

Surprise at fossil discovery made in Tanzania

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Tessa Plint pictured with her fossil track discovery. Credit: Heriot-Watt University

Ancient animal tracks dated almost two-million years old have been unearthed accidentally by Heriot-Watt University scientists from the Lyell Center in Edinburgh.

The fossils were discovered by Tessa Plint, a Ph.D. researcher specializing in palaeoecology, and Dr. Clayton Magill during geological

field work at the world-renowned Olduvai Gorge in Northern Tanzania. Located in the East African Rift Valley, it is one of the most important palaeoanthropological sites on Earth having yielded early evidence of human ancestors.

It is not known what species were responsible for leaving the tracks but the scientists say they were formed by cloven-hoofed mammals, such as prehistoric antelope or gazelle. The fossils also reveal the [animals](#) left their hoof prints as they walked across a layer of freshly fallen ash resulting from a nearby volcanic eruption around 1.8 million years ago.

A total of three tracks have been found, each measuring approximately 7cm in length and offering a unique window into life in the Olduvai Gorge.

It was a find that came as a surprise, according to Tessa Plint, who made the discovery while surveying a small plot of land. She explains: "We were at Olduvai Gorge to collect archeological sediment samples for geochemical analyzes.

"We weren't there to prospect for [fossil tracks](#), so finding them was 100 percent a matter of looking down in the right place at the right time! It was a very exciting moment.

"There have been [fossil](#) bird footprints found in geologically younger rock layers from Olduvai Gorge, but never any [fossil footprints](#) from large, land-based animals.

"A lot of what it known about the ancient ecosystem at Olduvai Gorge comes from fossil bones and teeth.

"Fossil footprints, or in this case, the fossil hoof-prints offer a unique window into the past. They have the potential to tell us about the

behavior of the track-maker, something that is very difficult to ascertain from extinct animals."

Detailed fossil tracks are rare due to their fragility and are often not preserved in the archeological or palaeontological record. It takes incredibly specific environmental conditions for them to survive millions of years.

This latest discovery offers remarkable detail largely thanks to the hoof prints being made in very fine, volcanic ash and provides an insight into the landscape seen by early humans.

In many ways, the ancient Olduvai landscape resembled the contemporary Serengeti plains, with vast grasslands speckled by patches of thorny shrubs and trees. But, the presence of a large volcano once provided just enough water runoff to support a massive shallow saline lake. The water was not drinkable but did harbor an abundance of wetland vegetation. The rivers, streams and freshwater springs that fed into the lake were, however, safe to drink resulting in animals and early human ancestors being drawn to the area.

Dr. Magill, an Assistant Professor at the Lyell Center, adds: "The fossil tracks capture a snapshot in time. It's a discovery that suggests that if fossil tracks can be preserved in the sediments at Olduvai Gorge then there is potential for future discoveries of large animal or maybe even early hominin tracks or trackways in this area.

"One of the tracks is preserved in stunning detail, it's so crisp and clear, it looks like it could have been made the morning we found it.

"Having these artifacts is incredibly useful when studying ancient ecosystems. We know for certain that that animal was physically present in that environment at a specific time in the past."

Dr. Magill and Tessa Plint's paper on the rare discovery has been published in the journal *Ichnos*.

More information: Tessa Plint et al, Large mammal tracks in 1.8-million-year-old volcanic ash (Tuff IF, Bed I) at Olduvai Gorge, Tanzania, *Ichnos* (2021). [DOI: 10.1080/10420940.2021.1930540](https://doi.org/10.1080/10420940.2021.1930540)

Provided by Heriot-Watt University

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