

Paleontologists discovered six new species in the East African Rift

30 October 2018



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Sometimes hidden clues beneath our feet can reveal intriguing stories about the impacts of environmental change.

Six new [species](#) of invertebrates were discovered during a paleontological exploration of rift deposits in southwestern Tanzania by Ohio University professor, Nancy Stevens and her research team. After analyzing invertebrate fossils that were alive 24 to 26 million years ago in the Rukwa Rift Basin,

OHIO paleontologists published the first documentation of a rapid diversification of freshwater gastropod species at a time of pivotal environment change in this specific area. Their article, "Morphological diversification of ampullariid gastropods (Nsungwe Formation, Late Oligocene, Rukwa Rift Basin, Tanzania) is coincident with onset of East African rifting," was published in *Papers in Palaeontology*.

"From the very start of this project, I was extremely intrigued because we were working on rare fossils from a geologically interesting location," said Y. Ranjeev Epa, M.S. '17, an Ohio University geology master's student who studied and identified the fossils for his thesis. "These fossils had a lot of interesting stories to tell us and I am very happy that we were able to expand the existing knowledge on the evolutionary history, ecology and biogeography of this family."

The new species evolved in what is now known as the East African Rift about 25 million years ago, as the Horn of Africa began splitting away from the mainland due to movements of the earth's plates. This interval in time is called the late Oligocene, a key period of transition between ancient and more modern ecosystems. The research team emphasized how the discovery of these new species can help us understand how organisms respond to environmental change.

"The timing of this evolutionary burst is coincident with the onset of the timing of the East African Rift," said Dr. Alycia Stigall, Professor of Geological Sciences, a researcher on the team. "The new rift produced novel environments, and the gastropods very rapidly evolved to exploit new niches."

The fossils examined in the study were collected by Stevens and her research group, which has been conducting paleobiological and geological research in the Rukwa Rift Basin in Tanzania for nearly two decades. Their research has produced the most

precise age for the onset of rifting in the western branch of the East African Rift System, as well as the earliest evidence of the split between Old World monkeys and apes. Until now, the evolutionary history of invertebrate faunas in this area have barely been studied.

Previously, the Rukwa Rift Basin team has reported on the discovery of other [new species](#) to science, including dinosaurs and bizarre mammal-like crocs from older deposits in the region. It is clear that the Rukwa Rift preserves a special window into the evolution of ecosystems on the African continent, with potentially even more discoveries to come.

More information: Y. Ranjeev Epa et al. Morphological diversification of ampullariid gastropods (Nsungwe Formation, Late Oligocene, Rukwa Rift Basin, Tanzania) is coincident with onset of East African rifting, *Papers in Palaeontology* (2018). [DOI: 10.1002/spp2.1108](https://doi.org/10.1002/spp2.1108)

Provided by Ohio University

APA citation: Paleontologists discovered six new species in the East African Rift (2018, October 30) retrieved 7 May 2021 from <https://phys.org/news/2018-10-paleontologists-species-east-african-rift.html>

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