Charles Sturt University

Gulbali Institute
Agriculture Water Environment

Gulbali PhD scholarship prospectus 2025

Challenge Project: Using fire to promote biodiversity in south-eastern Australia

Charles Sturt University - TEQSA Provider Identification: PRV12018 (Australian University). CRICOS Provider: 00005F.

Charles Sturt University

Who we are

Charles Sturt University is Australia's leading regional university – with a global perspective.

Our history of innovation and educational empowerment reaches back as far as 1895 with the establishment of the Bathurst Experimental Farm. That was the first step in connecting people, communities and industry to make a real difference. Professionally. Socially. Economically.

Formally incorporated in 1989, we are Australia's largest regional university. We have campuses across New South Wales, and teaching partnerships in Canberra, Goulburn and Wangaratta.

We also have diverse international partnerships and provide online education nationally and across the globe.

Our university is grounded in the qualities we draw from our regional roots – our sense of community, our will for hard work, and our resilience when times get tough. We have turned the challenge of connecting multiple campuses across hundreds of kilometres into an opportunity – to apply the lessons we have learned to connect students across Australia and the world.

Our student body – numbering some 43,500 – stretches from the banks of the Murrumbidgee River to the oceans in Port Macquarie. And our alumni – 220,000 strong and counting – are applying their learning everywhere too, from the red centre and the white wilds of Antarctica, to the heart of the world's megacities.

And that's not just the case for our students. We have research and industry partnerships that reach across the nation and around the globe – sharing knowledge, driving change, fostering growth.

Yindyamarra winhanganha

It means the wisdom of respectfully knowing how to live well in a world worth living in. And it's what we strive for. Every day. How? By making connections.

Connecting our students with the knowledge and wisdom to shape the world and reach their potential.

Connecting our research to real-world issues.

Connecting new technologies with traditional wisdom to protect ecosystems and forge a more sustainable future.

And connecting people, industry and government to share ideas, build knowledge and find innovative solutions to today's – and tomorrow's – challenges.

Our vision

Our vision as Australia's leading regional university, is to advance the careers of our students, inspire research excellence and drive regional outcomes with global impact.

We seek to empower the leaders of tomorrow through innovative education and applied research, and we have a strong commitment to learning from and working with Australia's First Nations Peoples.

It's why we are committed to the transformative University Strategy 2030. It's our commitment to our communities. To our partners. To our students. To our regions. A long-term strategy deepens our relationships, enabling us to build a stronger tomorrow together.

Studying in Australia

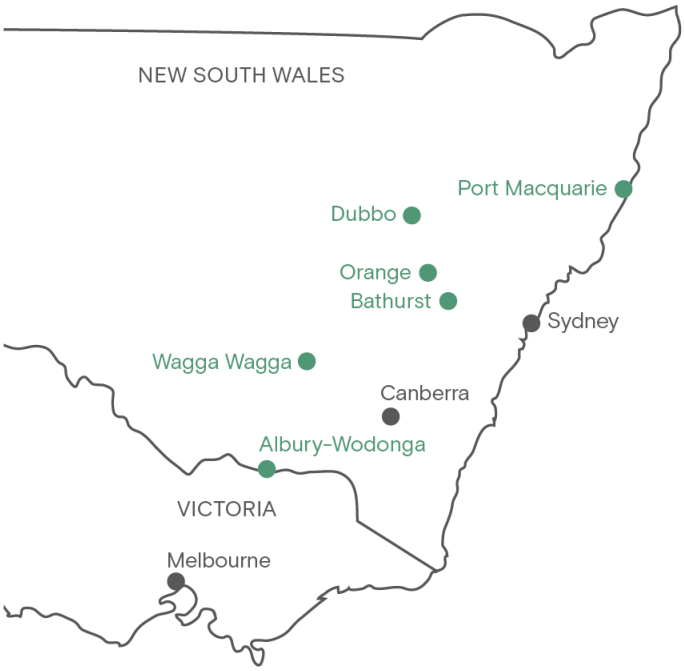
An experience like no other

At Charles Sturt, we're geographically gifted. We have five campuses across regional Australia in Albury-Wodonga, Bathurst, Wagga Wagga, Orange and Port Macquarie.

