

# Ecological Burning: Can we achieve both fuel management and conservation objectives?

**Alan York, Tina Bell, Kevin Tolhurst, Amanda Ashton, Anne Miehs & Tom Duff**

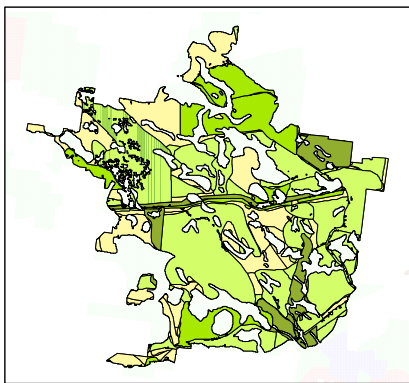
Bushfire Research & Development Group, School of Forest and Ecosystem Science, University of Melbourne, Victoria

**The Issue:** Land managers need science-based ecological burning strategies which achieve both biodiversity and asset protection objectives.

In Victoria “Inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of Biodiversity” is listed as a Potential Threatening Process on the FFG Act (1988). Land managers are also committed to Ecologically Sustainable Forest Management.

**The Project:** To determine appropriate ecological fire regimes to manage biodiversity in the heathy woodlands of south-west Victoria; an adaptive management approach

The effects of fire management at a landscape scale is being investigated in south-west Victoria. Using DSE/PV fire history GIS layers, the area has been stratified according to time since last fire and fire frequency.



Example of fire history stratification

Study Site: Heathy stringy-bark woodlands of south-west Victoria



**Approach:** A number of integrated sub-projects have been developed to address a range of questions relevant to fuel management and biodiversity conservation.

**The 6 Integrated sub-projects are:**

1. *Effects of fire management on small mammals (Alan York & Amanda Ashton)*

Investigating patterns of distribution and key habitat elements required for their persistence.

2. *Effects of fire regime on vegetation composition, structure and pattern (Tom Duff)*

Aiming to identify the effect of the fire regime on vegetation heterogeneity, structure and composition, with the goal to develop a predictive spatial model for assessing future management options.

3. *Coarse woody debris in fire-prone forests: Achieving both fire management and conservation objectives (Anne Miehs)*

Fallen dead wood is important because of its contribution to heavy fuel and in ecosystem functioning; primarily through an involvement in nutrient cycling, and as habitat for many types of vertebrates, invertebrates, fungi and micro-organisms.



Photo courtesy SWIFF

4. *Biodiversity and ecosystem processes: the role of fire at the soil-litter interface (Tina Bell)*

While the effect of fire is most obvious above-ground, it also affects belowground processes, particularly nutrient availability and cycling. This project is studying the effect of fuel management on ecosystem function.



5. *Invertebrate biodiversity: how to maintain it at a landscape scale? (Alan York)*

Invertebrates provide a food source for many small mammals, reptiles, frogs & birds, they play a major role in many ecosystem processes, and make up a large proportion of our biodiversity. How can we manage fire for their continued persistence?

6. *Fuel accumulation modelling (Kevin Tolhurst)*

Fine fuels are important to fire behaviour and therefore are frequently managed with prescribed burning. This project aims to develop fuel accumulation curves for the main fuel types in the region, which can then be incorporated into the current Bushfire CRC Risk Management Model.

**The outcome: Development of a scientifically defensible, cross-tenure, ecological burning strategy**