

this section by suggesting that many students may wish to skip this section. I agree and wonder why this section was not strengthened to make it compatible with an undergraduate level course. The theme of oversimplification is evident in other parts of the text as well. The chapter on biotic effects (4) is very broad, but lacks depth on important concepts, particularly those dealing with conservation genetics.

In conclusion, this book does have several qualities that separate this contribution from the existing suite of texts and make it a worthy addition to the series of complementary materials used in developing an undergraduate course. However, the book lacks sufficient background in ecology and evolutionary concepts to serve as a stand alone text. In all fairness, the author acknowledges that the book is best supplemented with material and to that end the author provides numerous information sources (including web sites and literature). Furthermore, I found the order of materials and general organization clumsy. The simplistic nature of many of the chapters will limit the use of the text in graduate

training. The writing is clear throughout, but the depth of treatment varies among and within chapters. The book is well illustrated using colour plates and has ample examples from the primary literature that encompass a variety of taxa. The publisher's arrangement of material on the page does result in significant "white space" that could have been used for fleshing out topics that were inadequately covered. This book adds to the suite of texts available to educators. However, I feel that this text is in similar company with Hunter (2001), and not nearly as in-depth or complete as Meffe and Carroll (1997) or Primack (2002). Beyond academic circles, I doubt this book will have much appeal to groups such as naturalists. As this book is written as a course text, the nonacademic reader will find the writing style and content unfulfilling.

STEVEN J. COOKE

Centre for Applied Conservation Research, Department of Forest Sciences, University of British Columbia, 2424 Main Mall, Vancouver, British Columbia, V6T 1Z4, Canada

Ecological Basis for Stand Management: A Summary and Synthesis of Ecological Responses to Wildfire and Harvesting in Boreal Forests

Edited by S. J. Song. 2002. Alberta Research Council Inc., Vegreville, Alberta, Canada. 329 pages.

It appears that this book is supposed to be an attempt to reverse the notion of that "Albertans who have seen logging practices tend to have a more negative view of the forest industry". This publication is a true mirror of the current state of art of natural resources. Mis-managed fisheries resources lead the way, very closely followed by forestry and other resources. "Harvest rates have risen 4 fold over the last 32 years in Alberta ...", and despite all the glossy statements about sustainability, it's not a secret for any informed conservationist that the global timber demand cannot be sustained any further, and certainly not in Western Canada (as constantly reduced harvest rotation periods show, for instance).

This book is nicely structured into 13 Chapters and has 27 Tables, 30 Figures and 5 Appendices. Each chapter offers a descriptive Text, Highlighted Text Sections, Emphasized Key Findings, Summary Table, Condensed Management Implementations, Future Research Needs and References. Although the book chapters are supposed to provide guidance for forest managers and practitioners, I would say due to the lengthy text (329 pages) managers will not read it, nor would I really recommend them doing so. If this book is supposed to be used as a sole resource to manage Forest Stands in Alberta, I would be really worried. For instance, the biodiversity issue, or rare vascular plants, are not addressed at all; instead White-tailed Deer issues are well covered. Already the book title leaves it undefined "which" boreal forest is meant: the

one in Scandinavia, Russia, Alaska or Canada? I am sure this book is not a global guide how to manage boreal forests world-wide since no Russian references are quoted (but Minnesota's Forest is cited several times). Unfortunately, this is not simply a book by 13 Forest Consultants funded by the Albertan Forest Industry and Government Complex; university-based researchers are involved. Thus, this book seems to represent the current (conservation) state of knowledge on boreal forestry for a large part of North America (a huge and globally important forested land mass). Considering its global importance, the weak guidance provided and the lack of hard facts presented in this book appears pitiful, if not scary.

The overall scheme pursued in this provincial publication is already ambiguous enough: does fire equal harvesting? The answer for this question is, in most chapters: yes, almost. Other paradigms which the authors try to hammer home to the readers are that Residual Tree Retention would usually be good, forest harvest could mimic fires, convergence after 60 years to natural forests would occur, and forest edges older than 25 years hold no edge effect anymore. The authors seem to think that the boreal forest is a relatively simple ecosystem with few players, and thus this book deals mostly just with Aspen and Spruce.

