5. If fire increases, a positive feedback to atmospheric carbon dioxide concentrations could ensue because of greater direct carbon emissions and reduced carbon sinks in vegetation.

Many of the chapters in this book provide good general reading that would appeal to someone new to the discipline or to students wanting a good general overview. The general nature of many of the chapters compromises the presentation of quantitative results. Some of the discussions involve general concepts without presenting data. Although this book is not a collection of research papers, a few chapters do provide excellent sources of data on boreal forests, largely derived from other studies. I suggest that readers use this book as a general overview, but be cautious about the direct use of information because much of this is built on previous work published elsewhere. In many cases, the referenced work is available in the gray literature, an asset for this book since this work is often neglected in the primary literature. In some cases, primary references are not used, so the reader needs to do some hunting to be assured that the correct source is cited. There are very few typographical errors in the book, although Fig. 23.6 is printed in the place of Fig. 23.5.


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Repairing damaged wildlands: a process-oriented, landscape-scale approach


There are two basic reasons for undertaking restoration of a disturbed wildland. The first is to renew a land unit for some ecological service, such as a rangeland or watershed. The second is to recover a habitat for some plant or animal species of concern. Professor Whisenant has set out to describe an approach and structure for undertaking the former. The emphasis of this book is on ecosystem processes, and the landscape setting. Individual species and community structure is of secondary concern as long as the processes are recovered. Clearly, this approach has limited use for restoring habitat for a particular species or sub-species as the exact biotic requirements for species with specialized habitats do not enter into consideration.

In one sense, this is a major philosophical breakthrough for a management-oriented discipline, such as Range Science. This approach acknowledges the importance of native species in resource management. Individuals in resource-management departments always have contended with the more prevalent focus on highly bred, highly productive species and agronomic, high technology-driven methods to stabilizing disturbed lands to make them productive. Professor Whisenant clearly acknowledges that there is an important role for diverse, relatively stable, wildland ecosystems and sets about to define all the steps necessary to succeed in restoring such systems.

In defining these steps, he separates the material into eight chapters. The first chapter is an overview of definitions and processes of disturbance, and justifies the use of the term repair. The material is generally of useful value as an introduction. Unfortunately, he allows himself to be dragged into the semantic argument of what is versus is not restoration, and then uses yet another term, repair, as a means of getting around the issue. I believe that there is nothing wrong with the use of restoration here. Certainly, restoration is an ideal, but most natural and human undertakings are! However, the readers should not let this rather mundane and uninteresting section dissuade them from the remainder of the book.

The remaining chapters take a logical route through the damage assessment, immediate repair, and selection of approaches, techniques and materials available for undertaking steps that will result in the long-term restoration of a disturbed site. Each section is comprehensive down to useful relevant equations. My only concern here is that the planning chapter, 8, resides...
at the end and not at the beginning of the book. I understand how it is utilized as a means to summarize the material presented and bring in problems. However, planning should be emphasized as a first, not last step. In far too many actual restoration projects, planning is poorly executed, or de-emphasized. Moreover, planning within the context of the existing landscape is an absolutely essential step that is only rarely incorporated. Issues such as natural sources of organisms, wind and water flow, and immigration processes really determine if a site becomes the diverse wildland envisioned, or yet another reclamation project.

In all of these chapters, there is a tremendous amount of information. Dr. Whisenant explored the restoration, relevant ecological, and management literature comprehensively. This, in itself was a massive undertaking, given the wide range of publications surveyed. Not surprisingly, the reference section is extremely helpful. For this reason, I recommend that this book be a prerequisite for any land manager or researcher.

On the down side, though, there is so much information packed into each technique that it often reads like bullets placed in paragraph form. The information, in many places, is not well synthesized into a comprehensible read. There are few real-world examples in which to set the context of a particular bit of information. For this reason, I would not recommend it as a text for courses or as introductory material for a new graduate student. One needs a reasonably good background in both ecology and land management to understand the relevance of any given topic.

In summary, this book is a major contribution by pulling together a great abundance of information on how to repair (or restore) lands for ecological services. It also contains much information useful for restoring habitats as well. Because of the sheer amount of this information, it should be on every land manager’s bookshelf. But, it will not serve well as an introductory text.

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