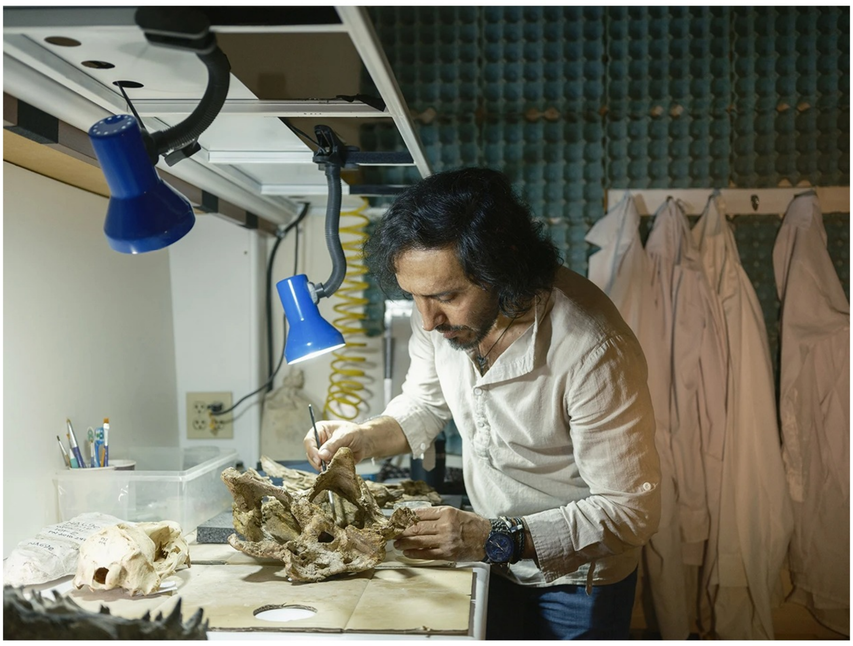
WHERE I WORK | 17 June 2024

How I've helped to discover nearly 40 species in the Amazon

Rodolfo Salas-Gismondi conducts palaeontology on a riverbank.

By Virginia Gewin



Rodolfo Salas-Gismondi is a palaeontologist at Cayetano Heredia University and head of the vertebrate palaeontology department at the Museum of Natural History, both in Lima. Credit: Musuk Nolte for *Nature*

"In the past, scientists thought it was impossible to find fossils in the Amazon, because the vegetation is dense and there are few exposed rock outcrops to dig into. It's also a constantly changing landscape: specimens that become exposed on riverbanks can disappear in a rainstorm. But over the past 15 years, palaeontologists have worked smarter to find fossil evidence to reconstruct the Amazon's past: that's why my colleagues and I find ourselves on expeditions each August and September, when the water level drops and fossils are exposed on the riverbanks.

We have found signs of a rich variety of crocodilian species — especially from the Miocene epoch (5 million to 23 million years ago). Today, these reptiles include crocodiles, caimans, alligators and gharials; of these, alligators are the only ones never to have existed in South America.

As part of the first team of vertebrate palaeontologists based in Peru, I have participated in the discovery of 37 species in the Amazon. In 2004, we described a caiman with a shovel-like head that it would have used to excavate bivalves in muddy lake bottoms. And, in 2018, we conducted a big expedition funded by the US National Geographic Society to the Napo River, which flows into the Amazon from Ecuador. We were looking for crocodilians, but we also found a 16-million-year-old fossil of a freshwater dolphin that would have been more than 3 metres long.

In this image, I'm preparing a caiman fossil that was collected in the Amazon by an international team including French and American colleagues. I worked for hours to determine that it was roughly 40 million years old: all the caiman fossils found before that had been 13 million to 14 million years old, so this creature was even older relative to them than they are compared with us."

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This interview has been edited for length and clarity.

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