

BOOK REVIEW

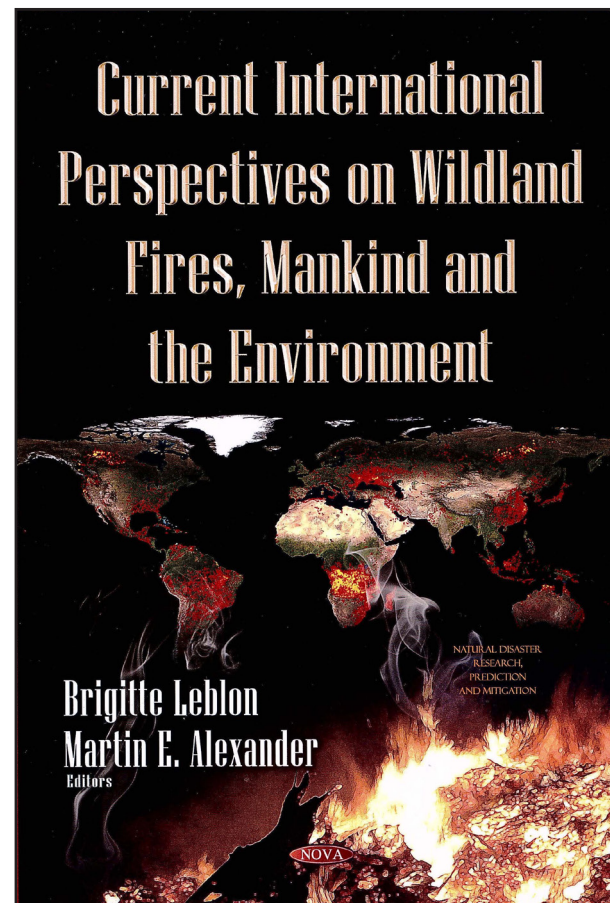
Current International Perspectives on Wildland Fires, Mankind and the Environment. 2015. Edited by Brigitte Leblon and Martin E. Alexander. Nova Science Publishers Inc., Hauppauge, New York, USA. 271 pp. Hardcover. US\$166.50. ISBN: 978-1-63463-682-7.

Wildfires are a global issue. This year's fire season in North America and Asia emphasizes the need for fire sciences that can be applied by the international fire community. Fire science is being developed mainly in a few countries. It is heartening to see that Leblon and Alexander have embarked on the quest to disseminate some of that knowledge through their book, *Current International Perspectives on Wildland Fires, Mankind and the Environment*. The title of this work is ambitious and creates high expectations. Does the book live up to them?

Before the book arrived, I was hopeful that this could be an affordable one-stop source for learning about some of the human dimensions faced by the global fire community across the world, especially in the tropics. I received the book before summer, when I was preparing for several professional trips to the Caribbean, Mexico, and Portugal, and to Brazil and Bolivia for discussion with research collaborators. While I was gone, large wildfires occurred on the Indian reservations where I had planned summer work in my home state of Washington, USA. I am not surprised that the fires in Canada and the western US were being covered by the international media in almost real time. My colleagues in the countries I was visiting had trouble understanding why countries such as the US, with its good fire science and fire fighting resources, continue to have these large and destructive fires. The questions always led to what lessons can be learned from the North American fires that can be applied to other countries with less developed fire sciences and minuscule resources.

I started reading the book between my trips and began searching for answers in it that could help my colleagues from the global fire community, where wildfires are mostly human caused, to increase their readiness for current and future fire seasons. Most of these countries are signatories of international climate change agreements and, therefore, their CO₂ emissions from wildfires are taken into account. They also see an upcoming climate change meeting in Paris as an opportunity to bring fire management to the international stage. This is the scenario I posed to myself as I read. Does this book provide that help?

My first impression upon receiving the book was disappointment with the hardcover price, which makes it too costly for the intended global audience. Over the years, I have seen many fire-related books that have been



published but have a small international distribution. I am afraid this book will run the same course and miss being read by the intended audience. Additionally, for the cost, I expected higher quality graphics. The graphics are so fuzzy that one cannot see what the authors intended to convey. In this area, I give the book 2.5 out of 5 stars.

