WILDFIRE AND COMMUNITY

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Facilitating Preparedness and Resilience

Edited by

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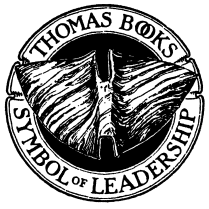

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communities develop their own local strategies for bushfire safety. Kerry worked with communities to facilitate specifically tailored and community initiated activities to promote more sustainable and effective community bushfire preparedness behaviour. In this way community members were empowered to take collective responsibility for their own development and collective bushfire safety. Approaches thus included the development of ongoing structures and processes that communities could use to identify and address their own issues, needs, and problems, in ways most appropriate to their own local conditions and circumstances.

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PREFACE

Throughout the world, and particularly in the United States, Southern Europe and Australia, the incidence of large scale, damaging wildfire hazard events is increasing. Current forecasts suggest that, in the context of climate change, the incidence of wildfire events, their distribution, intensity, frequency and duration will increase. At the same time, growing population movement and development in the wildland-urban interface or peri-urban zone is increasing the risk posed by wildfire events and their consequences to all sectors of society. Recognition of this growing risk has highlighted a need to develop people's capacity to adapt to annually-occurring events that could increase in frequency and severity over the coming years and decades.

Despite the attention and financial resources devoted to trying to encourage public wildfire preparedness, the goal of ensuring sustained levels of adoption of protective measures in communities susceptible to experiencing wildfire hazard consequences has proved elusive. This book examines why this is so and identifies ways in which sustained levels of preparedness can be facilitated.

The contents of this book reviews the findings of substantial research programs being conducted in the United States, Australia, Europe, India and South America and translates these findings into a format that can be used by fire and other government agencies responsible for wildfire mitigation and risk management to design effective risk communication and readiness strategies in at-risk communities. This book provides an integrated account of how, when faced with complex, uncertain and potentially highly threatening wildfire events societal, cultural, family and personal factors that interact and change over time influence how people make choices about how to manage risk. In particular, this book undertakes calls for wildfire risk management programs to be built on principles of shared responsibility and discusses the research and practical issues that need to be accommodated in putting this idea into practice.

Douglas Paton and Fantina Tedim

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WILDFIRE AND COMMUNITY

Chapter 1

WILDFIRE PREPAREDESS AND RESILIENCE IN COMMUNITY CONTEXTS: ISSUES AND PERSPECTIVES

DOUGLAS PATON AND FANTINA TEDIM

INTRODUCTION

This book is about the relationships people have with hazards that are variously called wildfires, forest fires and bushfires depending on which part of the world one finds oneself in. To simplify nomenclature, the term *wildfire* will be used throughout this book. Wildfires represent a growing threat to environments, to people and communities and to societies worldwide. These problems have been most noticeable in the United States, Southern Europe and Australia (e.g., as a result of recent catastrophic events in Australia, California, and Greece) where research and public scrutiny has been greatest. However, as the contents of this text attest, a need for a better understanding of wildfires and how wildfire risk can be effectively and sustainably managed is also required in South America and India. Developing such understanding and capability is becoming a more pressing issue in all these countries.

Current forecasts suggest that, particularly in the context of climate change phenomena, the incidence of large scale, damaging wildfire hazard events, their intensity, their frequency and their duration will increase (e.g., Nicholls & Lucas, 2007). Furthermore, it can be anticipated that climate change will affect the distribution of wildfire risk and result in their emerging on the hazard-scape of some areas and,

possibly, some countries, for the first time. At the same time, factors such as population growth, migration (e.g., into the peri-urban or wildland-urban interface zone) and infrastructure development will increase the scale and consequences of the losses that could potentially occur from wildfire events and contribute to the development of progressively more complex risk management contexts. Thus, in many parts of the world, climatic change, land use change and population dynamics are interacting to change and increase the risk posed by wildfire hazards to contemporary societies.

Recognition of these changes and their implications calls for risk management concepts and strategies to include the people who live with, contribute to and can assist with the management of wildfire risk and who can be affected by and have to recover from wildfire events. Consequently, managing wildfire risk calls for greater understanding of the role people, communities and societal factors play in the origins and nature of the risk wildfire poses, how this risk has developed and how it may change over time. It calls for greater attention to be paid to developing household, community and societal capacity to anticipate, mitigate, cope with, adapt to, and recover from events that are likely to increase in frequency and severity over the coming years and decades (Paton, 2006). It is thus becoming increasingly important to consider the contributions to risk emanating from the social domain.

