

Book Review:

Ecosystem Management: Applications for Sustainable Forest and Wildlife Resources

(Mark S. Boyce and Alan W. Haney, Editors)

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TRAIN WRECKS IN THE WOODS

Ecosystem Management: Applications for Sustainable Forest and Wildlife Resources. Mark S. Boyce and Alan Haney, eds. Yale University Press, New Haven, CT, 1997. 361 pp., illus. \$19.95 (ISBN 0-300-07858-7 paper).

Ecological Management: Applications for Sustainable Forest and Wildlife Resources explores the science and deci-

sion-making necessary to administer public forest lands under the emergent paradigm of ecosystem management. Ecosystem management has often been touted as an approach to avoid the metaphorical "train wrecks" in implementing ecological policy. In the 1990s, the major federal land management agencies publicly embraced ecosystem management as the preferred paradigm for managing the lands entrusted to them. Ecosystem management was espoused most enthusiastically for managing the national forests.

Proponents of implementing the ecosystem management paradigm for the national forests asserted that the previously accepted management paradigms, especially multiple use management, were tilted inappropriately toward commodity production (e.g., timber, cattle, and minerals) and had not given sufficient emphasis to non-commodity outputs (e.g., recreational uses and water supplies) or to issues of ecological protection (e.g., species preservation, biological diversity, ecological integrity, nature reserves). Proponents also argued that ecosystem management would better reflect societal priorities for national forests than prior management paradigms had done.

Although many people embraced the ecosystem management paradigm for the national forests, for the past 10 years there has been an ongoing discussion over exactly what is meant by "ecosystem management." Indeed, there continues to be a wide range of opinion amid much bewilderment about the meaning and implications of such terms as ecosystem health, ecological integrity, sustainability, and biological diversity. Opinions range from, at one extreme, the view that ecosystem management is nothing more than politically correct wording for the traditional natural resources management paradigm applied to public forest lands, to, at the other extreme, the view that ecosystem management is the vanguard of a revolution in the way all forests will be managed, regardless of ownership. In part, ecosystem management is a vague concept because some formulations em-

brace implicit value judgments, many of which are controversial.

The philosophical foundations, scientific assertions, and policy implications of ecosystem management have been evaluated in several recent books. Other books, including this one, have bypassed most arguments over values, philosophy, policy assumptions, and management goals, instead concentrating on what should be done "on the ground" to implement ecosystem management. Indeed, beyond a few generalities, *Ecosystem Management: Applications for Sustainable Forest and Wildlife Resources* scarcely refers to the role society plays, or should play, in defining the goals for managing national forests or in clarifying how conflicting societal values and preferences are to be reconciled.

The stated purpose of this book is to present concrete, technical prescriptions for implementing the key elements of ecosystem management. It attempts to answer the question: "How can ecosystem management achieve a balance between the need to produce commodities and sustain biological diversity and the desire for such amenities as recreation and aesthetics?" Inherent throughout the book is the tenet that restoring and sustaining biological diversity should be accepted as a core and preeminent management objective.

Ecosystem Management: Applications for Sustainable Forest and Wildlife Resources is the result of a symposium held at the University of Wisconsin-Stevens Point in 1994. Its 16 chapters were each written by experts in their fields, most of them employed by the US Forest Service or university natural resource programs. Each chapter is written as an independent document, but they are arranged so as to give the book as a whole a logical organization.

The first group of chapters (2–8) deals with understanding ecosystems and the ecological framework of forests. Topics covered include the principles of landscape ecology, the idea of keystone ecosystems at landscape scales, the role and importance of rare species, nutrient cycling, the function of riparian zones (especially

their relationship to wildlife), and wetlands. The middle chapters (9–11) cover classification (especially national-scale frameworks for ecological classification), the use of geographic information systems and remote sensing, and the principles and procedures of population viability analysis, particularly its use in evaluating the status of populations and species at risk.

The last chapters (12–15) address the practical challenge of implementing ecosystem management. Two chapters make the case that ecosystem management is fundamentally equivalent to protection and restoration of ecosystems; one chapter considers how timber might be harvested in a way compatible with the objectives of ecosystem management; and another chapter evaluates the options for invoking environmental legislation to protect aquatic diversity.

A final summary chapter (16), by Norman Christensen, is particularly effective. Christensen points out that, based on the policy statements issued by the 19 federal agencies and departments that have adopted ecosystem management, many decision-makers view a shift to ecosystem management as a true revolution in land management practice. He then adeptly summarizes the main points articulated by proponents of ecosystem management and concludes that implementation is limited more by social, political, and economic systems than by a lack of scientific data. He speculates—insightfully, I think—that the train wreck in managing our public forest lands is the deterioration of public confidence in the institutions charged with that responsibility rather than specific ecological problems.

The major weakness of the book is its lack of attention to how land managers are to evaluate and select the tradeoffs between competing societal wants. Forest managers are caught in a "no-man's land" among, for example, those who expect national forests to be a source of timber, those who envision forests continuing to provide skiing, those who want forests to provide wilderness recreational experiences,

and those who view forested lands as providing water supplies for growing urban areas. Coupled with the escalating human population, soaring urbanization, and increased affluence, the demands on public forest lands—timber, skiing, grazing, hunting, minerals, roads, species protection, wilderness, water, and many others—are not easily reconcilable. Regardless of the management paradigm being promulgated, "managing" requires balancing competing and changing societal values, preferences, and expectations—and the book would be better if more attention had been given to this aspect of management.

Nevertheless, *Ecosystem Management: Applications for Sustainable Forest and Wildlife Resources* is a useful contribution to efforts to understand ecosystem management, especially the current issues surrounding the management of public forest lands. The writing and content would be appropriate for advanced undergraduates or graduate students in natural resource disciplines as well as for practicing scientists or land managers. The book's main limitation is its constrained focus on the science and tools that are available for implementing ecosystem management, coupled with the correspondingly scant attention to how conflicts over societal values and preferences are to be adjudicated in managing national forests.

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