

# EARTH AND ENVIRONMENTAL SCIENCES

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The School of Earth and Environmental Sciences provides a world-class concentration of scientific research, education and infrastructure across the North Terrace and Waite Campuses of the University. There is strong interaction between a number of groups within the School, other University disciplines on both the North Terrace and Waite Campuses, and other institutions, especially the South Australian Museum, Botanic Gardens, and several South Australian Government research laboratories.

Core research disciplines within the School are ecology and evolutionary biology, geology and geophysics and soil and land systems.

The School's research interests include:

- Earth environments
- Earth materials, structures and resources
- Ecology and biodiversity
- Environmental physiology
- Evolutionary biology

- Molecular interactions between plants and microorganisms
- Natural resource science
- Soil science
- Spatial information science.

## ECOLOGY AND EVOLUTIONARY BIOLOGY

Web: [www.ees.adelaide.edu.au/disciplines/eeb/](http://www.ees.adelaide.edu.au/disciplines/eeb/)

Research interests within ecology and evolutionary biology are broad, from the basic science that underpins the discipline of ecology, to understanding selected roles of humans in disturbed ecological communities. Research is supported by field stations located at Coobowie, Kangaroo Island, Koonamore, Keith, Middleback and West Island.

Recently, the Australian Centre for Ancient DNA opened within the discipline and houses research into evolution and environmental change through time using preserved genetic records in human, animal, plant and sedimentary material.

- Environmental physiology
- Evolutionary biology (including molecular evolution and palaeontology)
- Marine and freshwater ecology and biology

- Systematics and biodiversity
- Terrestrial ecology.

## GEOLOGY AND GEOPHYSICS

Web: [www.ees.adelaide.edu.au/disciplines/gg/](http://www.ees.adelaide.edu.au/disciplines/gg/)

Geology and geophysics research examines the earth's materials, structures, processes and history, and thus is central to the human concerns about the earth's resources and environment. The discipline has an outstanding record of achievement in a broad range of research fields which is evident by consistently high levels of international publications and conference presentations, extensive funding from government agencies and collaboration with government organisations, corporations and industry groups and by numerous active links with international research groups.

- Continental evolution
- Economic geology
- Environmental geophysics
- Geophysics
- Mineral exploration
- Organic geochemistry.

## Professor Barry Brook Staff Member



Professor Brook holds the Sir Hubert Wilkins Chair of Climate Change

Professor Brook is working to combat one of the most urgent challenges facing the global community: climate change.

“We have so far had less than one degree of recent global warming, yet it is already affecting the lives of millions of people and thousands of species.”

**WITH THE CONSEQUENCES OF CLIMATE CHANGE EXPECTED TO RAPIDLY WORSEN DURING THIS CENTURY, BARRY AND HIS TEAM OF RESEARCHERS WORK TO UNDERSTAND THE VARIOUS ASPECTS OF HUMAN IMPACT ON BIODIVERSITY.**

Their work focuses particularly on climate change, deforestation and overexploitation in the hope of curbing the current trend. His team

employs research methods to analyse and model known changes, as well as future climate change impact to provide information that helps guide agricultural and wildlife management practices and Government policy for the future.

“In the future we hope to identify ways and means of reducing extinctions and mitigating the worst ravages of global change.”

Professor Brook holds the Sir Hubert Wilkins Chair of Climate Change, and is Director, Research Institute for Climate Change and Sustainability. He teaches in Ecology and Evolutionary Biology in the School of Earth and Environmental Sciences.

## SOIL AND LAND SYSTEMS

**Web:** [www.ees.adelaide.edu.au/disciplines/sls/](http://www.ees.adelaide.edu.au/disciplines/sls/)

Soil and Land Systems brings together a unique integration of expertise in soil and natural resource science.

Our research sets out to better understand the management of resources in natural and agro-ecosystems, aimed at environmental and agricultural sustainability and soil health.

Particular research strengths include physics, chemistry, biology and hydrology of soils, environmental contamination, toxicology and bioremediation and spatial and temporal analysis of landscapes.

Contexts for our work range from natural to agro-ecosystems at scales from microscopic to regional and continental.

- Environmental toxicology and remediation
- Landscape processes and systems
- Natural resource science
- Plant-soil interactions
- Remote sensing and geographic information systems
- Soil physico-chemical and biological processes.



### Jasmine Packer PhD Student



“It was the reputation for high quality research ... that drew me to the University of Adelaide.”

Australia has one of the highest rates of mammal extinctions in the world, and it is well-known that the small-medium sized mammals have suffered the worst. It was the threat of a disturbing loss of biodiversity that inspired Jasmin to devote her PhD studies to helping prevent the disappearance of an endangered bandicoot in the Mt Lofty Ranges.

**THE SOUTHERN BROWN BANDICOOT IS THE LAST REMAINING SPECIES FROM THE BILBY AND BANDICOOT FAMILY OCCURRING NATURALLY IN SOUTH AUSTRALIA.**

It is renowned for taking refuge amongst thickets of blackberry - one of Australia's worst environmental weeds and one that is being cleared by landholders each year. Building on a partnership between the University and the Department for Environment and Heritage, Jasmin is

investigating why bandicoots are using blackberry, and what we can do about this dilemma.

The project aims to help conserve the Southern Brown Bandicoot by developing better management strategies for blackberry where it provides the last remaining habitat for the bandicoot and other small mammals.

“It was the reputation for high quality research, combined with the opportunity to work under the guidance of Associate Professor Sue Carthew, that drew me to the University of Adelaide for my PhD research. With the combined wisdom of state government, local landholders and the University of Adelaide we hope there will be Southern Brown Bandicoot snuffling around for truffles in the Mount Lofty Ranges for many years to come.”