Call for PhD Candidates

PhD position on sustainable farming, nature-based solutions, and restoring ecosystems for a more climate-resilient agriculture.

We're looking for a highly motivated PhD candidate to join an exciting, nationally coordinated research program that supports sustainable agriculture through better water management.

As part of the Ripple Effect project, you'll work alongside farmers, researchers, and policy experts to explore how multifunctional water infrastructure, such as farm dams, can enhance water security, biodiversity, and climate resilience across Australia.

The Ripple Effect is delivered in partnership with all eight national Drought Resilience Adoption and Innovation Hubs, coordinated by the Grower Group Alliance, and supported by leading universities including RMIT University, University of Western Australia, Australian National University, University of Adelaide, and University of Southern Queensland.

At CNPS, our research tackles environmental challenges at the intersection of science, policy, and practice. As a PhD candidate, you'll contribute to applied research involving ecological monitoring, emissions reduction, or freshwater conservation, helping scale practical, nature-based solutions for agriculture.

Project Description

The Ripple Effect: a national project enhancing water security, biodiversity, and climate resilience in farms

The Ripple Effect is a national project to enhance water security, biodiversity, and climate resilience on farms. This PhD will complement work at demonstration sites across Australia, contributing to projects that monitor biodiversity with acoustic sensors, assess water security, or measure greenhouse gas emissions from farm dams. You'll contribute to cutting-edge research within a major national collaboration supported by universities, industry, and the Australian Government.

This is a general call for PhD candidates interested in working in climate-resilient farm dams. Projects may explore a range of topics outlined below:

Water Security, Economics & Natural Capital
- Measuring the ecological and economic value of farm dam enhancements, including benefits for productivity, biodiversity, and climate resilience.
- Assessing the feasibility and return on investment for nature-based solutions on farms.
- Collecting data to support the development of nature-based markets (e.g., carbon and biodiversity credits).
- Contributing to natural capital accounting and the inclusion of farm water assets in sustainability reporting.

Ecology & Biogeochemistry

- Investigating how changes to farm dams (e.g., fencing, revegetation) affect biodiversity and ecological function.
- Monitoring nutrient and carbon cycling under different dam management strategies.
- Identifying effective indicators for ecosystem health, including flora, fauna, and water quality metrics.

Modelling & Mapping

- Using spatial data, hydrological models, and decision-support tools to guide farm dam restoration and landscape planning.
- Identifying hotspots of poor water quality, biodiversity decline, or high emissions risk.
- Modelling scenarios for scaling nature-based interventions across farming regions.

Social Science

- Investigating landholder motivations, barriers, and benefits for engaging in water stewardship practices.
- Assessing social outcomes of dam improvements, such as knowledge exchange, community values, and well-being.
- Exploring co-design approaches and long-term pathways for community-led water infrastructure management.

RMIT's Centre for Nature Positive Solutions

RMIT's Centre for Nature Positive Solutions (CNPS) is multi-disciplinary team with a proven track record of conducting impactful research that addresses the world's most pressing environmental challenges, including climate change, pollution, and biodiversity loss. Grounded in cutting-edge science, CNPS focuses on innovative research that transforms the conservation, restoration, and management of ecosystems, ensuring a sustainable future where both people and nature can thrive. CNPS develops solutions that mitigate climate change, protect aquatic biodiversity, foster economic growth, and promote capacity building and community wellbeing.

With a dynamic team of 18 researchers at RMIT University, we collaborate globally to provide actionable guidance and solutions that empower communities, industries, and governments. Our core team has over 50 years of collective research experience, with expertise in ecology, biogeochemistry, microbiology, environmental economics, remote sensing, social science, mapping, and modelling. CNPS includes internationally recognised researchers with more than 300 peer-reviewed publications.

Supervisors

Dr Martino Malerba is a Senior Lecturer and ARC DECRA Fellow at RMIT where he leads research on nature-based solutions to improve the sustainability of freshwater systems. His work focuses on enhancing farm dams, wetlands, and other freshwater systems to boost biodiversity, reduce greenhouse gas emissions, and improve water quality and security, helping rural landscapes adapt to a changing climate.

Dr Melissa Wartman is a Senior Research Fellow at RMIT, where she leads interdisciplinary research advancing nature-based climate solutions for people and nature. Her work focuses on restoring coastal wetland ecosystems by developing and applying innovative techniques that enhance biodiversity, strengthen ecosystem services, and improve resilience to climate change.

Location

RMIT University is based in Melbourne, Australia, with campuses located both in the City or Bundoora.

Project-specific scholarship

RMIT STEM College has provided a dedicated PhD scholarship as an in-kind contribution to The Ripple Effect project. **This scholarship is already secured and does not require the candidate to apply through RMIT's competitive internal rounds.** The supervisory team will assign the scholarship based on alignment with project needs and candidate suitability.

The scholarship includes a stipend (approx. AUD $35,000 per year) and full tuition fee support for up to 3.5 years. Both domestic and international applicants are encouraged to apply.

Candidate Skillset

We encourage applications from individuals with strong communication skills, demonstrated capacity for independent research, and a genuine interest in making a real-world impact through applied research.

A strong CV for this scholarship may include:

- A Master's or Honours degree in a similar field.
- First-authored publication in a peer-reviewed scientific journal.
- Good quantitative skills and knowledge of coding languages (e.g., R, Python).
- Experience working with freshwater systems or sustainable agriculture.
- Good communication skills.
- Demonstrated ability to work independently.

How to apply?

Interested applicants are invited to email a short expression of interest (EOI) to martino.malerba@rmit.edu.au.

For your EOI please include:
- A short cover letter (max 1-page) outlining your research interests and experience
- A brief CV (2-pages)
- Academic transcript(s)
- Contact details for two academic referees

Please contact Dr Martino Malerba (martino.malerba@rmit.edu.au) for any enquiries.

Application Deadline

Applications will be reviewed on a rolling basis until the position is filled. We encourage early expressions of interest.

RMIT UNIVERSITY