

Book review

WILDFIRE HAZARDS, RISKS, AND DISASTERS

Edited by D Paton

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284 pp., colour photographs, illustrations and diagrams.
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This book, which is part of a series that includes volumes on other biological, physical and environmental hazards, boasts an impressive international group of authors. Individual chapters discuss fire issues in the USA, Canada, Chile, Europe, Australia, Indonesia, Taiwan, India and Russia. Although fire areas such as Brazil, China and Africa are not included, this is a valuable resource for understanding regional differences as well as issues common to many important fire regions. Authors include prominent ecologists, physical scientists and social scientists. The result is a valuable combination of cross-disciplinary authorship.

Various chapters discuss fire danger rating and early warning systems, fire ecology, post-fire ecosystem restoration and social aspects of fire. Many chapters discuss fire as both a social issue and a physical or ecological one. Recent changes in focus from suppression towards hazard assessment and risk management come across strongly in several chapters, as well as the importance of community engagement in addressing management of fire and fuels in wildlands and wildland–urban interface (WUI).

The editors point out that in contrast to many other hazards, wildfire presents a unique aspect of risk because the forests and grasslands that are the source of the hazard are also sought out for their amenity values. This has led to the desire for a sustainable balance between hazard and amenity. However, as many chapters in this book illustrate, in more developed countries, this balance has broken down, with an increasing number of communities exposed to the hazard. This has resulted in a public demand to prevent fire from encroaching on communities. The conflict between the inevitability of fire occurrence, the importance of fire to critical ecosystems and the demands of people living at the WUI is a recurring theme, as is the impact of smoke created from wildfires.

McCaffrey *et al.* provide a comprehensive review of literature on public acceptance of fuel treatments, homeowner mitigation actions and social dynamics post-fire. They also note a push in the USA towards ‘fire-adapted communities’, which accept the risks and the responsibilities of where they live. McGee *et al.* discuss how Canadian communities have learnt to understand fire. They point out that while Canada has been spared the regular major losses to life and property experienced in other countries, this may change in the future as population growth and development pressures combine with climate change.

Soto *et al.* discuss the trend of increasing wildfire in Chile, where intensive use of renewable resources has led to large areas of WUI. Tedim *et al.* discuss the increasing risk from forest fires in areas of Europe outside of the fire-prone Mediterranean climatic regions. Both the role of land-use changes and the socio-political aspects of fire management are highlighted.

Buergelt and Smith discuss fire management challenges across Australia and highlight issues similar to those in the USA and Canada. They also discuss the need for better integration between levels of government, the private sector and the public, and stress the important role of community education and training.

Sagala *et al.* point out the critical importance of forest ecosystems to the Indonesian economy and the interaction of people, forests and forestry practices in creating risks and hazards from fire and smoke. Chen and Chen note that in Taiwan, a country not noted for large-scale wildfires owing to its high humidity, fire risk has become an issue as a result of forestry practices. They discuss the need to develop effective forest management and restoration practices.

Ponomarev *et al.* discuss the challenges of managing wildfire in Russia’s vast, sparsely populated land areas. They predict that changing climate will affect management and lead to increasing wildfire-related emissions of greenhouse gases. They discuss the important role of the boreal forests and peatlands of northern Siberia in global carbon budgets and the dominance of extremely large wildfires in many areas.

Schmerbeck and Kraus examine wildfire issues in India, with its high population density, and note that wildfires are a minor but increasingly important hazard that exacerbate other risks – in particular, landslides, flash floods and the health impacts of smoke. This reiterates the point raised by others, that fire is a complex socioecological problem with no simple solutions.

De Groot *et al.* discuss the development and importance of fire danger rating and early warning systems, as well as their importance in decision making at various scales. They review many current operational systems and applications in use around the world.

Vallejo and Alloza discuss various approaches to post-fire restoration, and the critical need to create resilient landscapes, as they relate to key ecosystem services. They caution that restoration projects should be informed by science and an understanding of fire regimes. They present an assessment approach to post-restoration developed in the Mediterranean basin based on predicting soil-erosion risk and vegetation vulnerability.

In closing, Paton *et al.* discuss complexities raised in the preceding chapters, particularly the interactions between sociological and ecological needs, and the fact that there is no universal solution to wildfire problems. They argue that solutions can only be found by using a multidisciplinary and multifaceted approach.

This book assumes no existing knowledge and is an excellent resource for gaining a basic understanding of fire management issues around the world. However, it also provides enough detail to interest and inform established fire managers and researchers.

Dr Richard Thornton

Bushfire and Natural Hazards Cooperative Research Centre
Melbourne, Vic.
Australia