

National Climate Change Adaptation Research Facility:  
Terrestrial Biodiversity Network  
Funding for a PhD Short Collaborative Visit



Completion Summary Report  
Jeremy Little 29/9/2010

**Major findings:**

- Vegetation type explains most of the expected deviance in fire danger within the region, regardless of topographic position or location;
- Results as expected, with fire danger declining across the ecosystem gradient from Savanna, Wet Sclerophyll Forest into Rainforest;
- Establishment of a control BoM site critical for fire research and management within the region;
- Relationship between vegetation type and control BoM site established;
- Results differ from existing modelled climate data (BIOCLIM);
- Conclusion that different vegetation types provide a buffer against fire danger;
- Vegetation types provide a microclimate feedback, minimising fire danger;
- Identified the occurrence and importance of extremes and outliers in fire danger during the study period.

**Major outcomes:**

- Completed calculation of drought factor and fire danger for 32 sites and one standard weather station for a 3.5 year period;
- Completed statistical analysis and graphical presentation of fire danger patterns;
- Scope, analysis, presentation, journal selection and analysis for one journal paper completed;
- Commenced preparation of journal paper for submission to the *International Journal of Wildland Fire*;
- Commencement of analysis for two additional journal papers;
- Concurrent fire danger within different vegetation types are significantly different from each other;
- Seminar given to the UTAS School of Plant Sciences. Acknowledgement of NCCARF grant.
- Seminar given to the UTAS School of Geography. Acknowledgement of NCCARF grant.
- Proposed paper presentation and workshop given to the Forest Ecology Lab UTAS. Discussion and feedback obtained.
- Self-funded additional time at UTAS (5 weeks funded by NCCARF, 3 weeks ongoing self-funded);
- Investigation of options to relocate to the Forest Ecology lab at UTAS to continue with ongoing research and analysis.

**Significance to adapting and protecting Australia's terrestrial biodiversity:**

- Identified relationship between fire danger of different vegetation types;
- Identified important correlation between fire danger of vegetation types and fire danger of a central standardised weather station (control) used by land managers in the region;
- Ability to significantly improve fire danger calculation for fire management and planning in the region;
- Fire managers need to consider the long-term maintenance of ecosystems that reduce bushfire risk;
- Fire managers need to consider the importance of fire exclusion as a tool for improving ecosystem resilience to potential increases in fire danger from a change in climate;
- Ecosystems that reduce bushfire risk tend to be fire sensitive, contain high fuel loads, are rarely flammable, are rare in the landscape and have high conservation significance;
- Adapting fire management practices that better improve the resilience of these ecosystems to likely climate change impacts and higher risk of bushfires is critical;
- Identified the importance and nature of ecosystem buffering as a tool for reducing bushfire risk.

**Acknowledgements:**

Prof. David Bowman, Dr Grant Williamson, Dr Lynda Prior, Scott Nichols and Sam Wood.