For my taste, this is a big book reporting on imprecise and lacking information. A bigger book does not make automatically for a better book. The reader will not learn about the reasoning why a Riparian buffer zone of 200 m is used in Alberta. The concept of presenting statistical confidence intervals, rather than averages and qualitative information, appears to be foreign

to the producers of this book. Truly quantitative and precise text sections are basically unavailable for most parts, and the extensive use of "could", "may", "perhaps" and "potentially" severely waters down the message to managers. "Persistence of birds" is another one of such soft terms, adding confusion and making sound decisions and even constructive discussions on forest and conservation management difficult. Whoever can define and evaluate such politically loaded terms as "risk" or "...protecting native ecosystem integrity..."? So many investigations of this book deal with resource use vs. availability, but a sound Resource Selection Function implementation is missing throughout the entire book. The book does not present any maps whatsoever, and thus, spatial ecology considerations (an entire ecological dimension) are missing, too. Even basic topics like site index and elevation gradients are not elaborated on. Although the book is centered on forest "stands", ecologically there is no such a thing like a "stand" and it's hard to agree on what constitutes one.

Ornithologists will find the Chapter on Birds (usually a key species group of global interest to naturalists and conservations) weak, e.g. when it comes to bird abundances and communities; although, the forest edge section is generally an interesting read. It's incredible indeed that the bird chapter does not mention neotropical wintering grounds as being important for birds in the boreal forest. The issue of bird densities (absolute densities) comes up several times, but I feel that most of the mentioned bird surveys just deal with a relative index of abundance instead (an entirely different concept, and statistically less powerful). I found the management statements relating to birds really confusing. Simply reading the extensively cited publications by Hobson and Schieck (1999) and Schieck and Hobson (2000) will provide most of the information for this chapter. The assumption that bird abundance would equal nesting success is not further addressed. A potential strategy to manage bird communities is outlined, but the authors themselves call it "best guess" which still would need to be tested in an adaptive management framework. I am unclear why such things should be helpful to forest managers unless one wants to build forest management on best guesses, rather than sound science. The views of First Nations are not presented.

On the good side, the summary of the Mammal Chapter is quite readable, and the summarizing tables at the end of most chapters can be informative for managers. The choice to include a Chapter dealing with 22 non-vascular species such as moss and lichen is fantastic indeed! So is the chapter on the effects of wildfire on forest soil properties. This publication is also great in summarizing literature of various topics on boreal forests covered in the 13 Chapters. Besides the many Canadian and international peer-reviewed publications cited, this book must present the ultimate pool of not-peer-reviewed grey literature publications for the boreal forest.

Sometimes when reading the text, one is not sure whether to laugh or to cry about statements made in the book such as "Less common species often disappear", "Residual patches incorporate old-growth structure into cutblocks", "Many plants survive harvesting", or "As patch size increased, bird communities became less dominated by open country species and more dominated by forest species". Rightly so, the book states "An area proposed to be harvested cannot be 'sacrificed' with the justification that other suitable habitat remains in the landscape".

The book indicates that the occurrences of exotic species in boreal forests are linked to human activities and traffic. The ambiguity that forests are managed based on the natural disturbance paradigm mimicking burned conditions in cutblocks are very obvious, e.g. when it comes to mammalian abundance and diversity. As this book shows, even basic information on bats in the boreal forest is missing, and can only be speculated upon (thus, a sound and sustainable forestry recognizing bats is basically impossible).

Another Canadian forestry classic is the presented strategy and so often referred to as "Coarse Filter Approach". My concern comes in that this is simply a nice sounding excuse for poor and low-cost data and research, but then in the political forum it can suddenly be interpreted in detail and however managers and politicians see fit.

Among conservation circles it is highly debated whether first rotation forests really return to a virgin state (as stated by the authors). I am still puzzled whether Forest Fires are complementary or additive to the ongoing forest harvest, rather than just complementary (as suggested in this book).

The decision not to address the ecological implications of a vast range and combination of silviculture techniques is unfortunate and reduces the relevance of this report. At least, the importance of nitrogen is described as a major factor affecting forest productivity. Three major stages of forest success are elaborated on. Interesting statements are provided on what shaped the public attitude towards forest edges.

This publication is likely meant to be an Alberta forestry flagship publication and thus its support by Alberta Research Council, Alberta-Pacific Forest Industries Inc., Manning Diversified Forest Products Ltd., Alberta Sustainable Resource Development, Ainsworth and Northern Rivers Ecosystem Initiative. However, considering that many Forest Companies in Canada are owned and directly influenced by foreign countries (e.g. U.S., Japan, Norway and also European Markets), the reader is advised to inquire what is to be found behind such company terms, e.g. in regards to international ownership, governmental efforts and subsidies. In the introduction to the book, the authors even admit that the topics presented are limited by concerns of funding partners!? Such a funding scheme and its implications are classic concerns and ones which are so heavily criticized in the public nowa-

days: the political complex of federal and provincial governments, global industry and industry-close NGOs drives the agenda. On a global scale, and as this book shows, the citizen is more and more delivered to the corporate world, without any relevant input. The request made in this book that the public needs to be involved in public land decision-making is already clearly contradicted by the fact that none of its relevant research; or GIS-data are freely available; e.g., as a database for download on the WWW.

