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Contents	Volume 12	Number 2	2003
A review of prescribed burning effectiveness in fire hazard reduction <i>Paulo M. Fernandes and Herminio S. Botelho</i>	117–128		The contribution of prescribed burning to moderating the undesired effects of wildland fire is reviewed for North America, Australia and Europe. The benefits of prescribed fire are readily apparent, especially regarding the potential intensity and severity of a post-treatment wildfire, even if they are difficult to separate from the overall fire management effort. Operational, social and ecological constraints to prescribed fire can, however, compromise its effectiveness. The spatial pattern of treatment and the characteristics of vegetation and weather and how they interact to determine the fire regime are critical to the success of a hazard-reduction burning program.
Assessing fire regimes on Grand Canyon landscapes with fire-scar and fire-record data <i>Peter Z. Fulé, Thomas A. Heinlein, W. Wallace Covington and Margaret M. Moore</i>	129–145		Fire-scar reconstructions of 20th-Century fires in Grand Canyon National Park corroborated fire records for all 13 recorded fires >8 ha. The frequent surface fire regime was interrupted after 1879 but isolated sites subsequently had 2–3 large surface fires and several smaller fires, rare examples of relatively undisrupted fire regimes.
Effects of fire season and intensity on <i>Prosopis glandulosa</i> Torr. var. <i>glandulosa</i> <i>Paul B. Drewa</i>	147–157		In pyrogenic ecosystems, resprouting woody vegetation may be influenced more by fire season than intensity. This hypothesis is not supported in the context of <i>Prosopis glandulosa</i> , a resprouting shrub in desert grasslands of the south-western United States. Shrub height and numbers of resprouts can potentially increase more after dormant season than growing season fires. However, these responses are contingent on fire intensity as determined primarily by fuel amount. In turn, fire intensity will determine the amount and duration of heat penetration into soils and thus the amount of damage to growing points of underground organs.
Feasibility of forest-fire smoke detection using lidar <i>Andrei B. Utkin, Armando Fernandes, Fernando Simões, Alexander Lavrov and Rui Vilar</i>	159–166		The authors discuss the feasibility of forest fire surveillance by detection of smoke plumes with a lidar (laser radar) technique. The investigations included tracing smoke-plume evolution, estimating forest-fire alarm promptness, and smoke-plume location. The possibility of locating a smoke plume whose source is out of line of sight and detection under extremely unfavourable visibility conditions was also demonstrated. The eye hazard problem is addressed and three possibilities of providing eye-safety conditions without loss of lidar sensitivity are discussed: using a low energy-per-pulse and high repetition-rate laser; an expanded laser beam; or eye-safe radiation.
Calculation of fire spread rates across random landscapes <i>Mark A. Finney</i>	167–174		Methods were developed for estimating the expected or average spread rate of a fire moving across an area composed of random fuels. This two-dimensional calculation permits lateral movement of fire around obstacles and thus depicts fire spread in patchy fuel mixtures better than calculations assuming fewer dimensions.

Assessing forest fire potential in Kalimantan Island, Indonesia, using satellite and surface weather data <i>Dodi Sudiana, Hiroaki Kuze, Nobuo Takeuchi, and Robert E. Burgan</i>	175–184	This paper describes the assessment of the forest fire potential in Kalimantan Island between 1981 and 1993 using AVHRR satellite data and weather data. The fire potential index shows good correlation with the hot-spot distribution derived from the AVHRR data, and the smoke aerosol distribution from the TOMS data.
Estimation of vegetative fuel loads using Landsat TM imagery in New South Wales, Australia <i>Kate Brandis and Carol Jacobson</i>	185–194	Two different methods using remotely sensed data to estimate vegetative fuel loads are examined. The first classifies the data to predict vegetation types and couples this with fire history data to derive fuel loads. The second estimates canopy biomass and applies a canopy turnover rate to calculate litter-fall and accumulated litter. Advantages of this methodology include the estimation of fuel loads in remote areas, provision of a spatial context to fuel loads and bushfire risk, and reduction of time spent in the field.
Reaction times and burning rates for wind tunnel headfires <i>Ralph M. Nelson, Jr.</i>	195–211	Fuel bed characteristics, combustion theory, and past studies of stationary fires in wood cribs are used to develop models for predicting fuel bed reaction times and burning rates of headfires. Such models are potentially useful for better describing the behavior and effects associated with wild and prescribed fires. Model predictions are compared with experimental data for headfires burned in a wind tunnel.
Evaluation of fire danger rating indexes using logistic regression and percentile analysis <i>Patricia L. Andrews, Don O. Loftsgaarden and Larry S. Bradshaw</i>	213–226	The performance of fire danger rating systems can be assessed by comparing indexes to fire activity. Analysis can be used for choosing the most appropriate index for an area and for evaluating new indexes. Methods are available in the FireFamily Plus computer program. Techniques are demonstrated for the U.S. National Fire Danger Rating System and the Tonto National Forest in Arizona.
Fine-scale patchiness of different fire intensities in sandstone heath vegetation in northern Australia <i>Owen Price, Jeremy Russell-Smith and Andrew Edwards</i>	227–236	Rockiness was strongly related to the presence of unburned patches, measured in 5×5 m quadrats along 9.2 km of transects for five different fires in sandstone heaths. Half of the 83 identified unburned patches were 10 m or less in length and only three were still detectable when data were amalgamated into quadrats of 500 m^2 . Fires are much more patchy than satellite derived fire maps indicate, which has important implications for understanding how populations of fire sensitive plant will respond to different fire regimes.
Technical Note		
Autonomous field-deployable wildland fire sensors <i>R. Kremens, J. Faulring, A. Gallagher, A. Seema and A. Vodacek</i>	237–244	We have developed an inexpensive (US\$300, 2002 in small quantities) position-aware data acquisition package for use in collecting data and reporting fire status on wildland fires. Each acquisition unit contains a GPS receiver, radio transceiver and electronics for processing several signal inputs. These devices can acquire local weather, monitor and/or indicate the presence and intensity of a fire and report remotely via radio link to a base station or handi-talkie.
Corrigendum to:		
Ponderosa pine mortality following fire in northern Arizona <i>Charles W. McHugh and Thomas E. Kolb</i> Volume 12, Number 1 (2003), pages 7–22	245	There has been an error in citation of certain references in the Methods section, relating to the methods used to determine scorch, bole char severity and ground char severity.