Our campuses are safe, close-knit communities. Your lectures, tutorials, practical workshops, cafés, gym and the all-important library, are just a short walk from one another.

Our PhD Supervisors have small student cohort sizes which means targeted and specialised tuition.

At Charles Sturt, we have a strong student community. You'll study alongside students from across the country and the world - 24% of our students are international students from 113 countries - making lifelong friends along the way.



Gulbali Institute

Agriculture, Water and Environmental Research

We acknowledge and pay respect to our Wiradjuri First Nations people by using their native language in the naming of this research institute.

"Gulbali ngurambang" is Wiradjuri which translates to "to understand country". After consultation with First Nations people, we use this phrase respectfully as the name of our research institute.

The Gulbali Institute creates impactful integrated agriculture, water and environment research, grounded in Charles Sturt's footprint across the Murray-Darling Basin, but with impact across Australia and globally.

We emphasize return on investment to increase productivity for farmers, improve natural environments, and reduce risk in agricultural and environmental management.

The Gulbali Institute will maintain Charles Sturt's existing research program and its strong relationships, particularly with Research Development Corporations, key State and Commonwealth departments and agencies, and private industry to achieve outstanding outcomes.

The Institute will undertake multi- and interdisciplinary research and innovation, focusing on large scale programs in the field of:

- Biosecurity
- Agricultural Innovation,
- New Food and Beverages,
- Sustainable Aquatic Systems
- Cultural Connection and Environmental stewardship

Find out more

→ https://www.csu.edu.au/research/gulbali

The Gulbali PhD program

Details and rationale

The Gulbali PhD program is a range of prestigious scholarships for both domestic and international research candidates. In most cases, these scholarships are available to Australian or New Zealand citizens or Australian permanent residents. We are seeking highly talented researchers who are global thinkers, seeking to address grand challenges, which align with the key Gulbali research institute focal areas.

Selection Criteria

a) Previous Academic Performance: This assessment considers the level of the applicant's highest, relevant, qualification in line with CSU entry requirements for PhD courses (See note** on Page 6).

b) Research and/or Professional Experience: Evidence of an applicant's research achievements and relevant professional experience. This includes such aspects as peer-reviewed research outputs, high esteem academic awards and prizes, relevant research and/or professional experience.

c) Research Alignment and Supervisor Capacity at Charles Sturt: Alignment with both CSU and/or industry strategic research priorities and strengths. This includes the strength of alignment with the Charles Sturt 2030 Research strategy: the supervisory capacity, FoR alignment with Coaldrake, and the expected impact and end user engagement of the proposed research.

d) Degree of support from Gulbali projects, teams and/or supervisors.

e) Research Question and proposed methodology.

Who is eligible?

- Prospective PhD students interested in joining Gulbali projects and/or teams and/or propose a project with a strategic link to the Gulbali institute mission/objectives
- High quality international and domestic students meeting minimum requirements for Charles Sturt University
- Students considering entry into a PhD program into session 2 2025.

How to apply?

Gulbali will run a two-stage EOI process which will be advertised on the Charles Sturt University scholarships page and through national media.

The first stage will require applicants to complete an online form and submit, along with a professional CV and transcripts.

Candidates will then be shortlisted and top applicants, and supervisors, will be invited to complete the Charles Sturt admissions process.

Closing date for EOIs is **8th February 2025.**

Shortlisting will take place in late February, with highly ranked students invited to submit enrolment applications by **2 Match 2025**.

Key Details

Commencement:
Students must commence in session 2 **2025.**

Study load:
Only full-time applicants will be accepted for shortlisting.

Stipend:
This scholarship is valued at $35,000 per annum, payable in fortnightly instalments. First Nations applicants will have a stipend valued at $50,000 per annum.

