



Fire modelling - Flames

The Issue

Fire is extremely common in the tropical savanna landscapes of northern Australia. We know a lot about the short term effects of fire in the landscape, but are unsure what this means in the long term. To manage fire effectively in northern Australia, we need to understand how the timing and frequency of fire influences ecosystems in the long term.

CSIRO Research

Simulation models allow us to integrate all the current scientific understanding, and simulate management scenarios in a way that would not be possible with field trials or using historic data.

In partnership with the Tropical Savannas CRC we have developed the Flames simulation model that allows us to predict the outcomes of fire management options on the structure and diversity of tree populations at a landscape scale. The understanding of vegetation dynamics that drives the model is derived from CSIRO's Kapalga Fire Experiment and other work by Tropical Savannas CRC partners.

The Flames model also allows us to understand the dynamics of many other issues important to managing the tropical savannas.

These include:

- Fuel load accumulation
- Fire behaviour and spread
- Carbon stock accounting
- Gaseous emissions
- Grass production
- Water use and surface hydrology
- Effect of introduced weed species

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