

# *International Journal of Wildland Fire*

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Contents	Volume 18	Issue 6	2009
<p>The fire history of an arid grassland: the influence of antecedent rainfall and ENSO  <b>Aaron C. Greenville, Chris R. Dickman, Glenda M. Wardle and Mike Letnic</b>  <i>International Journal of Wildland Fire</i> <b>18</b>, 631–639</p>			<p>The fire history of the north-eastern Simpson Desert from 1972 to 2003 was described from Landsat imagery. The area burnt was quantified for each fire event and the vegetation class spinifex was most likely to carry a wildfire. The minimum fire return interval was 26 years. Two measures of antecedent rainfall and the Southern Oscillation Index from the year before the wildfire could be used to predict wildfire area.</p>
<p>Artificial neural network approach for modeling the impact of population density and weather parameters on forest fire risk  <b>Li-Ming Li, Wei-Guo Song, Jian Ma and Kohyu Satoh</b>  <i>International Journal of Wildland Fire</i> <b>18</b>, 640–647</p>			<p>Relationships between forest fire and population density together with three weather parameters are investigated. Population density is used as proxy to human presence. The study finds that interactions exist among these factors. Results may be helpful to forest fire protection.</p>
<p>Monitoring post-fire regeneration in Mediterranean ecosystems by employing multitemporal satellite imagery  <b>Rocío Hernández Clemente, Rafael María Navarro Cerrillo and Ioannis Z. Gitas</b>  <i>International Journal of Wildland Fire</i> <b>18</b>, 648–658</p>			<p>After a 1993 wildfire in southern Spain, the post-fire regeneration pattern was studied by means of a multitemporal analysis of remote sensing data and fractional vegetation cover measurements obtained from permanent plots. The regeneration trend remained constant and the Normalized Difference Vegetation Index showed a high potential for quantitatively monitoring post-fire vegetation recovery.</p>
<p>The effects of seeding sterile triticale on a native plant community after wildfire in a pinyon pine–mountain mahogany woodland  <b>Benjamin A. Waitman, Trent M. Draper and Todd C. Esque</b>  <i>International Journal of Wildland Fire</i> <b>18</b>, 659–664</p>			<p>This paper investigates the effects of post-fire seeding with a low density of a sterile wheat–rye hybrid. The recovery of the annual and perennial plant communities are examined with perennial communities considered by life history traits.</p>
<p>Influence of a native legume on soil N and plant response following prescribed fire in sagebrush steppe  <b>Erin M. Goergen and Jeanne C. Chambers</b>  <i>International Journal of Wildland Fire</i> <b>18</b>, 665–675</p>			<p>Woodland expansion affects grasslands and shrublands and prescribed fire is a potential restoration tool. Native legumes can influence recovery through addition of fixed nitrogen. We found higher extractable inorganic nitrogen and cover of perennial grasses and forbs in legume presence, indicating legumes can influence post-fire succession through environment modification.</p>
<p>Ground-based LIDAR: a novel approach to quantify fine-scale fuelbed characteristics  <b>E. Louise Loudermilk, J. Kevin Hiers, Joseph J. O'Brien, Robert J. Mitchell, Abhinav Singhania, Juan C. Fernandez, Wendell P. Cropper, Jr. and K. Clint Slatton</b>  <i>International Journal of Wildland Fire</i> <b>18</b>, 676–685</p>			<p>This manuscript introduces a new method for measuring fuel volumes and fuelbed heights in fire-prone forests, showing its value in capturing three-dimensional features of fuels. More accurate volumes and fuelbed heights are critical for improving fire behavior prediction and may enhance the understanding of fire effects.</p>
<p>Novel fuelbed characteristics associated with mechanical mastication treatments in northern California and south-western Oregon, USA  <b>Jeffrey M. Kane, J. Morgan Varner and Eric E. Knapp</b>  <i>International Journal of Wildland Fire</i> <b>18</b>, 686–697</p>			<p>Mechanical mastication fuel treatments of northern California and south-western Oregon resulted in the development of a novel fuelbed type characterized by dense fine woody fuel loadings. These findings suggest that mechanically masticated fuelbeds are unique and warrant the development of fire behavior fuel models specific to masticated fuelbeds.</p>

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Empirical modelling of surface fire behaviour in maritime pine stands

**Paulo M. Fernandes, Hermínio S. Botelho,**

**Francisco C. Rego and Carlos Loureiro**

*International Journal of Wildland Fire* **18**, 698–710

Wind speed, slope, dead fuel moisture content and fuel bed descriptors are used to model surface fire behaviour in maritime pine stands in Portugal. The equations enable site-specific estimates of rate of spread, flame size and fire intensity for mild weather conditions, especially in the frame of prescribed burning.

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An inverse method to estimate stem surface heat flux in wildland fires

**Anthony S. Bova and Matthew B. Dickinson**

*International Journal of Wildland Fire* **18**, 711–721

We provide a mathematical method that uses temperature data from thin thermocouple probes inserted just below bark to estimate net heat flux (inward minus outward heat flow) and temperature at the bark surface. Such estimates can be used to validate stem-heating models.

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A model for calculating the temperature of aluminium particles ejected from overhead low-voltage lines owing to a short-circuit

**E. G. Psarros, A. D. Polykrati, C. G. Karagiannopoulos and P. D. Bourkas**

*International Journal of Wildland Fire* **18**, 722–726

In some cases, wildfires close to low-voltage power lines have been blamed on the distribution network. A mathematical model is proposed in order to examine the risk of a wildfire breaking out owing to the temperature of molten metal particles that are possibly created on bare conductors of low-voltage overhead lines.

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Developing an Adaptive Management approach to prescribed burning: a long-term heathland conservation experiment in north-west Italy

**Davide Ascoli, Rachele Beghin, Riccardo Ceccato,**

**Alessandra Gorlier, Giampiero Lombardi,**

**Michele Lonati, Raffaella Marzano, Giovanni Bovio**

**and Andrea Cavallero**

*International Journal of Wildland Fire* **18**, 727–735

In Italy, knowledge about prescribed burning is limited. This paper introduces a long-term prescribed fire experiment for *Calluna* heathland conservation in north-west Italy and demonstrates how the concept of Adaptive Management can be implemented to inform decisions about fire prescriptions where little knowledge exists.

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Wildfire in pine forest, Turkey.  
Photo: Aykut Ince