Top Ups:
Various industry and university top ups of up to $10,000 per year are available, by application, following acceptance of enrolment. The principal Supervisor will advise eligibility.

Tuition Fees:
Domestic candidates: Fee exemption for a period equivalent to four years (eight sessions) for PhD at full-time study.

International candidates: Fee exemption for a period equivalent to three years (six sessions) for PhD at full-time study.

Operating Funds:
Scholarship candidates are allocated an allowance to assist with the reimbursement of costs associated with a candidate's research. The annual amount reflects whether the project is linked to specific field or education codes, lab-based, non-lab based and/or First-Nations focused.

Selection:
A weighting system will be established to rank candidates. Shortlisting will take place by an expert committee of research active academics.

Visa:
International students will require a valid student visa and insurance to commence. Processing can take up to 4 months. Limited relocation funds (up to $5,000) are available.

English language proficiency:
Shortlisted International students must upload evidence of English language proficiency, as part of the enrolment process, in line with any of the following minimum CSU standards:

1. Providing evidence of having completed a sufficient standard of study in English.
2. Having obtained an Academic IELTS (or equivalent) within the last 2 years with a minimum overall score of 6.5 and no individual score below 6.0
3. Written evidence of a degree that was conducted and examined solely in English.
4. Level 109 of the ELS examination with a score above B (reading and writing) and above P (speaking and listening) in the last 12 months
5. Applicants can request (in writing) that alternative evidence be considered. These are individually decided by the Pro Vice Chancellor (Research and Innovation).

Charles Sturt University Doctor of Philosophy entry requirements:

****Note on CSU Doctor of Philosophy entry eligibility:**

Applicants must have achieved at least one of the following:

a. Qualified for the award of a master by research with an acceptable level of performance.

b. Completed a bachelor degree followed by a one-year honours degree with class 1 or class 2(1) honours, specialising in the same discipline or a closely similar discipline.

c. Gained class 1 or class 2(1) honours in a bachelor degree of at least four years full-time duration, specialising in the same discipline or a closely similar discipline.

d. Commenced a masters by research at the University and shown exceptional ability in a research project that is clearly capable of being extended to a doctoral level.

e. Qualified for the award of a coursework masters:

   i. including a research component subject or research component subjects totalling at least 16 Charles Sturt University points, or equivalent; and

   ii. normally with a grade average equivalent at class 2(1) honours or better.

f. Completed another appropriate combination of undergraduate and postgraduate qualifications (such as relevant graduate diplomas) and research experience that demonstrates capacity for research at a doctoral level.

Critical dates

Dates are fixed and tied around the need to allow sufficient time for proposals, assessments, enrolment, screening, and (if applicable) visa applications.

The timeline below is targeting census date 2025 teaching session two.

- By 20th December 2024: Call of EOI's opens.
- By 8th February: EOI's due to be submitted to challenge program lead.
- By 28th February: Challenge program lead submits three preferred students to Gulbali.
- By Thu 2nd March: Gulbali Leadership team review recommended candidates.
- By Fri 3rd March. Challenge program lead makes verbal offer to students.
- By 15th March. CSU issues written offer and student accepts.
- By 31st March. Student submits Visa application (if applicable).
- By 8th August. Student commences in second session.

Challenge Project

Using fire to promote biodiversity in south-eastern Australia

Project Summary

Fire-prone landscapes face growing challenges under the pressures of climate change and land-use intensification. In southeastern Australia, inappropriate fire regimes threaten biodiversity, impacting critical habitats and pushing vulnerable species toward extinction. Fire management in these regions requires a nuanced understanding of ecological and cultural dimensions to safeguard species and maintain ecosystem integrity. The Gulbali Institute is at the forefront of integrating science and cultural knowledge to address these challenges. This project represents a strategic collaboration between the Gulbali Institute, Victorian and New South Wales government agencies, and First Nations groups. Together, we aim to develop ecologically sound fire regimes, bridge cultural and Western fire management practices, and critically evaluate the impacts of fire intervals on biodiversity. Joining this project places you at the heart of efforts to protect biodiversity and guide sustainable fire management. The integrated nature of the program offers exceptional support, access to a diverse research network, and opportunities for career development, ensuring impactful contributions well beyond the Gulbali Institute.