Overall, this book is a great reflection on what provincial governments and industry in Alberta can achieve, and what they can not. Smaller typos and wrong references may be forgiven. One may ask the question: who may benefit from this book, who buys it? The original price of over 100 CAN\$ for this book was

fortunately soon dropped towards a free PDF download. However, as the authors state, "The clearcut generally presents a strong negative image, that is not only perceived as 'ugly' but has also come to symbolize a host of negative traits including a lack of respect for nature, destruction of biodiversity, and ecological integrity, corporate control, and lack of public participation in land use decisions". This book fails to change this situation.

FALK HUETTMANN

Geography Department, University of Calgary, Calgary, Alberta T2N 1N4 Canada

Present address: Biology and Wildlife Department, University of Alaska, Fairbanks, Alaska 99775-7000 USA.

Forest Dynamics and Disturbance Regimes: Studies from Temperate Evergreen-Deciduous Forests

By Lee E. Frelich. 2002. Cambridge University Press, Cambridge, UK. 266 pages.

Disturbance is ubiquitous in forest ecosystems. Forested landscapes are best viewed as an integration of climatic, biotic, edaphic and geomorphic processes that determine the character of disturbance events occurring over a wide range of temporal and spatial scales. Disturbed by the extremes of either catastrophic, stand-replacing events that may include fire, insect outbreaks, and extensive windthrow, or periodic, small-scale gap processes mediated by fungal pathogens, forests are in constant flux when viewed from a landscape perspective. Such a wide range in the periodicity, intensity and scale of disturbance events, and the diversity of bio-edaphic interactions creates a complex, fluid, heterogeneous landscape.

Lee Frelich, founder and director of the University of Minnesota Center for Hardwood Ecology, introduces the reader to the significant disturbances that have shaped, and continue to shape, the hemlock-hardwood forests of the northern regions of the Lake States (Minnesota, Wisconsin, and Michigan). For the past two decades Dr. Frelich has dedicated himself to understanding the stand- and forest-level dynamics of these deciduous-to-boreal transition forests. He forms part of a long tradition of university and government (United States Forest Service) forest ecology research, much of which is scattered in scientific journals and government reports. *Forest Dynamics and Disturbance Regimes* provides for the first time, in an engaging, well-illustrated, and synthetic format, the fruit of this rich research legacy.

"Under what conditions do forests change or stay the same?" Thus might one summarize the intent of this book. Introductory chapters set the scene by describing the Great Lakes temperate forests and their disturbance regimes dominated by fire, wind, insect outbreaks and mammalian herbivory. Of significance

to the practicing forest ecologist will be the chapter on sampling and interpretative techniques used to detect and interpret forest disturbance regimes. Emphasis is placed on the use of tree radial increment patterns as a valuable source of insight into stand disturbance history.

Frelich emphasizes the critical role played by disturbance in both stand development and forest succession. He properly distinguishes between stand development and succession, both of which are often confused in the literature. Disturbance will always initiate a new cycle of stand development in the regenerating, post-disturbance forest. However, disturbance may or may not initiate a species change or a new successional sequence.

Consideration is also given to the differing effects of disturbance on both the stand- and landscape-level. This distinction is important, especially given the wide temporal and spatial scales at which disturbances may occur. Furthermore, instability on the stand level may be interpreted as stability on the landscape level. Interpretation often depends on the scale of investigation.

A particular strength of this work is Frelich's ability to engage the complex interaction of different disturbances. Frelich not only introduces the wide diversity of temporal and spatial patterns of forest change, but even more importantly, highlights often counter-intuitive insights into forest change and continuity. I found the following particularly noteworthy: (1) the nonlinear response of forest species composition to disturbance severity, (2) the cause and development of patchy hardwood-softwood mosaics, (3) clarifying taxonomy of the concept of old-growth, (4) how different forest types can exist on relatively homogeneous sites, and (5) the multiple successional pathways open to any particular forest type. Frelich's final chapter summarizes the notion of forest stability. It provides conceptual mod-