

# RESEARCH DIRECTIONS

## Plant and fungus relationships

**Professor John Cairney and Associate Professor Ian Anderson of the Centre for Plants and the Environment have been awarded an Australian Research Council Discovery Projects grant to investigate the extent to which basidiomycetes fungi form ericoid mycorrhizal associations with Ericaceae plants in Australian habitats.**

'Ericaceae plants, a family of mainly shrubs which are important Australian flora, exist in many habitats, including forests and fragile alpine regions,' explains Professor Cairney. 'These plants are significant to Australia's cultural and natural heritage and several species are considered threatened. We will address the fundamental question of whether networks of the threadlike filaments of fungi act as below-ground bridges between Ericaceae plants and tree roots. Symbiotic associations between beneficial fungi and the small roots of most plants are important in terrestrial nutrient cycling processes and may improve the water and nutrient uptake of trees.'

The goal of this research is to understand the importance of basidiomycete fungi in their close and often long-term interaction with understory Ericaceae shrubs. The study will also help explain their potential roles in forming linkages between the understory shrubs and overstorey trees in Australian forests.

Greater knowledge about of the plant-microbe interactions in plant communities may mean that we will change the way we understand carbon and nutrient cycling processes within Australia's forest ecosystem.



The results of this research will provide a basis for better informed decisions for the sustainable management of Australian forest resources. This is particularly important in the context of carbon sequestration and future climate change.

**Project Title:** Plant : fungal symbioses in Australian forests – new perspectives using laser microdissection

**Funding has been set at:** \$300,000

**Contact Details:** [j.cairney@uws.edu.au](mailto:j.cairney@uws.edu.au)

<http://www.uws.edu.au/cpe>

**August 2010**