The need to actively pursue this understanding derives from the fact that despite the attention and financial resources devoted to wildfire risk management over several decades, the goal of ensuring the sustained adoption of the kinds of mitigation and protective measures that scientific and expert sources believe to be crucial to promoting community safety has proved elusive. Consequently, new insights are required if this state of affairs is to be remedied.

The contents of this book review and summarize the findings of substantive research programs on the social dimensions of wildfire risk being conducted in the United States, Australia, Portugal, India, Chile, Greece and Cyprus. The contributors bring considerable intellectual rigor to bear on their identification of the personal, social, societal, environmental and ecological factors that influence both people's interpretation of wildfire risk and the choices they make about how to manage their risk. The work described by the authors provide a foundation for presenting evidence-based strategies that can be used by fire and other government and non-governmental agencies responsible for

wildfire mitigation and risk management to design effective mitigation, risk communication and community outreach programs for use in communities that live with the spectre of wildfires.

PEOPLE IN THE LANDSCAPE

The systematic examination of these issues commences in Chapter 2 where Gill and Cary adopt an Antipodean perspective to begin the process of unraveling the complex web of factors that need to be accommodated in the process of understanding wildfire risk and developing effective ways of managing that risk which includes social and human elements in conceptualizations of wildfire ecology. Risk management is often portrayed as a stable and constant factor. Not so, according to Gill and Cary. They argue for conceptualizations of wildfire risk to be placed within physical and temporal contexts in which both positive and negative consequences can arise from dynamic interdependencies between people, societies and the environments that exist and which change over time (Paton, 2006). They also introduce the need for conceptualizations of wildfire risk to accommodate diverse populations (which range from firesetters to directly and indirectly affected publics to the professionals and volunteers who manage and fight fires) whose actions, needs and outcomes make substantial contributions to the complexity of wildfire risk management and result in the creation of social impacts that range from health and well-being, loss and recovery, social relocation, to blame attributions and litigation. Gill and Cary conclude by highlighting the importance of learning from infrequent events and issue a challenge to researchers and practitioners to be able to use the knowledge so obtained to facilitate adaptive capacity in other communities.

The importance of conceptualizing wildfire risk from a social-ecological perspective (Paton, Kelly & Doherty, 2006) is further developed in Chapter 3. Collins focuses attention on developing a landscape typology of wildfire risk and situates this discussion in the context of wildfires in Arizona. In addition to discussing the usual vulnerability suspects (e.g., demographics, socioeconomic status, and cultural preferences), by embedding discussion in a political-ecology perspective, Collins introduces how environmental values in transition introduce new sources of vulnerability that arise from changes in livelihood and

environmental interaction (e.g., the relative balance of ranching versus second home development) over time. Collins discusses these changes in relation to the concepts of marginalization (e.g., how the political ecology can exclude less powerful groups) and facilitation (e.g., how the political ecological context can assist more powerful entities to exploit natural amenities). Using a multi-method study of diverse communities in Arizona, Collins demonstrates how marginalization and facilitation influence people's vulnerability through the decisions and actions of community institutions (e.g., real estate, land-use decision-makers). This arises from, for example, a combination of developers capitalizing on opportunities to build homes in attractive, but highly fire-prone areas and government planning institutions promoting these choices. This demonstration of how the relationship between hazards and residents can be mediated by social institutions provides a good example of how interdependencies between people and communities change over time in ways that can affect levels of risk and how it is distributed by empowering or disempowering decision-making and action. The importance of this work can be traced to growing recognition that the quality of the relationship between people and societal institutions makes a unique and important contribution risk management (Paton, 2008). Collins argues that while wildfire risk management could be enhanced by transferring responsibility to local planners, decisions at this level can conflict with and be overridden by real estate interests and lifestyle residents in a growth-based political economy. Vulnerability is thus sustained by the political economy prevailing within a jurisdiction.

