

# Study unravels links between soils and plant biodiversity

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For decades, ecologists have studied soils to understand why some patches of vegetation contain more plant species than others. Researchers at The University of Western Australia's School of Plant Biology and the Smithsonian Tropical Research Institute in Panama have now found an answer to this long-standing question.

According to a study published in this week's issue of *Science*, competition for soil resources among plants does not explain variation in plant diversity along soil fertility gradients, contrary to the predictions of prominent theories.

Rather, variation in [plant diversity](#) along such gradients simply reflects the filtering of species from the regional flora based on local environmental conditions.

Lead author, Assistant Professor Etienne Laliberté, said that while previous studies had evaluated those different hypotheses in isolation, this was the first time multiple hypotheses had been considered simultaneously.

"One reason researchers had not previously been able to answer this long-standing question is because they lacked an appropriate study system to do so," Assistant Professor Laliberté said.

"South-western Australia's distinctive geological setting and exceptionally species-rich flora provided a unique natural experiment to

address this key question. This shows global biodiversity hotspots are not only important for conservation, but also for advancing ecological theory."

The groundbreaking research is part of a broader study exploring how changing [soil fertility](#) during long-term [soil](#) development affects plant biodiversity and ecosystem functioning.

**More information:** "Environmental filtering explains variation in plant diversity along resource gradients," *Science* 26 September 2014: Vol. 345 no. 6204 pp. 1602-1605 [DOI: 10.1126/science.1256330](https://doi.org/10.1126/science.1256330)

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