

International Journal of Wildland Fire

Scientific Journal of the International Association of Wildland Fire

Contents	Volume 13	Number 3	2004
Application of remote sensing and GIS to locate priority intervention areas after wildland fires in Mediterranean systems: a case study from south-eastern Spain J. Reyes Ruiz-Gallardo, Santiago Castaño and Alfonso Calera	241–252		Erosion is a major problem in rugged terrain after wildland fires. The need for intervention in a particular site within the affected region depends on different factors such as slope, aspect and fire severity. This paper proposes a method to pinpoint areas of high priority for intervention within burnt regions. The method is based on remote sensing and GIS data.
Fire spread in canyons Domingos Xavier Viegas and Luis Paulo Pita	253–274		A mathematical model, including a non-dimensional analysis of the spread parameters, to interpret fire spread in canyon-shaped geometry is proposed. Experimental results from an extensive laboratory study and from one field experiment support the relevance of the terrain configuration on the fire spread properties. It is demonstrated that fire behaviour in canyons is dynamic.
A dynamic algorithm for wildfire mapping with NOAA/AVHRR data R. Pu, P. Gong, Z. Li and J. Scarborough	275–285		A wildfire mapping algorithm is proposed based on fire dynamics, called the dynamic algorithm, and is applied to daily NOAA/AVHRR/HRPT data for wildland areas in California, USA. The algorithm consists of four stages: data preparation, hotspot detection, burn scar mapping and final confirmation of potential burn scar pixels. The preliminary result mapped by the dynamic algorithm, validated with the fire polygons collected by the California Department of Forestry and Fire Protection, indicates that the algorithm can track burn scars at different developmental stages at a daily level.
Effects of fire severity and season of burn on <i>Betula glandulosa</i> growth dynamics William J. de Groot and Ross W. Wein	287–295		<i>Betula glandulosa</i> is a resprouting shrub that survives over a wide range of fire regimes. Field experiments demonstrated that fire severity (lethal heat penetration into the soil) and season of burn are important factors affecting sprout production, shoot height growth, shoot biomass production and overwinter root carbohydrate storage.
Investigating the Haines Index using parcel model theory Mary Ann Jenkins	297–309		The Haines Index is interpreted as a two-dimensional parameter space in which the potential for severe wildfire development is characterized by near-surface atmospheric stability and humidity. The parameter space is formed by using a parcel model to determine variables that describe fire parcel ascent as functions of the low-level moisture and stability conditions that combined make up the Haines Index. Wildfire severity is assumed to be directly connected to vertical column development, and with this representation of the Haines Index, the potential for severe wildfire is linked directly to the ambient stability and moisture conditions used to calculate the Haines Index.
A comparison of thermocouples and temperature paints to monitor spatial and temporal characteristics of landscape-scale prescribed fires Louis R. Iverson, Daniel A. Yaussy, Joanne Rebbeck, Todd F. Hutchinson, Robert P. Long and Anantha M. Prasad	311–322		A logger-probe system is described to qualitatively characterize prescribed fire intensity in three Ohio oak-hickory forests. Sampling every 2 s at 120+ stations per site on a 50-m grid allowed: calculation of maximum probe temperature; duration of probe temperature above 30°C; a heat index; time of maximum temperature; estimated rate of spread; and a web-based simulation of the actual fire. Maximum temperature from aluminum tags painted with temperature-sensitive paints correlated highly with that from the probes.

Characterizing and mapping fuels for Malaysia and western Indonesia Caren C. Dymond, Orbita Roswintarti and Michael Brady	323–334	Fire managers can use fuel information to help determine appropriate prevention, mobilization and suppression activities. This study defines and maps the fuel types of western Indonesia and Malaysia as part of their national fire information systems.
Does firefighting foam affect the growth of some Australian native plants? Kerry Hartskeerl, Dianne Simmons and Robyn Adams	335–341	Firefighting foams are used widely in environmentally sensitive areas. They are strong surfactants and have the potential to be ecologically damaging. However, when the growth responses of seven Australian plant species treated with firefighting foam were assessed, the species showed no detectable damage. The results are encouraging for continued use of firefighting foam in natural habitats.
Measuring duff moisture content in the field using a portable meter sensitive to dielectric permittivity P. R. Robichaud, D. S. Gasvoda, R. D. Hungerford, J. Bilskie, L. E. Ashmun and J. Reardon	343–353	The tough, lightweight DMM600 is a portable, battery-powered duff moisture meter that provides immediate duff water content measurements. Direct measurement of duff moisture content will improve planning and ignition timing for prescribed burns and provide needed inputs for fire behavior models.
Flammability of native understory species in pine flatwood and hardwood hammock ecosystems and implications for the wildland–urban interface Anna L. Behm, Mary L. Duryea, Alan J. Long and Wayne C. Zipperer	355–365	Twelve understory species were sampled within two south-eastern coastal plain ecosystems in the United States—pine flatwoods and hardwood hammocks—to determine their potential flammability. Above-ground biomass, foliar moisture content and foliar energy content were quantified. Results were analyzed to compare flammability among species and between ecosystems.
A semi-automated object-oriented model for burned area mapping in the Mediterranean region using Landsat-TM imagery G. H. Mitri and I. Z. Gitas	367–376	An object-based classification model was developed to map burned areas in two different Mediterranean areas using Landsat-TM imagery. In comparison to pixel-based classification, the developed model, based on fuzzy classification, proved to be robust enough and transferable for the accurate mapping of different burned areas due to its ability to combine spectral, shape, texture and contextual information.
Grazer movements: spatial and temporal responses to burning in a tall-grass African savanna S. Archibald and W. J. Bond	377–385	The impact of fire on grazer distributions was described using 3 years' worth of data from a southern African savanna park. Grazing pressure in burnt and unburnt grassland decreased after fire. This is because grazers were drawn off unburnt grassland into the post-fire regrowth, and were dispersed more widely within the burnt areas.
Corrigendum	387–390	Corrections to: <i>International Journal of Wildland Fire</i> , Vol. 7, No. 2 (June 1997), pp. 69–218. Special issue: 'Project Aquarius. Stress, strain and productivity in wildland firefighters'.