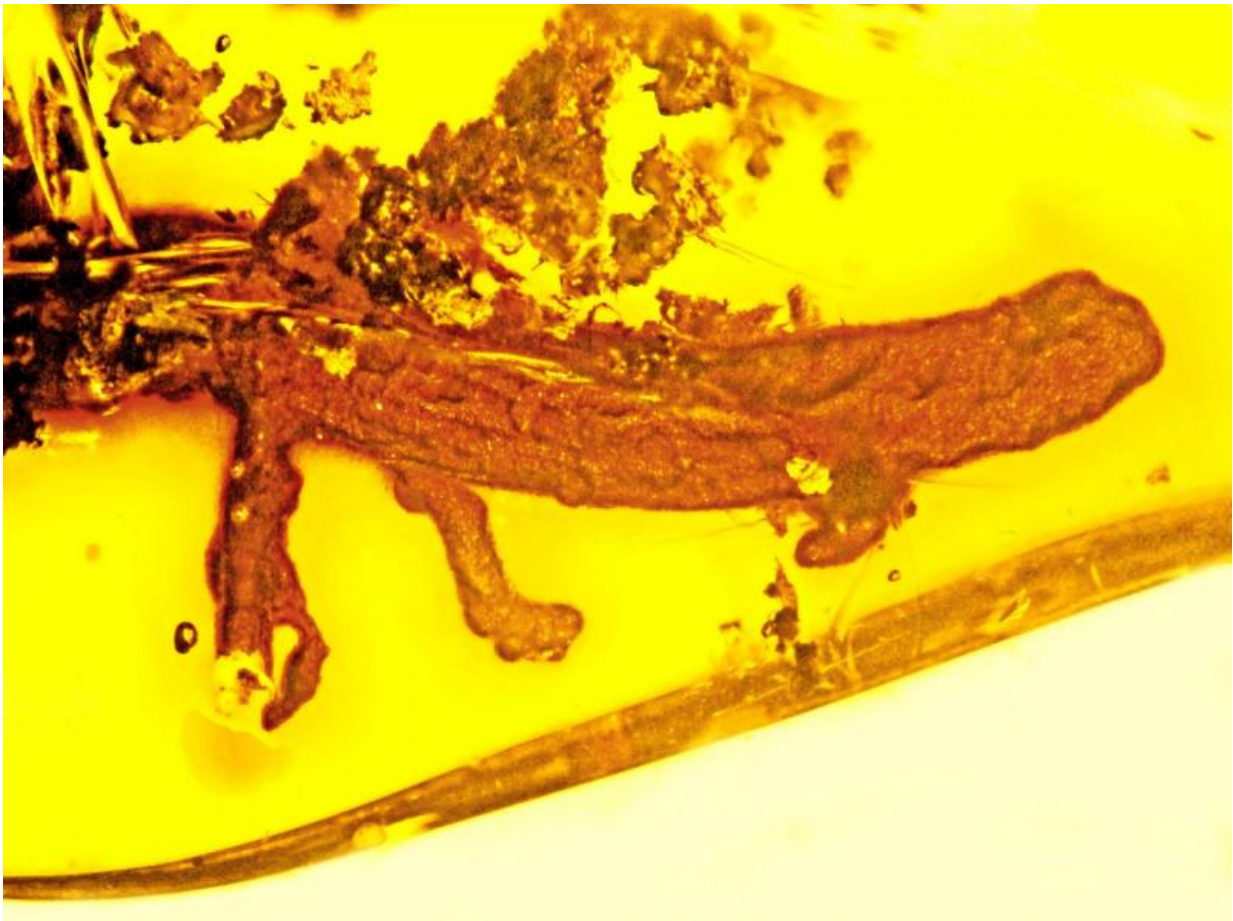


Discovery of a salamander in amber sheds light on evolution of Caribbean islands

August 17 2015



This is the first-ever discovery of a salamander preserved in amber, from an unlikely spot -- the Dominican Republic, where all salamanders are now extinct. Credit: George Poinar, Jr., courtesy of Oregon State University

More than 20 million years ago, a short struggle took place in what is now the Dominican Republic, resulting in one animal getting its leg bitten off by a predator just before it escaped. But in the confusion, it fell into a gooey resin deposit, to be fossilized and entombed forever in amber.

The [fossil record](#) of that event has revealed something not known before - that salamanders once lived on an island in the Caribbean Sea. Today, they are nowhere to be found in the entire Caribbean area.