In *Current Perspectives*, Leblon and Alexander have brought together several authors for a “smorgasbord” approach from the Americas, Australia, and Africa. The nine chapters have no unified theme (in contrast to the majority of recent fire books), nor does the book take a comprehensive textbook approach. Instead, the chapters cover a wide array of topics written by authors with a range of different levels of experience, from veteran researchers to emerging scientists. The topics are discrete but organized in a way that the reader can start at any chapter of the book depending on interest.

In the first chapter, Dale Wade and others remind us that the concept of fire regime is applicable to all the world’s ecosystems. They use an early publication by The Nature Conservancy to discuss the distribution of fire regimes in global ecosystems. One might think that the most common classification of fire regimes in the United States (low, mixed, and high severity) is perhaps too western US-centric. Nevertheless, for most ecosystems, this system works fine. The framework used by Wade and colleagues in this chapter is applied to ecosystems beyond the western US. The authors take us on a fire regime tour of North America, but restrict the fire regime discussion mostly to the US and pre- and post-European settlement in the West. They present an interesting discussion of fire regimes influenced by Native Americans, but fail to acknowledge that major drivers of fire regime change were the Indian treaties that practically removed Native Americans from most US landscapes during the mid-nineteenth century. The cessation of Indian burning and the ensuing Euro-American settlement in the West initiated

the decline of forest health in most of the region. The chapter’s main focus is on the southern US and Australia. Undoubtedly, there is no one better than Dale Wade to discuss fire in the southern US, where he was a pioneer of fire research. His understanding and experience of the region is well expressed in this chapter.

The Australian fire story is similar to the United States. It starts with a European settler’s misunderstanding of the fire culture and traditions of Aborigines, a policy of fire exclusion, a wildland-urban interface fire crisis, and the restructuring of fire policies. The authors present their ideas for a path forward in the US and their views on how to increase or restore fire regimes in the landscapes, and they introduce the reader to a successful case of multi-stakeholder collaboration in southern Florida to reintroduce fire.

Chapter 2 on remote sensing is written by authors from three countries; the common unifier is satellite technology. Leblon and colleagues review the use of satellite technology for monitoring pre- and post-fire conditions. Satellite technology has been seen as a panacea for monitoring wildfires, but this technology has only slowly made it to mainstream wildfire applications. The chapter concentrates on the North American and European experiences of using optical, thermal infrared, and radar images. It is unfortunate that the remote sensing science developed by Brazil was not a part of the review. Brazil’s satellite technology is being applied in tropical systems, where it is more challenging to develop similar tools than in temperate systems. The chapter emphasizes fuel moisture detection, weather conditions, fuel types, and topography for monitoring pre-fire conditions based mainly on the use of optical and thermal infrared imagery and, more recently, radar. Most of the contribution of satellites to fire management has been for fire detection. Several systems have been implemented by many countries using technology based on detection of hot spots.

Many of the initial problems have been worked out and the technology is reaching maturity. Multiple satellite sensors are used for burnt area mapping. Post-fire mapping is a pressing need in fire management, assessment of environmental effects, and ecosystem restoration. Certainly, the remote sensing community has made tremendous progress from the early days of three decades ago. The authors recognize that ground validation appears to be the most important challenge that needs to be addressed before remote sensing is fully embraced by fire managers.

In Chapter 3, M.C. Dentoni and colleagues present the case of adoption of the Canadian Forest Fire Danger Rating System (CFFDRS) as a fire management tool for Argentina. The need for a system of fire danger rating has been expressed in several international conferences. The major systems in the world are based on the US National Fire Danger Rating System, the Canadian CFFDRS, the Australian MacArthur Index, and the Russian Nesterov Index. One way or another, all these systems are pursuing the same goal. In this chapter, I find interesting the experience that Argentina went through with their adoption and adaptation of the CFFDRS to a country with such diversity—from the Andes, to the Equator, and to the colder systems in Patagonia and Tierra del Fuego. The adjustments, implementation, pilot testing, and extrapolation to larger areas are worth examining. After 15 years of initial work, the system is used in almost two thirds of the country. This chapter is worth reading by managers of countries interested in having their own fire danger rating system. The Argentinian experience tells us a story of many challenges faced by scientists and managers when developing a fire danger system.

