

Alcorn, Philip (from CRC for Forestry website 2007)



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PhD student - COMPLETED

Topic: growth and physiological responses to pruning in *Eucalyptus pilularis* and *E. cloeziana* plantations

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Growth in a forest, and the quality of wood produced from its trees, are intimately linked with the development of the forest's canopy. The size and distribution of leaf area within the green upper part of a tree (known as the crown) sets limits to production by defining the amount of light that is intercepted by the tree, which is used to produce energy for growth through photosynthesis. While it may be desirable to grow trees with large crowns because this helps the tree to grow a large trunk, the larger branches that support high leaf areas are usually undesirable during a tree's youth, until the age when a long enough branch-free section of the stem has formed. The development of large branches produce large knots and knot related defects which may degrade the value of wood produced from the trunk. For this reason it is standard practice in plantations grown for solid wood products to control branch development by planting at high planting densities or by pruning the lower branches from the crown.

The aim of this project was to investigate crown structure and pruning response in two important commercial sub-tropical plantations species; *Eucalyptus pilularis* and *Eucalyptus cloeziana*. The study specifically looked at crown dynamics during early growth, investigate growth and physiological responses to different amounts of pruning and explore how a tree responds to loss of leaf area after pruning. The outcomes from this project will aid the development of a stand management simulation model for these species.

The experimental field sites for this project are located in [Forests NSW](#) plantations near Coffs Harbour and Port Macquarie, on the north coast of the state of New South Wales. This research was financially supported by the [Australian Research Council](#), Forests NSW and CRC for Forestry.

I studied full-time at the [Australian National University](#). Over the past eight years I have completed a Bachelor of Science (Forestry) Honours at the Australian National University 2003 and was awarded a University Medal upon completion of my studies. I have also worked with a number of private and government forest institutions in New South Wales, Western Australia, Queensland, Tasmania, South Australia and Victoria in native forest and plantation research, forest inventory, mapping and planning.