Project outcomes and outputs

The Gulbali Institute is addressing the critical challenges of fire management in southeastern Australia, where inappropriate fire regimes threaten biodiversity and ecosystem resilience. These projects aim to develop evidence-based, wildlife-friendly fire management strategies that support both species survival and habitat recovery. Key outcomes include a deeper understanding of how fire affects the biodiversity of south-eastern Australia. Through field methods, such as camera trapping, GPS tracking, and vegetation surveys, the research reveals how animals adjust their movements, habitat use, and foraging behaviours in response to fire, while also identifying species and plant communities at risk of local extinction due to short fire intervals or ‘interval squeeze.’ The projects employ innovative data synthesis and modelling approaches to analyse extensive biodiversity datasets. This allows researchers to identify combinations of fire regime variables that favour the persistence of threatened species and promote ecosystem health. Outputs include actionable recommendations for adaptive fire management practices, guidelines for implementing tolerable fire intervals, and tools for predicting the effects of fire on biodiversity under varying conditions.

PhD Project: 01

Research Question

Incorporating behavioural responses of animals into fire management

Principal supervisor

Professor Dale Nimmo

Faculty/institute

School of Animal, Environmental and Veterinary Sciences/Gulbali Institute

Proposed campus

Albury/Wodonga

PhD project abstract

Fire is a natural disturbance that shapes terrestrial ecosystems, yet the behavioural responses of animals to different fire types and regimes remain poorly understood. As fire frequency and intensity increase due to climate change, understanding how animals adapt to these disturbances is critical for their survival and for guiding effective fire management strategies. This project will explore the behavioural responses of terrestrial animals to varied fire types. Using methods such as camera trapping, GPS tracking, and behavioural observations, the research will identify how species adjust their movements, foraging behaviours, and habitat use in response to fire. By linking these behavioural adaptations to specific fire types, the project aims to determine how fire management can be modified to better support animal survival. Through a combination of fieldwork and advanced data analysis, this research will provide evidence-based recommendations for wildlife-friendly fire management, directly contributing to the conservation of biodiversity in fire-prone terrestrial ecosystems.

Preferred candidate experience, skills and knowledge

A background in ecology, zoology, environmental science, or related fields, with a focus on animal behaviour, conservation, or fire ecology being advantageous.
Experience with fieldwork, particularly in terrestrial environments, and familiarity with wildlife monitoring techniques such as camera trapping, telemetry, or behavioural observations.
Skills in data analysis and statistical modelling, with proficiency in software such as R or Python.
Experience working with spatial data or movement ecology is desirable.
Knowledge of fire ecology, animal behavioural ecology, or disturbance ecology is beneficial.
Demonstrated cultural competency, including the ability to engage respectfully with diverse communities, particularly Indigenous groups

Campus location and place of work

Albury/Wodonga campus of Charles Sturt University.

