WESTERN SYDNEY
UNIVERSITY

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Hawkesbury Institute
for the Environment

Ecosystem Function
and Integration Research

RESEARCH THEMES

Research Focus

As our environments change, there are massive and widespread effects to whole ecosystems and how they function across large areas. In this theme we are looking at how ecosystems respond to changes such as reduced or increased rainfall, temperature and CO_2 levels.

We explore how changes in climate, land use and cover affect the exchanges of carbon, nutrients, water, and energy. Using models, we integrate processes at scales ranging from leaf to globe.

RESEARCH ACHIEVEMENTS

Researchers in this theme are working across a variety of disciplines with national and international collaborators to understand how large-scale changes in ecosystems are driven. Our people have access to some of the world's finest research facilities including EucFACE, the Whole Tree Chambers and the facilities available through the Terrestrial Ecosystem Research Network (TERN) of which the Cumberland Plains Carbon and Water Observatory is part.

Through these extensive collaborative networks, our researchers are making important contributions to understanding, modelling and predicting how environmental change will play out over coming decades.
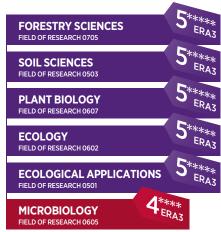
"We are exploring the consequences of biodiversity loss for carbon, water and nutrient cycling..."

OUR VISION FOR THE RESEARCH THEME

Our research vision is to provide decision-makers with evidence backed by findings from ecosystem-scale research programs and facilities that ensures they make the right choices as to how we manage our natural and managed land systems in coming decades.

This means applying a detailed understanding of changes ahead of time using large-scale prediction technologies combined with a broad approach that considers the complex and interrelated factors that collectively contribute to visible changes in environments.

FORESTRY SCIENCES
FIELD OF RESEARCH 0705
5 ***** ERA3

SOIL SCIENCES
FIELD OF RESEARCH 0503
5 ***** ERA3

PLANT BIOLOGY
FIELD OF RESEARCH 0607
5 ***** ERA3

ECOLOGY
FIELD OF RESEARCH 0602
5 ***** ERA3

ECOLOGICAL APPLICATIONS
FIELD OF RESEARCH 0501
5 ***** ERA3

MICROBIOLOGY
FIELD OF RESEARCH 0605
4 **** ERA3