

WESTERN SYDNEY UNIVERSITY



Hawkesbury Institute
for the Environment

TREE MORTALITY AND FOREST RECOVERY FOLLOWING UNPRECEDENTED DROUGHT AND BUSHFIRES

ABOUT THE PROJECT

The Hawkesbury Institute for the Environment (HIE) within Western Sydney University is looking for a highly motivated and qualified candidate for a 3-year PhD commencing in early 2021. The project will contribute to our understanding of patterns of tree mortality and forest recovery following severe drought and bushfires. The 2019-20 Black Summer fires burnt over 5 million hectares, of predominately temperate forests, in eastern and south-eastern Australia. Much of Australia's temperate eucalypt forests are usually highly resilient to fire. However, many of these forests were subject to the lowest rainfall and highest temperatures on record preceding the fires. This raises important questions about the capacity of these usually resilient forests to recover from the combined impacts of fire, drought and heatwaves. This project aims to quantify variation in post-fire recovery across different forest types following the Black Summer fires, and investigate underlying causes of variation in post-fire recovery, such as plant traits, fire severity, and pre- and post-fire climatic conditions.

The successful applicant will join the fire research group, led by A/Prof Matthias Boer, and be co-supervised by Dr Rachael Nolan, A/Prof Boer and A/Prof Brendan Choat (who leads the plant hydraulics and water relations group at HIE).

Note, the PhD will involve remote area fieldwork in NSW, subject to COVID-19 restrictions. Given this project requires significant amounts of remote area fieldwork, we are seeking a candidate who currently resides in Australia, or is an Australian resident, who will be able to be based locally for the duration of the PhD.

WHAT DOES THE SCHOLARSHIP PROVIDE?

- Domestic students will receive a tax free stipend of \$30,000 per annum and a funded place in the doctoral degree.
- International students will receive a tax free stipend of \$30,000 per annum. Those with a strong track record will receive a fee waiver.
- All International students are required to hold an Overseas Student Health Care (OSHC) policy covering the duration of their studies in Australia. The HIE will provide funding for a single Overseas Student Health Cover policy.
- The project will also provide substantial benefits in terms of additional operational funding for project fieldwork and data collection, and travel and conference attendance.

ELIGIBILITY CRITERIA

We welcome applicants from a range of backgrounds who are keen to apply their skills to the project topic.

The successful applicant should:

- hold qualifications and experience equal to one of the following (i) an Australian Bachelor Honours degree, (ii) coursework Masters with at least 25% research component, (iii) a Research Masters degree, or (iv) equivalent overseas qualifications.
- demonstrate strong academic performance in plant ecology, plant ecology, plant physiology, biogeography, forest science or related disciplines.
- demonstrate willingness to undertake remote area fieldwork.
- be enthusiastic and highly motivated to undertake further study at an advanced level.
- possess excellent written and verbal communication skills.
- Have good numerical, computational, and statistical skills.

International applicants must demonstrate [English language proficiency](#).

HOW TO APPLY

- Follow the step-by-step instructions on the [how to apply for a project scholarship](#) (opens  page: <https://bit.ly/3oe3dfQ>)

- Use the email subject line: **Application_2020_021_HIE**
- Incomplete applications or applications that do not conform to the above requirements will not be considered.
- For questions and advice about the research project, please contact the Lead Researchers:

Doctor Rachael Nolan: rachael.nolan@westernsydney.edu.au

Prof Brendan Choat: b.choat@westernsydney.edu.au

A/Prof Matthias Boer: m.boer@westernsydney.edu.au

- For questions and advice about the application process, please contact the Graduate Research School: grs.scholarships@westernsydney.edu.au

Closing date: 30 November 2020

**Applications close at 11.59pm Australian Eastern Standard Time*

WESTERN SYDNEY UNIVERSITY



Hawkesbury Institute for the Environment

Biogeography of Plant Traits that Govern Bushfire Risk and Drought Vulnerability

ABOUT THE PROJECT

Globally, the incidence of large forest fires is increasing due to a changing climate and altered land uses. Large forest fires generally coincide with extended drought, with dry fuels (i.e. biomass) increasing the probability of fire ignition and resultant rate of fire spread and fire severity. Quantifying when and where forests are approaching critical dryness levels is vitally important for assessing fire risk and for planning prescribed (i.e. management) burns. For live fuels (i.e. living plants), there are different responses to soil dryness among species due to differing structural and physiological traits. This project aims to understand and quantify the spatial variation in these plant traits.

The Hawkesbury Institute for the Environment (HIE) at Western Sydney University is looking for a highly motivated and qualified candidate for a 3-year PhD commencing in 2020. This studentship contributes to the research program of the Bushfire Risk Management Research Hub, funded by the NSW Department of Planning, Industry and Environment (DPIE). The Hub is a consortium of four universities working closely with DPIE, the NSW Rural Fire Service, the NSW National Parks and Wildlife Service and ACT Parks and Conservation. The Hub is providing the evidence base to meet the competing demands of fire management: mitigating risk to human life and property whilst concurrently mitigating risk to environmental values such as biodiversity, air quality, carbon stocks and cultural heritage.

This project aims to model the spatial variation in plants traits that affect vegetation responses to drought and control temporal dynamics of forest flammability. The project will involve fieldwork at HIE's world-class research facilities to model the response of live fuel moisture content to declines in soil water content. Additional fieldwork will be conducted at sites across NSW to measure variation in key plants traits across environmental gradients (e.g. climate). Note, the PhD will involve fieldwork within NSW, subject to COVID-19 restrictions. Given this project requires fieldwork, we are seeking a candidate who currently resides in Australia, or is an Australian resident, who will be able to be based locally for the duration of the PhD.

WHAT DOES THE SCHOLARSHIP PROVIDE?

- 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. Those with a strong track record will be eligible for a tuition fee waiver and Overseas single health cover (OSHC).
- Substantial benefits in terms of additional operational funding for project fieldwork and data collection, and travel and conference attendance.

ELIGIBILITY CRITERIA

We welcome applicants from a range of backgrounds who are keen to apply their skills to the project topic.

The successful applicant should:

- hold qualifications and experience equal to one of the following (i) an Australian First Bachelor Honours degree, (ii) coursework Masters with at least 25% research component, (iii) a Research Masters degree, or (iv) equivalent overseas qualifications.
- demonstrate strong academic performance in plant ecology/biogeography, GIS, forest science or related disciplines.
- demonstrate willingness to undertake field-based research.
- be enthusiastic and highly motivated to undertake further study at an advanced level.
- possess excellent written and verbal communication skills.
- have good numerical skills and an interest in ecosystem modelling.

International applicants must demonstrate [English language proficiency](#).

HOW TO APPLY

- Follow the step-by-step instructions on the [how to apply for a project scholarship](#) (opens  page: <https://bit.ly/3d8S7BZ>)
- Use the email subject line: **Application_2020_047_HIE**
- Incomplete applications or applications that do not conform to the above requirements will not be considered.
- For questions and advice about the research project, please contact the Lead Researchers:

Doctor Rachael Nolan: rachael.nolan@westernsydney.edu.au
Prof Brendan Choat: b.choat@westernsydney.edu.au
A/Prof Matthias Boer: m.boer@westernsydney.edu.au

- For questions and advice about the application process, please contact the Graduate Research School: grs.scholarships@westernsydney.edu.au

Closing date: 30 November 2020

**Applications close at 11.59pm Australian Eastern Standard Time (AEST).*