was suggested after a dinosaur mid-way between the size of a Nanotyrannus and Tyrannosaurus Rex was discovered.

According to Horner, Nanotyrannus, which had 17 teeth in the lower

jaw, was in fact a juvenile T. Rex, which had 12 lower-jaw teeth. The newly discovered dinosaur had 14 teeth in the lower jaw. Horner suggests that as the Tyrannosaurus Rex grew, it lost its small, blade-like teeth for larger bone-crushers.

The researchers also studied late Cretaceous fossils of Triceratops found in the Hell Creek formation in eastern Montana. These dinosaurs had died at various ages, and their fossils revealed a number of changes as the animals grew. The skulls revealed the juveniles' horns curved backwards, while the adults' horns pointed forwards, while the bones around the frill flattened and lengthened as the dinosaur matured.

Another researcher, Mark Goodwin, of the University of California in Berkeley, explained that they had been able to obtain a better growth series than had been available before, and this enabled them to document the changes occurring during the growth of the animals.

Big changes in the body from infancy to adulthood may have been occurred for similar reasons to changes that occur in species today that ensure members of a species recognize each other and can distinguish between adults and juveniles needing protection.

Not all paleontologists are convinced by the study. Paleontologist Hans-Dieter Sues, of the National Museum of Natural History in Washington DC agreed that some dinosaurs identified as separate species may turn out to be juveniles, since many vertebrates change in appearance as they mature. But the conclusions of the study are controversial and the claim that about a third have been misidentified is exaggerated, according to Sues. Testing the hypotheses is also difficult because there are not enough available fossils.

The research is featured in a National Geographic documentary entitled "[Dinosaurs](#) Decoded".

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