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Fire effects on soil system functioning: new insights and future challenges <i>Stefan H. Doerr and Artemi Cerdà</i>	339–342	Preface.	
Spatial distribution and properties of ash and thermally altered soils after high-severity forest fire, southern California <i>Brett R. Goforth, Robert C. Graham, Kenneth R. Hubbert, C. William Zanner and Richard A. Minnich</i>	343–354	The extent of water-repellent soil, white ash and reddened land surface were surveyed among sites with different tree density. Colour, pH, magnetic susceptibility, calcium carbonate, organic carbon and nitrogen were quantified for burned soils and those minimally affected by the fire, as well as for ash.	
Functional diversity of the microbial community in Mediterranean maquis soils as affected by fires <i>Rosaria D'Ascoli, Flora A. Rutigliano, Raffaele A. De Pascale, Anna Gentile and Amalia Virzo De Santo</i>	355–363	Because of the climatic changes in progress, fires are destined to increase in fire-prone areas such as Mediterranean maquis, determining changes in growth, activity and diversity of the soil community. This study shows that a reduction in activity and fungal : bacterial ratio is found in burned soils. Notwithstanding, the soil microbial community can recover quickly the catabolic diversity (i.e. diversity of decomposition functions) preserving an important component of its functional diversity.	
Organic matter, nutrient content and biological activity in burned and unburned soils of a Mediterranean maquis area of southern Italy <i>Anna De Marco, Anna Elisa Gentile, Carmen Arena and Amalia Virzo De Santo</i>	365–377	In a low-shrub Mediterranean maquis, experimental fires with different burn severities increased soil organic matter and nutri- ent content for the full 3-year study period. Microbial biomass and activity, however, were increased only in the first 3 months after fire.	
Effects of prescribed fire on soil quality in Mediterranean grassland (Prades Mountains, north-east Spain) <i>Xavier Úbeda, Marc Lorca, Luís R. Outeiro, Sara Bernia and Marc Castellnou</i>	379–384	The effects of a low intensity prescribed fire, used to maintain fire breaks in grassland in Mediterranean north-east Spain, on soil pH, carbon content and nutrients were examined. The fire had no major detrimental effect on soil quality. However, using prescribed burning fire on an annual basis may not allow enough time for the soils to fully recover.	
Microbial recolonization and chemical changes in a soil heated at different temperatures <i>César Guerrero, Jorge Mataix-Solera, Ignacio Gómez, Fuensanta García-Orenes and Manuel M. Jordán</i>	385–400	Samples of a Mediterranean forest soil were exposed to differ- ent temperatures (from 100 to 700°C). The re-establishment of microorganisms depended on changes in soil properties, with bacteria being better colonizers than fungi. Soils heated at ele- vated temperatures (>500°C) showed an ephemeral and scarce microbial recovery as a consequence of the strong reduction in soil quality.	
Temporal patterns of solute loss following wildfires in Central Portugal <i>A. J. D. Ferreira, C. O. A. Coelho, A. K. Boulet and F. P. Lopes</i>	401–412	Nutrient loss following forest fires is a fast process occur- ring mainly during the first 4 months after fire, while there is an unlimited source of ash, and during large rainfall events after that period. Overland flow and catchment runoff show a slight decrease, which is ascribed to vegetation recovery and the mitigation of soil water-repellent characteristics.	

Fire and torrential rainfall: effects on seedling establishment in Mediterranean gorse shrublands <i>Martín de Luís, José Raventós and José C. González-Hidalgo</i>	413–422	We found that the occurrence of an extreme precipitation event after fire did not significantly affect seedling emergence. It did, however, cause a significant reduction in seedling survival. It is concluded that the effect of torrential rainfall after fire not only causes heavy soil loss, but also has a strongly persistent effect on vegetation recovery that may lead to an irreversible degradation process.
Influence of vegetation recovery on soil hydrology and erodibility following fire: an 11-year investigation <i>Artemi Cerdà and Stefan H. Doerr</i>	423–437	The effectiveness of different types of vegetation in reducing runoff and soil losses following a severe wildfire in eastern Spain was examined over an 11-year period. In addition to vegetation density, vegetation type was also important, with herbs and shrubs being more effective compared to dwarf shrubs and trees.
Temporal fluctuations in soil water repellency following wildfire in chaparral steep-lands, southern California <i>K. R. Hubbert and V. Oriol</i>	439–447	Fluctuations in the degree of soil water repellency were studied for 1 year following wildfire in a chaparral shrubland. When soils were wet, seasonal variation in surface water repellency appeared to be inversely proportional to antecedent rainfall and soil moisture conditions. When soils were dry, however, the surface soils remained wettable.
Effect of oxygen deprivation on soil hydrophobicity during heating <i>R. Bryant, S. H. Doerr and M. Helbig</i>	449–455	Heating can profoundly affect soil hydrophobic behaviour. This study examines heating effects on soils under air and under oxygen-deprived conditions. Hydrophobicity was eliminated in air at considerably lower temperatures than under oxygen-deprived conditions, indicating that the availability of oxygen on the ground during burning can strongly affect post-fire soil wettability.
Measurement and prediction of post-fire erosion at the hillslope scale, Colorado Front Range <i>Juan de Dios Benavides-Solorio and Lee H. MacDonald</i>	457–474	Post-fire erosion rates from six fires of varying ages in the Colorado Front Range ranged up to $1 \text{ kg m}^{-2} \text{ year}^{-1}$. Percentage bare soil and rainfall erosivity were the dominant controls on sediment production. A series of empirical models for predicting post-fire erosion rates were developed and validated.
Measurement of post-fire hillslope erosion to evaluate and model rehabilitation treatment effectiveness and recovery <i>Peter R. Robichaud</i>	475–485	Postfire emergency rehabilitation includes hillslope treatments, such as broadcast seeding, mulching and installed barriers, to reduce runoff, erosion and downslope sedimentation. Treatment effectiveness was evaluated with direct measurement of hillslope erosion using rainfall simulation, sediment fences and paired catchments studies. These data were also used to develop and validate web-based erosion prediction models.
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