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The Biology of Alpine Habitats

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The book *The Biology of Alpine Habitats* strives to be a unique textbook for senior undergraduate and graduate students as well as professional ecologists and conservation biologists requiring a concise overview of high mountain ecology. This is a big challenge! Indeed, the book offers a broad global overview of alpine habitats and highlights the physical and biological influences that created them. This systematic approach gives the book the rigor of a textbook that can be readily used in class. However, by presenting so many themes, it triggers a touch of déjà-vu in the professional reader. Owing to the fact that the whole range of themes has to be covered in roughly 300 pages, significant details are lacking. In my view, this is most striking in chapters 8 (Temporal and spatial dynamics), 9 (Global change impacts) and 10 (Land use and conservation). These innovative chapters might have offered a great opportunity for this well-known team of authors to present the latest research findings on the future development of the alpine habitat. Unfortunately, the authors devote only 90 pages to these chapters, even though these topics could have formed the foundation of the book. The extensive bibliography compensates for the lack of detail but not for the missing main message.

Chapters 1 through 3 are introductory chapters defining alpine areas and highlighting the circumpolar presence from the arctic and boreal mountains to the temperate zone mountains and on to the tropical mountains. Numerous examples illustrate the impacts of the steep mountain gradients on temperature, precipitation and life history strategies of the species. Chapter 4, 5 and 6 are informative but also the most narrative chapters of the book. They could have easily been reduced to half their size to give more space to Chapters 8, 9 and 10, which describe emerging problems of this special habitat. Nevertheless, the authors show their great knowledge in the field by describing

quite unique landscapes in the Andes, Siberia or East Africa. This overview is one of the highlights of the book and the variety of presented growth forms is overwhelming.

As mentioned before, Chapters 8, 9 and 10 tackle the most pressing issues of the alpine habitat, i.e. global climate change and land use. Chapter 8 starts with an informative part on primary succession with the example of glacier forelands. It is followed by the topic of secondary succession, presented with some nice transition models illustrating the successional stages of alpine areas in New Zealand. One would definitely want to know more about the competition and facilitation patterns found in alpine ecosystems described in Chapter 8.5.2 on Interactions. The chapter on global change impacts is well written, highlights the well-known threats to alpine habitats, and summarizes the fate of many species assemblages if global warming continues as assumed in different scenarios.

The chapter on land use is a welcome overview of how humans have used the alpine habitat and what ecosystem services and values are supported. Again, this new and future-oriented way of approaching the alpine habitat is described only briefly and readers would have to read special papers given in the references to get a full picture of the theme.

In summary, the book offers a comprehensive view of the alpine habitat, has a consistent logic and is a collection of cleverly chosen examples to highlight the processes and phenomena that dominate this extreme habitat. Unfortunately, the book lacks a major focal theme or message that could guide conservation efforts in the future.

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