

# Ancient fossils reveal fresh clues about early life on land

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Credit: University of Oregon

Slime has been present on Earth for a very long time—almost 2 billion years, according to a recent reassessment of fossil evidence.

In a study published this month in the journal *Palaeogeography, Palaeoclimatology, Palaeoecology*, UO geologist Greg Retallack and Xuegang Mao of China's Fujian Normal University confirm that a fossil

from Western Australia is the planet's oldest known land-dwelling [slime mold](#).

The fossil in question, *Myxomitodes stirlingensi*, is a hairpin-shaped trace of biological activity found in the rocks of the Stirling Range, a mountain region 200 miles southeast of Perth. Long the subject of scholarly controversy, the fossil has sparked debate both about the specific life form it represents as well as the paleoenvironment it inhabited.

"They have been interpreted as trails of metazoan animals and often as [marine organisms](#)," said Retallack, who is director of the Condon Fossil Collection at the Museum of Natural and Cultural History. "Though they resemble animal trails they probably were not. Slime molds make similar trails but lack any animal organization: no mouth, no gut, no anus, no nerves, no veins. And we are seeing these fossils at the surface of ancient terrestrial soils, making them additional evidence of life on land during the Paleoproterozoic Period."

Retallack said that while [slime molds](#) are not themselves multicellular, they might hold important clues about how [multicellular organisms](#) evolved.

"Myxomitodes were amoebae that live dispersed in soil, but these traces of their movement demonstrate that they could coalesce into a slug that wandered over the soil as a unit, possibly to sense better feeding opportunities or a place to sporulate, and then disaggregate once again into single cells," he said. "This may demonstrate an early stage in the evolution of multicellular creatures, bridging the gap between microbes and more complex life forms."

**More information:** Gregory J. Retallack et al. Paleoproterozoic (ca. 1.9 Ga) megascopic life on land in Western Australia, *Palaeogeography*,

*Palaeoclimatology, Palaeoecology* (2019). [DOI: 10.1016/j.palaeo.2019.109266](https://doi.org/10.1016/j.palaeo.2019.109266)

Provided by University of Oregon

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