Chapter 4 sees Tedim continue the systematic, holistic exploration of vulnerability in ways that complement the socioenvironmental approach introduced by Collins. Tedim approaches this topic by first discussing the confusion inherent in how the term vulnerability is used in the literature. Following a discussion of the methodological challenges (e.g., scale of analysis, stakeholder participation) inherent in this area of research, she argues for the need for a multi-dimensional approach to developing a comprehensive set of vulnerability indicators for use in wildfire risk management. This discussion is framed in relation to the outcomes of the European Methods for the Improvement of Vulnerability Assessment in Europe (MOVE) project and culminates in a discussion of the development and application of her ideas using case studies from Portugal.

The exploration of European perspectives on wildfire risk management is further expounded in Chapter 5. Michos and Pyrgaki introduce how the findings of another European initiative, the PRoMPt project, developed in the context of identifying the limited involvement members of the public have had in the planning and implementation of activities such as safety guidelines, preparedness, managing psychological aspects of response and evacuation, and social and environmental restoration. Michos and Pyrgaki use a case study approach that draws on best practice examples from throughout Europe to identify, analyze and evaluate good practice in areas ranging from risk communication to emergency management to natural habitat recovery. They conclude by discussing the benchmarking processes that can be used to demonstrate the practical utility of strategies identified in the case studies.

The literature on wildfire risk has been dominated by events and research being conducted in the United States, Australia and Europe. The next two chapters illustrate that these continents do not have a monopoly on either fire or the development of insightful perspectives on the nature and management of wildfire risk. In Chapter 6, Soto and Alvear bring a South American (Chile) perspective to researching wildland-urban interface fires. They echo the sentiments of Gill and Cary, Collins and Tedim in arguing for the need for multi-dimensional approaches to conceptualizing and managing risk in this context. They use this discussion to develop a suite of mitigation strategies that include resident participation in structural and local risk management strategies (e.g., developing fire breaks, pruning) in ways that sustain environmental amenities.

An important theme that has permeated the preceding chapters is appreciation of the fact that people and communities cannot be regarded as passive victims of wildfire. Subsequent chapters complement the perspectives offered by the preceding authors by adding cultural, social, and personal perspectives to understanding wildfire risk and its management.

CULTURAL, SOCIAL AND PERSONAL INFLUENCES ON WILDFIRE RISK

In Chapter 7, Saxena presents a discussion of wildfire risk management in India. Saxena adds to the inventory of issues that need to

be accommodated in the development of a comprehensive understanding of wildfire risk and its management by introducing the important role of fire in the cultural and religious life of people. He then proceeds to discuss contemporary uses of fire and the consequent human contribution to wildfire causation in India that can be traced to livelihood-related activities. Saxena uses the identification of the ever-increasing risk of fire in India to discuss community-based wildfire management strategies and how government initiatives complement those at the local level in areas ranging from community participation and engagement to legislation. Of particular interest is the work being undertaken that specifically focuses on women. Saxena concludes with a discussion of how culturally-embedded risk management activities are being undertaken under the Joint Forest Management Initiative (JFM) to integrate risk management strategies in culturally oriented ways. The exploration of how risk can be influenced by the interaction between wildfire and livelihood is pursued from a different perspective in the next chapter.

Set against the backdrop of the catastrophic fires in Greece and Cyprus in 2007, Chapter 8 sees Boutras, Boukas, Katsaros and Ziliaskopoulos discussing the environmental, social, and economic impacts that ensued from these events. This work adds countries situated in and around the northeastern Mediterranean coast to the geographical areas covered in this book. In addition to covering the special circumstances that prevail in small rural and mountain communities, Boutras and colleagues call for crisis management and tourism issues to be seen as deserving more pivotal positions in wildfire risk management and recovery planning that has hitherto been the case. One outcome of doing so is greater appreciation of the importance of anticipating and preparing for wildfire events.

While the causes of wildfire events may not always be open to human influence, the nature, distribution, extent and duration of the consequences wildfires create are. The systematic discussion of what people can do to manage their risk commences in Chapter 9 where Rhodes talks about preparedness in relation to the fundamental choices people are called upon to make; to stay or to go. Rhodes discusses how the media-coined term "stay or go" emerged to encapsulate the "prepare, stay and defend or leave early" policy that has played a prominent role in how community preparedness is conceptualized in Aus-