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bushfire CRC

FIRE UPDATE

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PRESCRIBED BURNING TO REDUCE FIRE RISK

PROTECTING THE PRECIOUS KING BILLY, HUON AND PENCIL PINE TREES OF TASMANIA

Unplanned fires can result in the destruction of property and loss of life. As well, they may create fire regimes (based on interval, season and intensity) that cause adverse impacts on vegetation and animal communities. But fires can also create beneficial results for biodiversity, especially if well planned.

Consequently, many land management agencies in Australia are actively involved in prescribed burning programs that attempt to reduce risks to assets, enhance biodiversity and/or regenerate forests.

Researchers from the Bushfire CRC are using computer simulation to identify the relationships between prescribed burning and the reduction in bushfire risk to people and property while maintaining biodiversity. Using this approach, the effectiveness of different prescribed burning options in reducing bushfire risk can be evaluated in a comparative manner in different landscapes. This approach can assist in the choice of a suitable prescribed burning strategy within the constraints of both resource limitations and the number of days with suitable weather.

Land managers in the protected forests of south west Tasmania have two main aims with regard to fire management. The modelling work performed by the Bushfire CRC has helped identify the importance of prescribed burning in meeting the two main aims of fire management programs in the protected forests of south-west Tasmania.

The first of these aims is to use prescribed burning to reduce both the number of unplanned fires and the area that these fires burn. While reducing the number of unplanned fires is a counterintuitive concept, reduction in fuel quantities may reduce ignitions from cloud-to-ground lightning strikes. Modelling predicts that the number of unplanned fires in this button grass landscape may decrease in a linear fashion with increased amounts of prescribed burning, once an initial threshold amount of prescribed burning has been met.

It also predicts that, as the amount of prescribed burning increases, the total area burnt by unplanned fires is reduced. Additional increases in the amount of prescribed burning beyond 20 percent has a diminishing effect on further reduction of the area burnt here by unplanned fires. The simulation model predicted that the extent of prescribed burning had a greater impact than either the block sizes burnt or the spatial patterning of these blocks in the landscape. However, modelling did suggest that the spatial continuity of fuels was disrupted when small prescribed burning blocks were spaced in an organised pattern, further reducing the area burnt by unplanned fires.

A significant second fire management aim in south west Tasmania is to protect populations of plants that are killed by fire, such as unique native conifers including the Huon, King Billy and Pencil pines. Modelling work identified that a burning strategy proposed by land managers focussing on protecting populations of these species on their boundaries (that is, a neighbourhood buffer treatment) from unplanned fires was more effective in reducing the risk of unplanned fire encroaching into these plant communities than more expansive prescribed burning in the landscape.

OUTCOMES

Identifying the relationships between prescribed burning and the reduction in unplanned fire risk will help land managers determine the prescribed burning practices that best suit their circumstances.

A detailed description of the findings from this study has recently been published in the International Journal of Wildland Fire Vol 15 pp527-540.

ABOUT THE PROJECT

Bushfire CRC Project B 1.2 Fire Regimes and Sustainable Landscape Risk Management is lead by Ross Bradstock, University of Wollongong and includes, Karen King and Geoff Cary from the Australian National University, and Joanne Chapman from University of New South Wales (ADFA). End user participants are Jon Marsden-Smedley and Adrian Pyrke from Tasmania Parks and Wildlife Service.

LEFT: BUSHFIRES BURNING IN THE BUTTONGRASS MOORLANDS OF SOUTH-WEST TASMANIA.