

Research Directions

Office of Research Services

The Hawkesbury Forest Experiment

Professor Jann Conroy with a team of researchers from the Centre for Plant and Food Science, and University of New South Wales, University of Technology Sydney, NSW Department of Primary Industries and the Swedish University of Agricultural Sciences is conducting a major experiment at the Hawkesbury campus to investigate how increased CO₂ (the Greenhouse Effect) will affect Australian forests.



'The climatic changes accompanying the Greenhouse Effect could either magnify or reduce direct CO₂ effects on forest growth and water use' explained Professor Conroy. 'Understanding the impact of rising CO₂ on forest behaviour in Australian conditions is central to our ability to manage water and forest resources into the future.'

The centre-piece of the project is a field facility with twelve CO₂ and temperature-controlled whole-tree chambers (WTCs) that can house trees up to ten metres tall and allow continuous measurement of tree water use and CO₂ concentrations. The chambers, valued at over \$2million, have been provided by the Swedish University of Agricultural Sciences.

Experiments using two species of eucalypt, the fast growing *Corymbia maculata* and the slower growing *Eucalyptus sideroxylon*, will be used to test the response of water-limited forests to elevated CO₂. These experiments involved controlled irrigation and fertilisation will provide a better understanding of how forest growth, forest water and wood development may be affected by elevated CO₂ and will guide the development of ecosystem models in the future.

Project title: *The Hawkesbury Eucalypt Forest Experiment: Impacts of Precipitation and CO₂ on Trees.*

Funding has been set at: \$1.2million

Collaborating Partners: University of NSW, University of Technology, Sydney, NSW Department of Primary Industries, Swedish University of Agricultural Sciences, Australian Greenhouse Office.

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