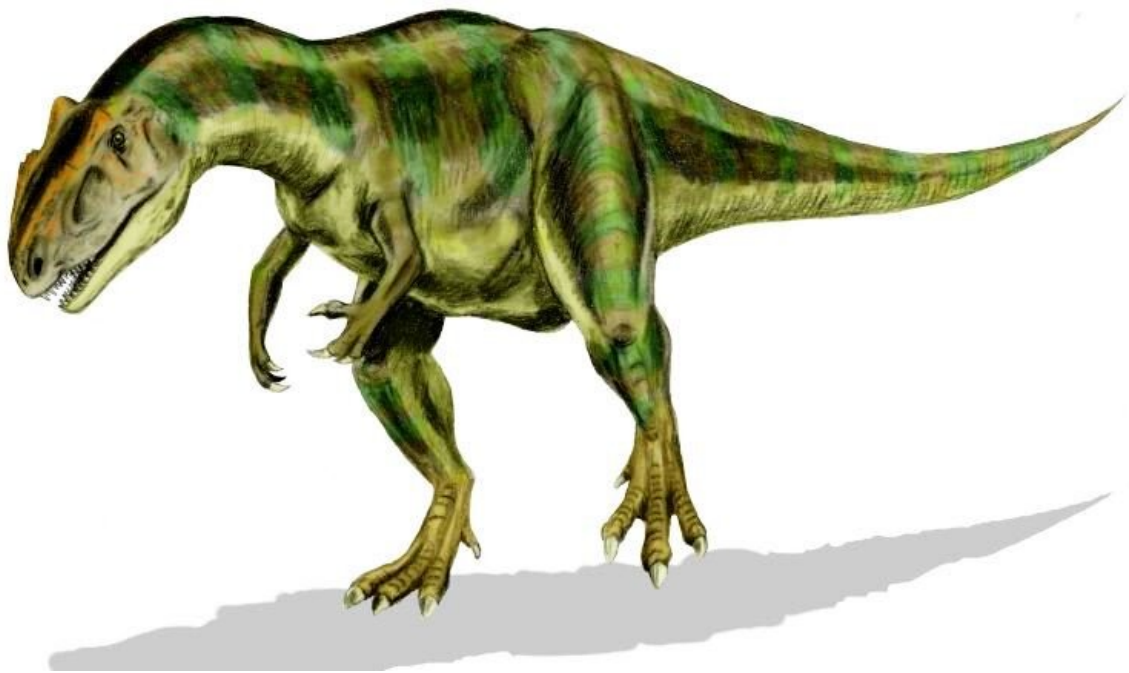


The giant jurassic dinosaur Allosaurus was a scavenger, not a predator

August 25 2021, by Cameron Pahl and Luis Ruedas



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In a paper published August 23, authors Cameron Pahl and Luis Ruedas, of Portland State University, show that Allosaurus, a large carnivorous dinosaur from the Jurassic that has long been thought to be a top predator, could probably have acquired most of its calories by scavenging on the carcasses of enormous sauropod herbivores that lived

alongside it. Pahl noted that "This new perspective may overturn 150 years of established thought."

Allosaurus were contemporary in time and space with some of the largest herbivorous dinosaurs ever recorded. These would have included well-known dinosaurs such as Camarasaurus, Barosaurus, Apatosaurus, Diplodocus, Brontosaurus, Supersaurus, and Brachiosaurus.

Brachiosaurus in particular once was considered the largest land animal to have ever lived and could have been up to 70 feet long and 64 tons in weight. Supersaurus were over 110 feet in length and weighed up to 40 tons. If these giant dinosaurs died primarily of [natural causes](#), such as disease, starvation, and exhaustion, as is typical of many modern herbivore populations, their carcasses would have been plentiful enough to sustain viable populations of Allosaurus even without these undertaking any predatory behaviors.

The researchers supported this hypothesis with a robust agent-based model, which simulated the relationship between carrion resources (carcasses) present in the Morrison Formation generated from the deaths of these sauropods, and the food energy requirements of Allosaurus. They further examined morphological attributes of the skull, including the extent of binocular vision in predators versus scavengers, as well as [ecological data](#) from fossils, such as relative population numbers in predators, herbivores, and scavengers. The relative fragility of the skull and dentition of Allosaurus had already cast doubt on Allosaurus being a [predator](#). In addition to this shortcoming, Allosaurus did not have the binocular vision required to be a successful predator: it was only 30% that of T. rex, and 15% that of a modern lion's.

Allosaurus is a type of dinosaur dating from the Late Jurassic (Morrison Formation, 155 to 145 million years ago), that lived primarily in what is now Western North America. Allosaurus were large bipedal dinosaurs in the theropod group, which also included Tyrannosaurus rex. Indeed,

Allosaurus bore some superficial resemblance to T. rex: Allosaurus were the largest meat-eating [dinosaurs](#) of their time and location, reaching up to 32 feet and weighing up to 2½ tons (with some estimates up to 4 tons). They walked bipedally, had a large head, and jaws filled with long, sharp, serrated teeth that were easily shed and continuously replaced. Also like T, rex, they had small upper arms and hands. Together, these characteristics and the superficial similarities to T. rex led to Allosaurus being thought of as the [top predator](#) of the Morrison Formation.

All the facts therefore jointly point to Allosaurus having an ecological role of scavenger, similar to today's vultures, rather than being an active predator, upending years of established thought.

More information: Cameron C. Pahl et al, Carnosaurs as Apex Scavengers: Agent-based simulations reveal possible vulture analogues in late Jurassic Dinosaurs, *Ecological Modelling* (2021). [DOI: 10.1016/j.ecolmodel.2021.109706](#)

Provided by Portland State University

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