Direct enquiries to

Professor Dale Nimmo dnimmo@csu.edu.au

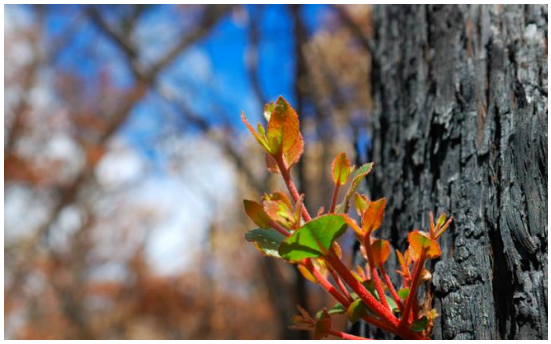
PhD Project: 02

Research Question

Testing the validity of tolerable fire intervals using field data

Principal supervisor

Associate Professor Jodi Price



Faculty/institute

School of Animal, Environmental and Veterinary Sciences/Gulbali Institute

Proposed campus

Albury/Wodonga

PhD project abstract

The development of tolerable fire intervals aims to balance ecological burning with the life cycles of fire-prone plant communities. These intervals are designed to ensure that fire-sensitive species have sufficient time to reach reproductive maturity while also maintaining species that depend on fire for regeneration. Such strategies are essential for enabling plant communities to recover and for preserving critical ecological processes. However, the scientific basis and effectiveness of these fire management strategies have rarely been rigorously tested, raising concerns about their reliability. This project aims to critically evaluate the theoretical underpinnings of current fire management practices by identifying species at risk of local extinction in areas experiencing 'interval squeeze'—where fire intervals are too short for species recovery. Through comprehensive field surveys, this research will investigate whether these increasingly prevalent narrow fire intervals are driving species towards extinction. By providing empirical evidence of the impacts of current fire management practices, the project seeks to inform and refine ecological fire management strategies, ensuring they are both evidence-based and effective in conserving biodiversity.

Preferred candidate experience, skills and knowledge

A strong background in ecology, conservation biology, or environmental science, with a focus on plant or fire ecology.
Experience with fieldwork in remote or challenging environments, particularly conducting vegetation surveys.
Skills in data analysis and statistical modelling, preferably using R or similar platforms.
Knowledge of fire ecology, plant life cycles, or fire management.
Cultural competency, including the ability to respectfully engage with diverse communities, particularly Indigenous groups

Campus location and place of work

Albury/Wodonga campus of Charles Sturt University.

Direct enquiries to

Associate Professor Jodi Price joprice@csu.edu.au

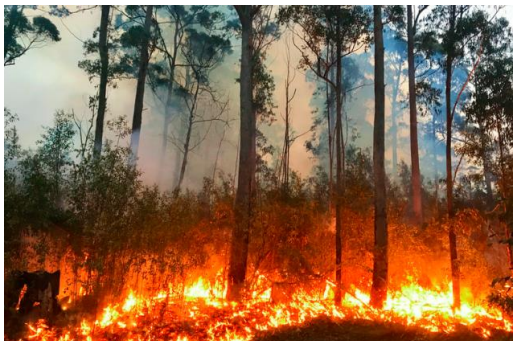
PhD Project: 03

Research Question

Identifying desirable fire regimes of threatened plants and animals

Principal supervisor

Professor Dale Nimmo



Faculty/institute

School of Animal, Environmental and Veterinary Sciences/Gulbali Institute

Proposed campus

Albury/Wodonga

PhD project abstract

This project will synthesise extensive datasets on animal and plant distributions within fire-prone regions and apply advanced modelling techniques—potentially integrating artificial intelligence—to identify optimal combinations of fire regime variables that support the persistence of threatened species. The resulting insights will provide fire managers with practical guidance for actively working towards 'desirable states' that promote biodiversity conservation. While primarily desk-based, the project also offers opportunities to incorporate field surveys to validate the models and enhance their ecological applicability.

Preferred candidate experience, skills and knowledge

Proficiency in data analysis and ecological modelling, including experience with R or Python.
A solid background in ecology, conservation biology, or environmental science, with an interest in fire ecology and biodiversity monitoring.
Familiarity with geospatial tools (e.g., GIS) and the ability to synthesise and analyse large datasets.
Strong written and verbal communication skills, with the ability to work effectively in interdisciplinary teams.
Willingness to learn and apply cutting-edge tools, such as machine learning or AI, to ecological problems.
Experience with biodiversity monitoring or species surveys, particularly in fire-affected landscapes, is advantageous.

Campus location and place of work

Albury/Wodonga campus of Charles Sturt University.

Direct enquiries to

Professor Dale Nimmo dnimmo@csu.edu.au