

International Journal of Wildland Fire

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Contents	Volume 20	Issue 1	2011
Modelling long-term fire regimes of southern California shrublands Seth H. Peterson, Max A. Moritz, Marco E. Morais, Philip E. Dennison and Jean M. Carlson <i>International Journal of Wildland Fire</i> 20 , 1–16		This paper uses a new fire spread model, HFire, to examine the drivers of the fire regime in southern California shrublands, namely: the number of ignitions per year, the spatial pattern of ignitions, the number of Santa Ana wind events per year, and live fuel moisture.	
Emissions of air pollutants by Canadian wildfires from 2000 to 2004 David Lavoué and Brian J. Stocks <i>International Journal of Wildland Fire</i> 20 , 17–34		Emissions of 21 pollutants from Canadian forest fires were calculated hourly for 2000–04. Outputs from the Canadian Fire Behaviour Prediction System and the Global Environmental Multiscale weather forecast model were combined to assess fuel consumption across the country. This study found that on average, wildfires contributed 10, 30 and 40% of Canadian annual greenhouse gases, CO and black carbon emissions respectively.	
Effects of fire frequency on prescribed fire behaviour and soil temperatures in dry dipterocarp forests Kobsak Wanthongchai, Johann G. Goldammer and Jürgen Bauhus <i>International Journal of Wildland Fire</i> 20 , 35–45		This study investigated how past fire frequencies influence fuel loading, fire behaviour and soil heating during prescribed burning in dry dipterocarp forests. The results indicated that burning can be classed as low-intensity and low-severity surface fire, and there does not appear a need to prescribe burns more frequently than every 6–7 years.	
On the comparative importance of fire danger rating indices and their integration with spatial and temporal variables for predicting daily human-caused fire occurrences in Spain M. Padilla and C. Vega-García <i>International Journal of Wildland Fire</i> 20 , 46–58		A prediction system of daily forest fire occurrence is built for the peninsular territory of Spain at a 10-km spatial resolution. The logistic regression models used for the analysis of historical records allow comparison of the performance of a set of fire danger rating indices and geographical factors, and determination of their relationships with fire occurrence throughout different ecological regions in Spain.	
Allocating fuel breaks to optimally protect structures in the wildland–urban interface Avi Bar Massada, Volker C. Radeloff and Susan I. Stewart <i>International Journal of Wildland Fire</i> 20 , 59–68		Wildland fire is a major concern in the wildland–urban interface, where human structures intermingle with wildland vegetation. We developed a new method to identify areas for fuel treatments near structures or communities that accounts for explicit structure locations.	
Relationships between landscape patterns and fire occurrence within a successional gradient in sagebrush steppe–juniper woodland Aaron D. Roth, Stephen C. Bunting and Eva K. Strand <i>International Journal of Wildland Fire</i> 20 , 69–77		FARSITE, a fire fuel simulation program, was used to create a fire-occurrence grid. FRAGSTATS was used to quantify landscape patterns across a successional gradient of plant communities of western juniper. Linear regression analysis looking at landscape patterns suggests juniper-dominated, later successional stages influence landscape patterns.	
Built structure identification in wildland fire decision support David E. Calkin, Jon D. Rieck, Kevin D. Hyde and Jeffrey D. Kaiden <i>International Journal of Wildland Fire</i> 20 , 78–90		The location of built structures can be accurately mapped relative to probable fire spread to improve real-time, risk-based assessment when developing wildfire management plans.	
A North American regional reanalysis climatology of the Haines Index Wei Lu, Joseph J. Charney, Sharon Zhong, Xindi Bian and Shuhua Liu <i>International Journal of Wildland Fire</i> 20 , 91–103		A warm-season Haines Index climatology is derived using regional reanalysis data and compared with a previous climatology using global reanalysis data. The two climatologies are found to be similar for most of North America, with the largest differences appearing along the eastern coastline and in regions of large elevation gradients.	

Effectiveness of three post-fire treatments at reducing soil erosion in Galicia (NW Spain)

Cristina Fernández, José A. Vega, Enrique Jiménez and Teresa Fonturbel

International Journal of Wildland Fire **20**, 104–114

The effectiveness of different stabilisation treatments for reducing soil erosion were monitored after a severe wildfire in Galicia (NW Spain). The results showed that straw mulch significantly reduced soil loss relative to the control. Other treatments such as wood-chip mulch and erosion barriers were not effective in reducing soil loss relative to the untreated control. Ground cover results were a key factor in determining post-fire soil losses.

Career stages in wildland firefighting: implications for voice in risky situations

Alexis Lewis, Troy E. Hall and Anne Black

International Journal of Wildland Fire **20**, 115–124

This study reports on 36 in-depth qualitative interviews with wildland firefighters in the US regarding their experiences of speaking up or remaining silent in dangerous fireline situations. It explores how factors influencing voice (limits to environmental perception and social influences), as well as the tactics used, vary between rookies, experienced firefighters and expert veterans.

Late Holocene geomorphic record of fire in ponderosa pine and mixed-conifer forests, Kendrick Mountain, northern Arizona, USA

Sara E. Jenkins, Carolyn Hull Sieg, Diana E. Anderson, Darrell S. Kaufman and Philip A. Pearthree

International Journal of Wildland Fire **20**, 125–141

Fire-related debris-flow deposits yield ages of high-severity fire in ponderosa pine and mixed conifer forests on Kendrick Mountain, Arizona. The multicentennial-scale occurrence of fires during the last 4000 years may indicate that a protracted interval is required to accumulate fuels over the steep topography, rather than regional climatic drivers.

Quantifying the influence of fuel age and weather on the annual extent of unplanned fires in the Sydney region of Australia

Owen F. Price and Ross A. Bradstock

International Journal of Wildland Fire **20**, 142–151

We used 30 years of fire mapping to model the annual extent of unplanned fire against previous fire and other predictors. Three units of planned fire are required to reduce the unplanned fire area by one unit. However, weather during the fire season was the most influential factor.

Emission of biogenic volatile organic compounds involved in eruptive fire: implications for the safety of firefighters

Toussaint Barboni, Magali Cannac, Eric Leoni and Nathalie Chiaramonti

International Journal of Wildland Fire **20**, 152–161

In forest fires, it has been observed that the fire occasionally propagates at unusual speed. This type of accelerating fire propagation is known as eruptive fire for its continuous increase of the rate of spread. The hypothesis of this study is that biogenic volatile organic compounds (BVOCs) accumulate in the vicinity of the fire front and causes this acceleration.



The wildland–urban interface at Coimbra, Portugal, in August 2005.
Photo: A. Ferreira