In Chapter 4, Martin Alexander and William Thorburn introduce an “A” to the acronym LCES (Lookout-Communications-Escape Routes-Safety Zones), a standard in the US federal government fire agencies: adding Anchor Points (A). This stems from a proposal

from the province of Alberta, Canada, because of a serious injury in 1995. The chapter reviews the background of LCES, in addition to the 10 standard orders and the 18 watch-out situations in fire fighting. The authors suggest that adding the “A” will improve the safety of fire fighters.

After approximately 100+ years of organized fire fighting in the world, we still rely on human labor for fire fighting. Nevertheless, the work of fire fighters is made easier when appropriate technology is incorporated in fire management tools. In Chapter 5, Cassandra Hansen and colleagues present to the reader the use of geographical information systems (GIS) and the more recent cloud-based GIS to support fire management. A case study of the Silver Fire in California, USA, is used to make the point of the importance of GIS in fire suppression. Undoubtedly, more and better information is expected to improve the efficiency of fire management. Geographical information systems have become the tools that the new generation of fire managers must have, along with remote sensing. Fire fighting will continue to depend on people to fight fires, but they will be safer and better equipped to do their job if new and appropriate technology is incorporated by fire managers. Personally, I feel that this chapter is too short and so case-driven that it is difficult to follow.

In Chapter 6, Gavriil Xanthopoulos writes on fire fighter safety issues in Greece. He presents a review of fatalities in wildfires in Greece, the lessons learned, and how to improve safety of fire fighters. Most of the fatalities reported in this chapter occurred from 1977 to 2013. According to Xanthopoulos, fire prevention and better training are the keys to avoiding fatalities. Greece’s case is not unique, though, and the chapter needed to make a stronger call for a professional fire fighting cadre that will be adequately trained. Unfortunately, countries that depend on civilian volunteers will continue experiencing accidents and fatalities.

Chapters 7 and 8 are my favorites in the book. Guillermo Defossé and colleagues present a nice review of fire ecology and management in Patagonia. I am glad that these authors have taken a leadership role in fire ecology and management in this richly biodiverse region. The chapter takes the reader on a historical tour of fire from Triassic to modern times. Their description of ecology and fires sparks the reader's interest in visiting the region and learning more about fire ecology. Chapter 8, by Carlos Kunst and others, covers the fire ecology and management of the Argentine Chaco, although the Gran Chaco covers an extensive area from Argentina through Bolivia, Paraguay, and Brazil. The description of the Chaco's ecosystems, fire regimes, ecological effects, and fire management can be applicable to the other regions in South America. This type of information is missing for most of Bolivia and Paraguay, and only Brazil has invested in studying this important ecosystem. The shortness of this chapter reflects the many knowledge gaps for fires in the Gran Chaco. I hope that this young group of academics and scientists can become leaders in fire ecology in South America.

The book closes with Chapter 9, which is a recapitulation of fire-related casualties in South Africa. This chapter has many things in common with Chapter 6; perhaps they should have been one chapter, or put in sequence. Cornelis De Ronde presents a historical review of the casualties and causes since 1994. In South Africa, the Incident Command System has been introduced in fire management. As

with the Greek case, fire fighter training is key to improving fire fighting safety.

This book has important lessons to teach. One is that, after someone retires from a productive professional life, there is much knowledge that can be shared. The fire science community should recognize the effort that Alexander and Wade have invested in editing the book and authoring two chapters. We should appreciate their selflessness in sharing their experience and knowledge since retiring.

The book itself has several inconsistencies. Some chapters are deeper than others. The book presents unbalanced treatments of some important topics that are only occasionally mentioned. I wish some chapters were consecutive, for instance Greece and South Africa, or perhaps they should have been merged to avoid repetition and enrich the discussion by comparing and contrasting their experiences.

At the end, some questions still linger. What about tropical fires? There is a huge gap of knowledge regarding tropical fires that would improve the understanding and management of fires in Indonesia, Brazil, Central America, and other tropical countries. I find also that discussion of human dimensions is shortchanged in the book. My overall rating for the book is 3.5 stars out 5. The book is worth reading, but one can always wait for the paperback version.

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