Faculty Science and Engineering, How bio-diverse ecosystems store more soil carbon in Australia.

Status: Open
Applications open: 17/06/2020
Applications close: 1/09/2020

About this scholarship

Description/Applicant information
An opportunity is available for an outstanding PhD scholar in the area of soil carbon with the School of Molecular and Life Sciences in the Faculty of Science and Engineering at Curtin University. Maintaining or increasing soil organic carbon (C) is critical to tackling climate change. It is also the most vital element controlling soil health, which enables soils to be resilient. Soil organic C exerts positive effects on soil physical and chemical properties. It increases the soil’s capacity to provide ecosystem services, such as the provision of food and the regulation of nutrient cycles and climate. Soil organic SOC storage represents the balance of two main processes: carbon inputs (e.g., net carbon gain by plants) and losses (e.g. microbial decomposition). Research in experimental plots and managed ecosystems suggests that biodiversity has the potential to influence C sequestration by modifying both processes. However, the effects of plant species diversity and organic C storage in rangelands ecosystems are not well known, and the mechanisms of soil C formation, stabilisation and loss are yet to be understood. Theory suggests that climate predominantly controls large-scale patterns of soil C storage, plant diversity and biomass production. However, there is growing evidence that edaphic factors play essential roles and at different spatial scales. For instance, large soil organic C stores can impose positive feedbacks on species richness and biomass production by affecting soil water-holding capacity and soil fertility. This overall aim of this project is to understand better and to predict the effects of biodiversity and climate change on soil organic C capture and sequestration in the Australian rangelands. The two main activities will involve: (i) experiments to research the links between plant C inputs and the pathways and mechanisms of soil C formation and loss, and (ii) study of the influences of environmental and edaphic (biotic and abiotic) factors on soil organic C storage, plant diversity, productivity, and the interrelationships among these factors across ecological gradients.

Student type
- Current Students
- Future Students

Faculty
- Faculty of Science & Engineering
  - Science courses

Course type
- Higher Degree by Research

Citizenship
- Australian Citizen
- Australian Permanent Resident
- New Zealand Citizen
- Permanent Humanitarian Visa
- International Student

Scholarship base
- Need Based

Value
The scholarship is a full-time enrolment for a period of 3.5 years. No part time, casual or other allowed.
Total value of the annual scholarships (stipend and fees) is approx. $60,000 - $70,000 p.a.
Curtin PhD Stipends are valued at $28,092 p.a. for a maximum of 3.5 years.
Domestic students will receive a 100% Fee offset. For a successful international student, PhD tuition fees offsets between 75% – 100% will apply.

https://scholarships.curtin.edu.au
Scholarship Details

Maximum number awarded
1

Eligibility criteria
Applicants must be eligible for admission into a Curtin Higher Degree by Research course in the Faculty of Science and Engineering. Applicants must be able to demonstrate how their current research skills and experience would be an asset to this research opportunity.

Enrolment requirements
Applicants must be eligible for admission into a Curtin Higher Degree by Research course in the Faculty of Science and Engineering.

Changes to Enrolment

How to apply

Application process
To apply for this scholarship opportunity please contact Prof. Raphael VISCARRA ROSSEL on +61 467 769 364 or r.viscarra-rossel@curtin.edu.au

Need more information?

Enquiries
Prof. Raphael VISCARRA ROSSEL on +61 467 769 364 or r.viscarra-rossel@curtin.edu