

RESEARCH DIRECTIONS

Resilience of Australian forests and woodlands to drought

Dr Brendan Choat of the Hawkesbury Institute for the Environment has been awarded a prestigious Australian Research Council Future Fellowship. This project will examine the resilience of Australian forests and woodlands to drought and aims to develop new technology to improve remote measurement of plant water status for both natural and agriculture systems.

'Water availability is critical to plant growth and to the distribution of plant species and communities throughout the world', says Dr Choat. 'In Australia, climate change is predicted to generate increasing temperatures and shifting rain patterns, leading to more intense droughts in some areas. We know that drought related mortality of woody plants has the potential to effect large scale changes in our ecosystem structure and productivity. In this project we aim to provide detailed information on the limits of Australian vegetation's resilience to drought and how this is likely to be altered by climate change.'

The research will involve a combination of field and laboratory experiments based in Australia but also at international facilities, using the cutting edge imaging technologies of synchrotron based microtomography. The field experiments will include Cape Tribulation tropical rainforest and Robson Creek site (FNQ), Cumberland Plain Woodlands (NSW), Warra tall Eucalypt Forest (Tas), Calperum Mallee (SA), the Great Western Woodlands (WA) and the Alice Mulga sites (NT). A number of sites will be visited several times a year to capture seasonal variation and assess the vulnerability of Australian woody plant species to drought across a range of forests and woodlands.

Australia's forests and woodlands are of immense ecological, economic and cultural value. Data from this project will feed into a new generation of Dynamic Global Vegetation Models, which will



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assist with future policy decisions related to native forests and woodlands. The development of sensors that lead to innovation in the measurement of plant water status will greatly improve our ability to monitor the health of trees in natural and urban environments and will have the potential to assist with scheduling of crop irrigation allowing conservation of water resources.

Project Title: Limits to the resilience of Australian forests and woodlands to drought
Funding has been set at: \$722,214
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March 2014