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BOOK REVIEWS

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The World's Water 2008–2009: the Biennial Report on Freshwater Resources

EDITED BY PETER H. GLEICK, HEATHER COOLEY, MICHAEL J. COHEN, MARI MORIKAWA, JASON MORRISON AND MEENA PALANIAPPAN

xvii + 402 pp., 27.5 × 21.5 × 2 cm, ISBN 10: 1 59276 505 5 paperback, US$ 35.00, Washington DC, USA: Island Press, 2009

This is Volume 6 in a biennially-produced series, commencing in 1998, which aims to provide an up-to-date source of information on the freshwater resources of the planet, together with analyses of current issues associated with the conservation and utilization of the world's freshwater systems. As in previous volumes, the book has three sections. The first comprises a series of six papers on major current issues related to freshwater resources. Amongst these are a discussion of the 'peak water' concept, an examination of progress towards meeting the UN Millennium Development Goals for water, and a study of water-related issues in China. The second section comprises a set of four 'Water Briefs' on individual issues (for example, the problems of the Salton Sea in California; and the Three Gorges Dam project on the Yangtze River in China). Finally there is a comprehensive data section, providing statistics and information (usually on a country/ regional basis) on 20 topics ranging from 'total renewable freshwater supply, by country', through 'OECD water tariffs', to 'African dams: number and total reservoir capacity'.

The series is primarily aimed at providing a reference and current analysis of relevant issues, for professionals working on water resources in government agencies, non-governmental organizations and research institutes. In this it succeeds. The data section alone is of enormous value in collating international information which would otherwise be difficult to get hold of, while the articles in the other two sections are interesting, well-written and well-referenced (including sources derived from a range of media) discussions of important issues and trends in water resource management. These issues are of rapidly growing importance: as the Foreword correctly points out 'humanity is living at the mercy of the water cycle. . .' and the problem of the growing scarcity of freshwater resources is not one which will simply go away.

The book is well-produced, in a clear and easily-read typeface. It uses Figures, Tables and Boxes very appropriately. I noticed no typographical errors. The index is comprehensive. A useful feature is the listing of contents of previous volumes in the series.

The price of the paperback version is very reasonable, and it is worth pointing out that the publisher, Island Press, is a non-profit organization whose purpose is to publish books on environmental issues and natural resource management.

As a freshwater ecologist working in both temperate and tropical river systems, I personally found the wealth of data provided in this book extremely useful. I had not previously come across the series, but I shall certainly be making use of the resources which it provides from now on. I strongly recommend it as an indispensable reference work both for people working on freshwater resource management, and also for researchers like myself, interested in the ecology of freshwater systems.

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Old Growth in a New World. A Pacific Northwest Icon Reexamined

EDITED BY THOMAS A. SPIES AND SALLY L. DUNCAN

xiii + 344 pp., 23 × 15 × 2 cm, ISBN 978 1 59726 410 5 paperback, US$ 32.00, Washington, DC, USA: Island Press, 2009

Definitely a must-read for all concerned with forest conservation and sustainable forest management, this book has value for environmentalists, scientists, forest managers, policy makers, lawyers and judges, students and practitioners alike. While it describes the conflicts over 'old growth' (OG) forests in Washington, Oregon and northern California (PNW), there are important lessons to be learned for forest policy and practice, conservation strategies and forest science in other areas.

OG is now as much a political and social as a biophysical concept. People with different world views and values reach different conclusions about OG, and this diversity is part of what the book is about. The senior editor is one of the major champions of the description and communication of the ecology and environmental values of these OG forests, and for a credible science basis for conservation and management of this forest condition.

Part I presents a review of the values and conservation policies in these forests, and their evolution over the last two decades. Part II explores ideas about OG and our relationship to it, and how these have evolved from biophysical beginnings to a dominantly social and philosophical issue. Included are: the science of OG, fish and wildlife habitat issues, biodiversity of OG and managed forests, economic values and the elevation of OG to sacred status. Part III documents how people relate to OG and how these relationships have affected current policy, a classic example of clashing ideas about human interactions with the 'natural' world. Papers are presented from two local environmentalists, a private forest owner and state policy advisor, a forest industry representative, a nature writer and philosopher, and an academic dealing with conflict resolution. Part IV provides a history of conservation initiatives gone wrong, and how it is increasingly difficult to manage these OG forests to achieve conservation and economic objectives; it provides a history of unforeseen and undesirable outcomes of conservation efforts. Other chapters examine barriers to the application of adaptive management and problems posed by uncertainty.

Part V considers the application of biophysical and social sciences, and how management at the stand level, a major focus of the OG debate, needs to be melded with landscape management. Chapters consider economically-viable biodiversity strategies for forest owners; management of reserves in both wet west-side forest and dry-eastside PNW forests; stand-level silvicultural techniques to promote OG conditions; landscape mosaics of different management objectives; and the unfortunate bifurcation of forest management

into intensive fibre-producing plantations versus OG reserves, rather than a mosaic of stand development and seal stages. The need to manage landscapes for timber and a diversity of tradable environmental services and non-timber products emphasizes the need for ecosystem management (all values managed in a dynamic interacting ecosystem) rather than ecosystem-based management in which each value is managed based on its known ecology without adequate consideration of the whole ecosystem and value tradeoffs.

