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Source: Mountain Research and Development, 41(2)

Published By: International Mountain Society

URL: https://doi.org/10.1659/mrd.mm261.1

Mountain Research and Development (MRD)
An international, peer-reviewed open access journal
published by the International Mountain Society (IMS)
www.mrd-journal.org

MountainMedia

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Cham, Switzerland: Springer, 2020. xv + 235 pp. Softcover: US$ 37.99, ISBN 978-3-030-42431-2. E-book: US$ 29.99, ISBN 978-3-030-42432-9.

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As a young scientist, I was fortunate enough to spend a considerable amount of time studying in Boulder, CO, USA and this experience opened my eyes to the wonderful diversity of mountain landscapes in the western part of the United States. Coming from the United Kingdom, where spatial contrasts in the landscape are often subtle, the wide range of environments driven by clear correspondence between local and regional climate and ecosystems (sometimes ranging from desert to rain forest in a very short distance) was one of my main abiding impressions of the American landscape. All this complexity means of course that climate change will no doubt also have complex manifestations in the "Mountains of the West," with no 2 mountain ranges seeing identical responses. This book does a great job in uncovering at least some of this complexity while at the same time giving the reader some generalities and a clear take-home message about the strong consequences of global warming for US mountains.

One main conclusion is the contrast between energy-limited regimes (where increased warmth could provide some benefits for ecosystems, but also melt snow and ice), predominantly in the northern part of the region, and water-limited regimes (where increased dryness and the loss of snowpack may have many negative consequences on ecosystems), predominantly in the southern part of the region. This is of course a simplification, and reality is far more complex.

The author is an ecologist who has spent his life trying to understand the complexities of ecosystem responses to climate and other influences, and there is a particular concentration on wildfire as a critical driver of ecosystems, along with the role of insect outbreaks as another disturbance factor. The book is organized in a way such that it imagines the reader is attending a play and is introduced to various characters in turn. After a general introduction outlining concepts behind change and stability in environmental systems, the stage is presented as the mountains (which are described geographically and topographically in chapter 2). The main antagonist is climate change (discussed in general terms in chapter 3). There then follow introductions to the main players of water (including snow and ice), trees and forests, ecological disturbances (particularly wildfire and insect outbreaks), and fauna. Next comes a complex chapter 8, which attempts to look at further complexities in the various ecological systems such as extreme events, thresholds or tipping points, and vulnerabilities. Finally, in the last chapter, the role of humans and the management of the mountain regions are discussed in the light of previous findings.

For the most part, the book is easy to read and a pleasure to follow. There are copious footnotes, which explain more detailed scientific terms, and it is the choice of the reader whether to look at these or not. I think specialists will be grateful for these notes, which often highlight caveats or additional complexities that they may often raise in their own heads. However, a more general reader, who might want to limit distractions and get to the main message, would be tied down by too much detail if this were to be attempted in the main text. The fact that the text can be read just as well without referring to the notes is therefore a major achievement and means the book can be read on more than one level. There is a really useful glossary of scientific terms, a useful index, and throughout there are some lovely photos to illustrate different environments.

The book does not fail to tackle difficult topics, including modelling. Some of the sections on climate, ecohydrological, and forest models are quite challenging to read and cover many theoretical concepts (eg inverse versus forward modelling, correlations versus causality, contingent parameters, etc), but they are interspersed with much practical and real-world information on their consequences in various mountain ranges, so the book never feels too abstract.

I learnt many wonderful things from this book, including, for example, that the mountain pine beetle may change from semivoltine (1 breed every 2 years) to univoltine (1 breed every year) in a warmer climate, that serotinous cones (which open after fire to release seeds) are only an effective strategy against fire if fires are infrequent enough to allow the trees to grow enough to form cones in between, and that Bryce Canyon may be less influenced by climate change than other areas.

I have some very minor comments that I feel could have improved the book. The sole map is on page 3; it is not that detailed, and it does not show all of the mountain ranges mentioned in the book (the Wind River Range, Uinta Mountains, and Wheeler Peak are missing, for example). Chapter 2 in particular would have really benefited from some detailed maps of each mountain region showing the detailed topography. A good map can be worth a thousand words and would really help readers who are not familiar with the western United States understand what is meant by leeward and windward slopes, transverse ranges, and more. While the focus is undoubtedly and deservedly on the western United States, there is also a lack of much international comparison or setting. At least some limited discussion of how the mountains compare with others around the world in different climates, at different latitudes,

or in different political settings would have provided useful insight and perhaps increased the appeal for an international audience. Chapter 1 also takes a bit of time to get going, and I am not convinced that a general reader will necessarily want to read all about numerous abstract theoretical concepts (given no context) at this early stage. This might have been better in an appendix, to which the reader could have been directed.

These issues should not detract from the fact that the book is an essential source of information for understanding how the western US mountains may respond to the current climate crisis, in all their infinite variety. It should therefore be on the shelf of any environmental manager in the West, but also any scientist working in mountain environments more broadly, and I strongly recommend it in this regard and congratulate the author on a comprehensive account.

 https://doi.org/10.1659/mrd.mm261.1