Join us for your PhD researching the success of Australian native species in challenging environments to address global food security.

In the Australian Research Council Centre of Excellence for Plant Success in Nature and Agriculture, you’ll be supported by senior and emerging scientists working together to understand the adaptations of Australian native plants and build pathways towards next-generation crops which can thrive under future climates. Australia is home to hundreds of wild relatives of the world’s most important crop plants (e.g. rice, soy, sorghum) and their ecological adaptations to hot and dry environments are a critical resource. Our PhD programs will see you researching adaptations to temperature and water stress in Australian plant species, in the field, glasshouse or lab using your background in ecology, physiology or botany (Hons or Masters level) and scientific writing. At the WSU node of the Centre, we’re recruiting postdocs and PhD students to drive research into groups such as eucalypts and native grasses.

WHAT TO EXPECT

The Centre for Plant Success
You’ll join a vibrant, cross-disciplinary research community with a commitment to growing the careers of young scientists through dedicated initiatives and funding streams. Centre researchers include world leaders in plant ecology, physiology, developmental biology and genetics; in mathematical representation of genetic architectures and evolutionary processes; and in translating new knowledge into crop improvement. Opportunities for collaboration are embedded in the COE’s seven-year program, funded by the ARC.

The Hawkesbury Institute for the Environment (HIE), Western Sydney University
HIE hosts a node of the Centre for Plant Success. At the Institute we conduct world-leading fundamental and applied research in ecology, physiology, genetics and global change biology. With a unique suite of research facilities, Institute researchers collaborate widely with Australian and international institutions to generate scientific research of the highest calibre.
The supervision team
You’ll be mentored by Professors Ian Wright (ecology/ecophysiology), Rachael Gallagher (biogeography), and Brendan Choat (hydraulics, drought mortality). We work collaboratively to understand plant adaptations and are passionate about developing young scientists. There will also be potential co-supervision and collaboration with other HIE researchers and researchers from other Centre nodes (The University of Queensland, University of Tasmania, Queensland University of Technology, Monash University) and partners.

Currently, we have the opportunity to recruit domestic or international PhD students for projects beginning in 2022.

SPECIFIC PROJECTS INCLUDE:

1. Ecological/ecophysiological adaptations to temperature and water stress.
   Focusing on Australian species from iconic clades such as Eucalyptus and Sorghum, in this project we will investigate climate-related adaptations in carbon and water physiology, canopy architecture and perhaps reproduction also. Within this over-arching theme there is scope for tailoring the project to your strengths and interests, e.g. stronger emphasis could be placed on field studies or, alternatively, on glasshouse-based experimental work. For ecologically-minded candidates there’s potential to place the work within biogeographic and evolutionary contexts. For those with strong quantitative backgrounds there’s scope for twinning empirical research with modelling and theory. Making links to the genetic basis of key traits would be possible for candidates with those skills and interests.

2. Anatomy and physiology of the leaf cuticle – the crucial barrier to desiccation.
   In this project you will investigate the dual roles of the leaf cuticle in providing physical support to leaves and in preventing water loss. Cuticle properties will be studied using a combination of approaches such as biomechanical tests, anatomical investigations, chemical characterisation and physiological tests (e.g. quantifying permeability to water loss at different temperatures). Making links to the genetic basis of key traits could also be considered. Target clades for this work could include eucalypts, native grasses or Solanaceae. The over-arching project theme is set but there is scope for tailoring the research to your strengths and interests.
THE SCHOLARSHIP

- Domestic candidates will receive a tax-free stipend of $30,000(AUD) per annum for up to 3 years to support living costs, supported by the Research Training Program (RTP) Fee Offset.
- International candidates will receive a tax-free stipend of $30,000(AUD) per annum for up to 3 years to support living costs. International candidates with a sufficiently strong track record will be eligible for a tuition fee waiver and financial support covering the university-required Overseas Student Health Cover (OSHC) insurance policy.
- Substantial support will be provided for conference attendance, fieldwork and additional costs, as approved by the Institute.

ESSENTIAL CRITERIA

We welcome applicants from a range of backgrounds who are keen to apply their skills to key issues in plant biology and the implications for global food security.

The successful applicant should:

- Hold qualifications and experience equal to one of the following (i) an Australian First Class Bachelor (Honours) degree, (ii) coursework Masters with at least 25% research component, (iii) Research Master’s degree, or (iv) equivalent overseas qualifications.
- Demonstrate strong academic performance in one or more of plant ecology, ecophysiology, anatomy and/or plant chemistry.
- Be enthusiastic and highly motivated to undertake further study at an advanced level, and be willing to learn sampling and data analysis methods applicable to plant ecology and ecophysiology, and other areas as appropriate.
- Have excellent verbal and written communication skills. (International applicants must demonstrate English language proficiency).
- Previous experience publishing in the scientific literature will be viewed favourably.

DIVERSITY AND INCLUSION

Both the Centre and the Institute recognise and value equity and diversity, and encourage applications from any person who meets the requirements of this position irrespective of gender, sexuality, race, ethnicity, religion, age or other protected attributes. We strive to provide an inclusive working environment and are committed to supporting staff with family and caring responsibilities.

POSITION ENQUIRIES

Please contact Distinguished Professor Ian Wright ian.j.wright@westernsydney.edu.au.

Further information about the WSU Graduate Research School and its PhD program can be found here.