

# Soil microbes return after replanting local native plants

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Soil testing in revegetated areas of the Adelaide and Mt Lofty Ranges. Credit: Martin Breed, Flinders University.

Robust long-term ecosystem restoration relies not just on replanting native vegetation but on the recovery of underlying soil

biodiversity—yet this area has received little attention and is poorly understood, Flinders University researchers say.

A new article in *Biological Conversation* calls for better insights and solutions to fill this gap to help improve the success of restoration efforts that are so vital to rebuilding ecosystems and returning biodiversity to land damaged by land clearance, mining, urbanization and other impacts.

"We urge restoration ecologists to include microbes in their studies and reporting to landowners and policymakers to more accurately map ecosystem responses to revegetation efforts," says senior researcher Dr. Martin Breed, from Flinders University College of Science and Engineering.

"This is a complex field as soil microbes are extremely diverse, but understanding this microscopic underground life is increasingly affordable and is vital to provide the ecological functions such as [nutrient cycling](#) that supports [plant growth](#) and broader ecosystem recovery."

The study synthesized global studies that mapped changes in [soil microbes](#) after native plant revegetation. The 26 studies they compiled showed more rapid recovery in soil bacteria than fungi which is consistent with bacteria's shorter generation times and better dispersal abilities

"Vast areas of the earth's ecosystems are degraded which is leading to cascading losses of biodiversity, driving up extinction rates and even disease risks to us," says lead author Carl Watson, a Ph.D. candidate in restoration ecology at Flinders University.

"We must write into these important revegetation efforts the need for below-ground ecosystem recovery and monitoring as understanding how

soil microbial communities return after revegetation will help rebuild critical habitats."

**More information:** Carl D. Watson et al, Global meta-analysis shows progress towards recovery of soil microbiota following revegetation, *Biological Conservation* (2022). [DOI: 10.1016/j.biocon.2022.109592](https://doi.org/10.1016/j.biocon.2022.109592)

Provided by Flinders University

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