



September 2011

Expanding rainforests and Rose Gums

By Doctoral Researcher David Tng

Experienced bushmen, rangers and environmental scientists will all relate to the intriguing story of Wet Tropics World Heritage Area rainforest expanding – but this has not always been a cause for celebration. These expanding rainforests have led to concerns that the tall Rose Gum (*Eucalyptus grandis*) forests, usually found on rainforest margins, will eventually be engulfed.

Some researchers and land managers have thought that expansion of tropical rainforests in the Wet Tropics is due to changed fire regimes since European colonisation, associated pastoral activities, or a changing climate.

David Tng is a Doctoral Researcher from the University of Tasmania, who is researching the rate of landscape changes and condition associated with recent rainforest expansion in the Wet Tropics. WTMA is hosting David as an in-kind contribution to this important project.

A distinctive feature of rainforest in the wetter parts of north-eastern Queensland is the often abrupt boundary between the rainforest and adjacent eucalypt dominated vegetation or grassland.

While rainforest boundaries may appear abrupt and stable, pollen records suggest that these boundaries have been expanding and contracting throughout geological history.

For many years land managers have employed fire to burn back the rainforest and assist Rose Gum regeneration. But is fire really our only option for controlling rampant rainforest expansion? Is burning the rainforest margin an effective management tool, and what could be causing rainforest expansion in the first place?

David has been investigating this phenomenon by examining the extent and causes of rainforest expansion, and then by projecting how long it would take for Rose Gum forests in the Wet Tropics to be totally engulfed.

His research has found that rainforest expansion in the Wet Tropics is likely a reflection of global-scale processes taking place, and may be due to increased carbon dioxide levels in the atmosphere.

The risk of rainforest totally overtaking the grand Rose Gum forest was also found to be less severe than previously thought. Using GIS techniques to measure the rate of rainforest expansion, David discovered that it will take over two millennia before rainforest would totally overwhelm all known areas of tall Eucalypt forests in the Wet Tropics, assuming that there will not be any natural disturbance such as fires or cyclones over that period.

The results of David Tng's study have been submitted to a scientific journal for peer review and David will continue the next part of his research by doing extensive field studies.

Stay tuned.

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