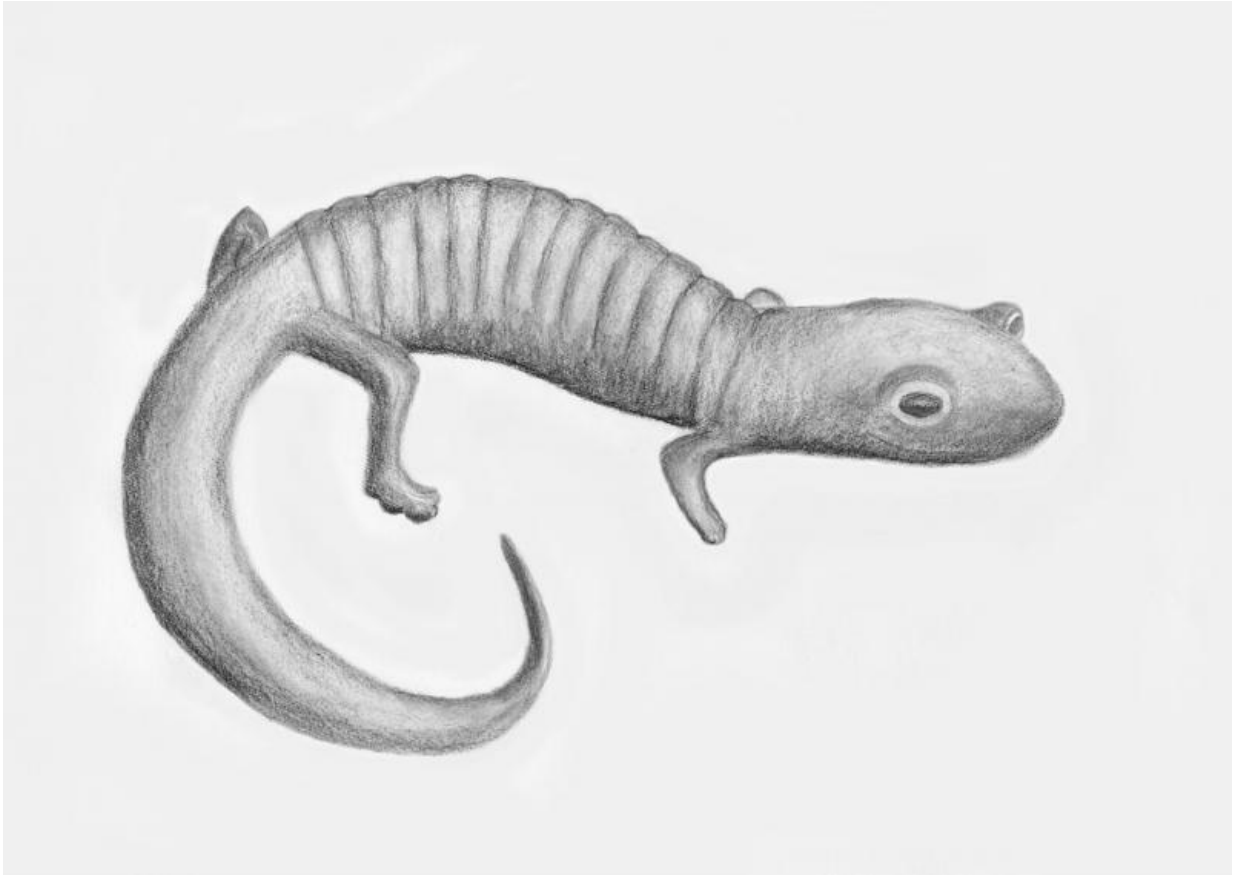
The never-before-seen and now extinct species of salamander, named *Palaeoplethodon hispaniolae* by the authors of the paper, adds more clues to the ecological and geological history of the islands of the Caribbean. Findings about its brief life and traumatic end - it was just a baby - have been published in the journal *Palaeodiversity*, by researchers from Oregon State University and the University of California at Berkeley.

"I was shocked when I first saw it in [amber](#)," said George Poinar, Jr., a professor emeritus in the OSU College of Science, and a world expert in the study of insects, plants and other life forms preserved in amber, all of which allow researchers to reconstruct the ecology of ancient ecosystems.

"There are very few salamander fossils of any type, and no one has ever found a salamander preserved in amber," Poinar said. "And finding it in Dominican amber was especially unexpected, because today no salamanders, even living ones, have ever been found in that region."

This fossil salamander belonged to the family Plethodontidae, a widespread family that today is still very common in North America, particularly the Appalachian Mountains. But it had back and front legs lacking distinct toes, just almost complete webbing with little bumps on them. As such, it might not have been as prolific a climber as some

modern species, Poinar said, and it probably lived in small trees or tropical flowering plants.



Artist's image shows what the only salamander ever preserved in amber might have looked like in real life. Credit: Drawing by George Poinar, Jr., courtesy of Oregon State University

This specimen, Poinar said, came from an amber mine in the northern mountain range of the Dominican Republic, between Puerto Plata and Santiago.

"The discovery of this fossil shows there once were salamanders in the

Caribbean, but it's still a mystery why they all went extinct," Poinar said. "They may have been killed by some climatic event, or were vulnerable to some type of predator."

Also a mystery, he said, is how salamanders got there to begin with. The physical evidence suggests the fossil represents an early lineage of phethodon [salamanders](#) that evolved in tropical America.

This fossil is 20-30 million years old, and its lineage may go back 40-60 million years ago when the Proto-Greater Antilles, that now include islands such as Cuba, Jamaica, Puerto Rico and Hispaniola, were still joined to North and South America. Salamanders may have simply stayed on the islands as they began their tectonic drift across the Caribbean Sea. They also may have crossed a land bridge during periods of low sea level, or it's possible a few specimens could have floated in on debris, riding a log across the ocean.

Such findings, Poinar said, help both ecologists and geologists to reconstruct ancient events of the Earth's history.

"There have been fossils of rhinoceroses found in Jamaica, jaguars in the Dominican Republic, and the tree that produced the Dominican amber fossils is most closely related to one that's native to East Africa," Poinar said. "All of these findings help us reconstruct biological and geological aspects of ancient ecosystems."

Provided by Oregon State University

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