Part VI provides a synthesis of the themes that emerge from the individual chapters and asks if there is any convergence amongst those from different disciplines, and with different philosophies and worldviews. Is it possible to extract from the diversity of opinions some new ways of thinking about conservation of older forests that could lead to more effective policy and management?

Ecological scientists in the PNW have witnessed the transition of their science from an important ecological sub-discipline to the subject of litigation, political process and public protest. A major characteristic of the ecology of forests is their complexity in time and space. In contrast, society and its legal and political processes are poorly equipped to deal with such complexity; simplification is generally the rule. The OG debate is simplified to contrasts between short rotation monoculture timber plantations and some 'ideal' concept of OG; in reality there is a continuum of variation. Science is similarly poorly equipped, and 'jigsaw-puzzle' science has contributed to the 'jigsaw puzzle' policy that is described in the book as 'broken'. If this book does nothing else, it demonstrates that the initial overly-simplified approach to OG conservation in the PNW has been unsuccessful, that this issue, like most others, is inevitably evolving to reflect our steadily improving understanding of the OG stage of dynamic, disturbance-driven forests in this part of the world, and that to be successful in the long run conservation policy and practice must reflect a balance between biophysical realities and changing social values. It must recognize temporal as well as spatial diversity; all forests, even OG, are continually undergoing change.

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River Futures: an Integrative Scientific Approach to River Repair

EDITED BY GARY J. BRIERLEY AND KIRSTY A. FRYIRS

304 pp., ISBN 10: 1 59726 113 0 paperback, US$ 40.00,
Washington, DC, USA: Island Press, 2008

This thought-provoking book deals with the scientific, management and societal challenges involved in restoring and rehabilitating riverine and associated habitats that have been degraded by river engineering and other human activities in catchments. It targets science students in river-related environmental sciences, river managers and consultants, resource managers and environmentalists.

The authors deal with difficult subject matter well, in a clearly presented and argued way that should be very accessible to the wide readership intended. The practice of river restoration and rehabilitation is at a critical point in its development, which has been eloquently captured. A strong case is made for fundamental change in the way scientists and managers approach the planning and implementation of practical measures, and sound guidance is given on how that change can be brought about.

Importantly, the authors have shown deep insight into the many barriers to sound and successful river restoration and rehabilitation, and have formulated their approach to address these barriers directly. The integrated evaluation of scientific, management and societal issues is vital if we are to move river restoration from its current small-scale, opportunistic, interventionist and structure-based perspective to a philosophy based on catchment-scale restoration of natural riverine processes achieved over long timescales. As an ecologist working in a statutory agency and heavily involved in developing and implementing strategic restoration plans for rivers with special designations for wildlife, I found the analyses of institutional barriers to change to be very accurate. Many of the solutions advocated strike a chord with my own conclusions and ways of working.

I do have a couple of reservations over the key messages of the book, listed in the preface. The first is the way in which the authors seek to balance environmental and societal objectives from the outset of the planning process. A challenging ecologically-based vision, which asks searching valid questions of the way in which society uses and values rivers and riparian land, is more likely to generate innovative thinking, changed attitudes to river management and ultimately a better deal for riverine wildlife. A willingness to modify that vision based on valid societal constraints provides the means by which a balance can be struck that takes river restoration as far as it can go. The second reservation concerns the message that we must have a future focus for river 'rehabilitation', not a focus on past conditions (i.e. restoration to some former state). After reading the book I am not convinced this captures the essence of what the authors are saying. The two messages on this issue that I distilled from the book are that: (1) it is necessary to understand the evolution of the river channel to understand how to fix it (i.e. it is important to look back to look forward); and (2) that we should adopt the 'art of the possible' in seeking to restore as much geomorphological and ecological functionality as we can, working within those societal constraints that cannot be removed.

Presentationally, the book is attractive, well printed and with clear and well-thought out schematics that aid understanding of the concepts being advocated. The text is carefully considered, with very few typographical errors, and is well-referenced with both classic and up-to-date references.

The many terms used are clearly (if not always conventionally) defined. Although the book is described in the preface as using minimal jargon, some of the language is unnecessarily obscure. For instance, in the twelve commitments on action and behaviour listed in Chapter 3, the first commitment is to the use of clear language, whilst the eighth and tenth commitments urge readers to be 'myrioramic' and 'contumaceous' (although to be fair these terms are subsequently explained).

I would strongly recommend all those with an interest in river restoration to read this book from cover to cover I am particularly pleased that the authors place final-year undergraduate and post-graduate scientists across a range of disciplines at the top of their list of intended readers. The barriers to inter-disciplinary working, both within scientific specialisms and between these specialisms and the management and stakeholder communities, are severe. Whilst we can strive to change the mindsets of the current generation involved