

# New study sheds light on dinosaur size

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Dinosaurs were not only the largest animals to roam the Earth - they also had a greater number of larger species compared to all other back-boned animals - scientists suggest in a new paper published in the journal *PLOS ONE* today.

The researchers, from Queen Mary, University of London, compared the size of the femur bone of 329 different [dinosaur species](#) from [fossil records](#). The length and weight of the [femur bone](#) is a recognised method in palaeontology for estimating a dinosaur's body mass.

They found that dinosaurs follow the opposite pattern of body size distribution as seen in other [vertebrate species](#). For example, within living mammals there tends to be few larger species, such as elephants, compared to smaller animals, such as mice, which have many species. The evidence from fossil records implies that in contrast there were many species of larger dinosaurs and few small species.

Dr David Hone from Queen Mary's School of Biological and Chemical Sciences, explains: "What is remarkable is that this tendency to have more species at a bigger size seemed to evolve quite early on in dinosaurian evolution around the Late [Triassic period](#), 225 million years ago, raising questions about why they got to be so big.

"Our evidence supports the hypothesis that young dinosaurs occupied a different [ecological niche](#) to their parents so they weren't in competition for the same sources of food as they ate smaller plants or preyed on smaller size animals. In fact, we see modern crocodiles following this

pattern - baby crocodiles start by feeding off insects and tadpoles before graduating onto fish and then larger mammals."

Dr Eoin Gorman, also from Queen Mary's School of Biological and Chemical Sciences added: "There is growing evidence that dinosaurs produced a large number of offspring, which were immediately vulnerable to predation due to their smaller size. It was beneficial for the herbivores to grow to large size as rapidly as possible to escape this threat, but the carnivores had sufficient resources to live optimally at smaller sizes.

"These differences are reflected in our analyses and also offer an explanation why other groups do not follow a similar pattern. Several modern-day vertebrate groups are almost entirely carnivorous, while many of the herbivores are warm-blooded, which limits their size."

**More information:** "Body size distribution of the dinosaurs" will be published in the journal *PLOS ONE* on Wednesday 19 December 2012. [dx.plos.org/10.1371/journal.pone.0051925](https://doi.org/10.1371/journal.pone.0051925)

Provided by Queen Mary, University of London

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