

Experimentation essential in saving Earth's degraded land

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Global land degradation is now so severe that hundreds of millions of hectares of land need to be restored back to health. Under the Bonn Challenge, nations have taken on the task of restoring 350 million hectares of degraded land around the globe by 2030.

In research published in the journal *Frontiers in Ecology and the Environment*, University of Adelaide scientists and their colleagues from the Kunming Institute of Botany and the World Agroforestry Centre in China, have proposed improving techniques for restoring [degraded land](#) by systematically embedding experiments into largescale [restoration](#) activities and projects.

"The repeated nature of [restoration projects](#) provides an unprecedented opportunity to establish them as living laboratories to improve restoration techniques and ensure land degradation is most effectively treated," says Dr. Nick Gellie, School of Biological Sciences, University of Adelaide.

The researchers also propose constructing networks of such embedded restoration experiments to share the knowledge that will be gained from individual experiments globally.

"Industry stakeholders need to develop acceptable industry standards for embedding experiments in restoration," says Dr. Gellie.

"We have identified six key areas in current restoration practices which

need to be improved and could be easily addressed using the approach of embedding experiments within restoration projects.

"Successfully achieving the monumental restoration targets such as those in the Bonn Challenge will depend on the effective application of restoration techniques, but there are concerns that intended outcomes may be spoilt by ineffective practices," says Dr. Gellie.

The paper goes on to highlight that important restoration skills based on trial and error could be lost to a new generation of practitioners if professionals who are about to retire from the restoration sector, do not factor in the succession and dissemination of this knowledge.

"The scale of restoration being undertaken globally is completely new territory for the restoration sector," says Professor Andrew Lowe, Chair in Plant Conservation Biology at the University of Adelaide.

"Embedding experiments works: it makes economic and ecological sense. We have had great results using embedded experiments to inform adaptive management for stakeholders here in South Australia, but we are now calling on the broader restoration community to formalise the adoption and creation of evidence-based approaches.

"Exploring the efficacy of restoration through embedded experiments and networking the results is an investment in restoration that is likely to pay generational dividends, in saving the Earth's degraded land," says Professor Lowe.

Provided by University of Adelaide

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