

Snakes—why did it have to be giant snakes?

February 1 2018



Credit: PLOS Blogs

Snakes are beautiful and bizarre animals. Limbless vertebrates, they have been around for more than 150 million years, and occupy almost every ecological role possible, including living under the sea!

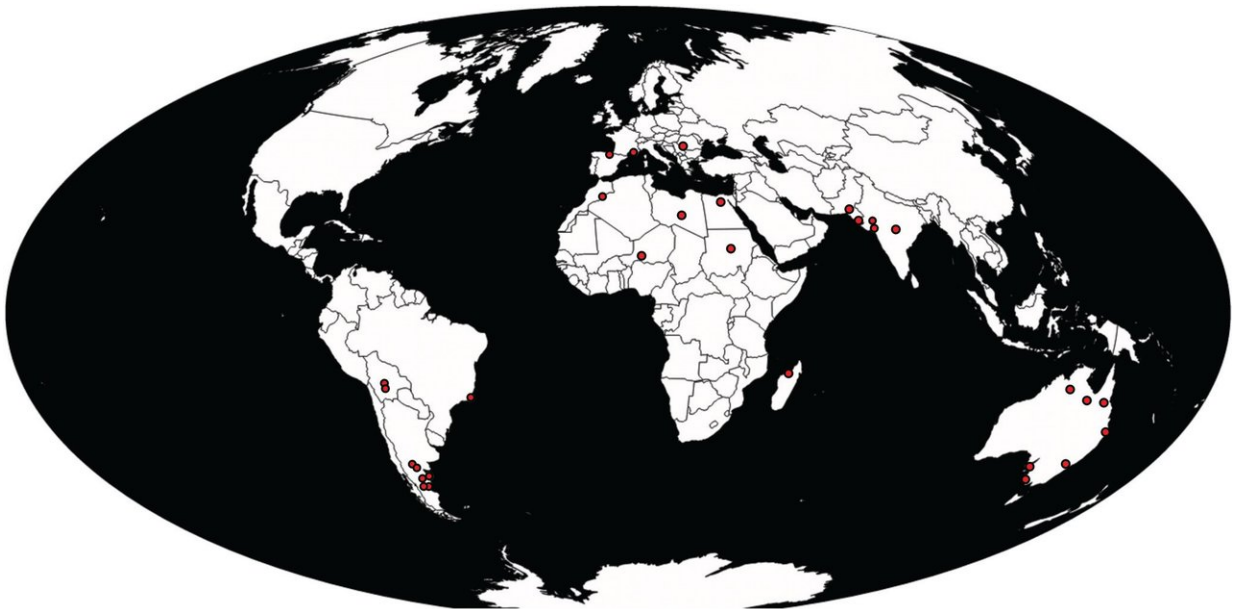
Over geological time, they have come in all sorts of shapes and sizes (typically still sausage-ish shaped), and have a unique evolutionary history.

One particular group of snakes, Madtsoiidae, used to be widely

distributed around the world back in the Cretaceous when the dinosaurs ruled. They are now extinct, with a range of around 100 million years, making them one of the longest lived lineages ever.

The first named madtsoiid was back in 1901, and called *Gigantophis garstini*. It was discovered from 40 million year old rocks in very, very ancient Egypt. From the name, you can probably tell that this was one hefty snake, bigger than an anaconda and making most modern [species](#) look like something you'd find in a pick n mix.

However, *Gigantophis* isn't that well understood by scientists, and only 20 vertebra are known in total for the species. Previous research from the early 20th century only briefly figured and described the specimens, which have otherwise remained unstudied in the Egyptian Geological Museum in Cairo for more than a century.



Geographic distribution of Madtsoiidae, plotted on a present-day map. Credit: Rio and Mannion, 2017

Jonathan Rio and Phil Mannion (my old Ph.D. supervisor!) recently undertook the mammoth task of redescribing and analysing these vertebrae. They compared them to similar fossils from across North Africa and Pakistan, to see what they could learn about the mystery [giant snake](#).

What they discovered is that other material that had been referred to this species from Pakistan was markedly different, and most likely a new species altogether. Instead, Gigantophis appears to have been confined to the late Eocene of North Africa.

By comparing the vertebrae to those of living snakes, they were able to estimate that Gigantophis was around 7 metres in length. When discovered, researchers thought that Gigantophis was the biggest of all snakes ever known, and an analysis in 2004 estimated that it could grow to around 10 meters in length!

However, in 2009, Titanoboa was discovered from the Paleocene of Colombia, which has since gained notorious fame for its immense slithery size, coming in at around 12-13 metres in length. Down the ladder Gigantophis went.

A new analysis of Gigantophis' evolutionary relationships found that its closest relative was an Indian species called Madtsoia. Its scaly cousin was much older, living in the latest Cretaceous, before the great dinosaur extinction. This distinction in time and space suggests that during the Cretaceous, these strange snakes were much more widespread across the southern continents, although it remains difficult to know exactly what happened. This is because the fossil record is notoriously bad at this time, and therefore we're probably just not finding the fossils needed to help fill the gaps in the puzzle.

So, you know what to do. Next time you're out exploring in SE Asia, South America, or Africa, keep an eye out for giant [snake](#) fossils!

More information: Jonathan P. Rio et al. The osteology of the giant snake *Gigantophis garstini* from the upper Eocene of North Africa and its bearing on the phylogenetic relationships and biogeography of Madtsoiidae, *Journal of Vertebrate Paleontology* (2017). [DOI: 10.1080/02724634.2017.1347179](#)

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