Fossil of Caribbean predator discovered, with Puerto Rican scientist part of the find [1]

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Artistic representation of a Caribbean sebecid. Art: Jorge M. Machó Pupo/Machuky Paleoart. (Supplied)

Over millions of years, tectonic movements have led to the formation of natural land bridges connecting continents and islands, resulting in the exchange of species between previously separated areas.

Geologists and paleontologists have proposed that around 35 million years ago, South America was geographically connected to the Caribbean region, facilitating the movement of species between the two areas. Over time, that geographical bridge was lost, resulting in islands such as the Antilles. In isolation, the animals and plants that had colonized the Antilles took evolutionary paths different from those of their continental relatives.

A recent study published in the scientific journal Proceedings of the Royal Society B **reported evidence of a previously unidentified land crocodile** [3] **in the Antilles**. One of the authors of the research is Puerto Rican **Jorge Vélez Juarbe**, from the National History Museum of Los Angeles County, California.

The predator that Vélez Juarbe and his colleagues discovered in **Cuba, the Dominican Republic** , and **Puerto Rico** belongs to the Sebecidae family (also known as sebecids or land crocodiles), an extinct lineage of land crocodiles closely related to the group that includes crocodiles,

alligators, and gavials.

This reptile was not like the alligators found in some areas of the archipelago and the **state of Florida**. Unlike modern crocodiles and alligators, which have short legs on the sides of their bodies, **anatomical studies completed by Vélez Juarbe and his colleagues suggest that the legs of sebecids were under their bodies, like those of dogs, and were much longer than those of modern crocodiles.**

These adaptations suggest that their environment was terrestrial rather than aquatic, and that they ran fast enough to hunt and tear apart their prey. With an estimated weight of 100 to 200 pounds, seven to 10 feet long, and serrated teeth like those of certain dinosaurs, terrestrial crocodiles were at the top of the food chain at that time.

This discovery shows **that sebecids lived in the Greater Antilles between 5 million and 31 million years ago.** Land crocodiles became extinct in South America about 11 million to 13 million years ago, but the fossils in the Dominican Republic are between 5 million and 7 million years old. This difference suggests that environmental conditions changed in South America, making it impossible for sebecids to survive, but they remained beneficial in the Antilles islands for much longer.

With the extinction of these original predators, local or endemic predators emerged, such as certain birds, snakes, and modern crocodiles. This is also an example of **how islands function as museums of biodiversity**, where species that become extinct on continents persist longer in island habitats.

It is important to remember that if crocodiles are cold-blooded, sebecids probably were too. Their extinction may have been due to a reduction in temperature caused by volcanism or natural planetary cycles. This highlights the importance of continuing to study the natural world, its long-term changes, and its effects on plants and animals.

The author is a professor of physics and science education at Morehead State University, Kentucky, and a member of Ciencia Puerto Rico (www.cienciapr.org [4]).
