

Book Reviews

Ecology, 86(10), 2005, pp. 2841–2842
© 2005 by the Ecological Society of America

CONSERVATION: A BALANCE. INTRODUCTION AND FRAMEWORK FOR INNOVATION

Mulder, Monique Borgerhoff, and Peter Coppelillo. 2005. **Conservation: linking ecology, economics, and culture.** Princeton University Press, Princeton, New Jersey. xx + 347 p. \$79.50 (cloth), ISBN: 0-691-04979-3 (alk. paper); \$39.50 (paper), ISBN: 0-691-04980-7 (alk. paper).

Key words: biodiversity conservation; conservation strategies; indigenous peoples; multi-disciplinary solutions; protected area.

With increasing consensus that erosion of biodiversity is one of the most critical challenges that we face in the coming years, sorting out the gamut of conservation tools and motivations, along with the evolution of the science itself, is more important than ever if the coming generation of conservationists is to conceive viable compromises and solutions. The long-standing debates on definitions of key terms (e.g., biodiversity), conservation strategies and philosophies, and criteria by which to evaluate conservation efforts have stimulated interesting if divisive dialogue, along with oscillations in the dominant conservation approaches. With most of the literature on conservation applications falling in the “people first” or “nature first” camps, however, bridging the divide can be difficult at best. I found this book to be effective in doing just that. With its balanced perspective, it is, indeed, a celebrated addition to the library of conservation literature.

The purpose of this text is to provide an even-handed introduction to the lingo, concepts, tools, and debates in conservation for beginning students and general readers. I would also suggest it as a perfect text for interdisciplinary research teams and practitioners as a means of ensuring requisite exposure to opposing viewpoints, literature, and case studies from broad geographic regions. In 11 bite-sized but pithy chapters, complemented by an astoundingly extensive and multi-disciplinary bibliography, this anthropologist and ecologist duo offer a thought-provoking and clarifying read for anyone interested in conservation. Although later material in this book is somewhat predicated on earlier discussions, the book need not be read in order, if used for a course or discussion group structured by a different sequence of topics.

This book addresses the history, science, and tools of conserving biodiversity, with respect to genes, species and ecosystems. The authors tacitly acknowledge that defining key terms differently (e.g., including cultural diversity as part of biodiversity) would have changed the writing of this book significantly. One of the key points made in this text, however, is that conservation cannot be everything to everyone and, as such, it is important to define clearly conservation terminology, targets, and goals, whatever they may be. The nature of this text demonstrates commitment to this end by focusing on conservation issues related to natural renewable resources, primarily in the developing world at the protected area/people interface. I found this well-defined scope to be

both a strength and shortcoming of the text, as will be touched on below.

The first of four perceived conceptual units in the book (Chapters 1 and 2) examines the trajectory of conservation from protectionist-style preservation to utilitarian-style resource management in the late 1800s, to the broader conservation goals of the 1960s, to the “new conservation” of the 1990s that sought to better integrate community development and economic goals in the conservation process. At this time, the focus of conservation shifted from the developed to the developing world. The next unit lays the natural science (Chapter 3) and social science (Chapter 4) foundations necessary for understanding the challenges of conservation. Chapter 4 hosts an interesting discussion of traditional ecological knowledge (TEK). In particular, they note the pattern of high levels of geographically coincident cultural and biological diversity and what it means for conservation and the fate of indigenous peoples. The point is well made that TEK has the authority to question Western resource management approaches but that, given its local genesis and focus, TEK not single-handedly a tool for managing broader environmental changes (e.g., climate change). The legacy of the ecologically noble savage is briefly discussed, nicely setting up the context for a point hammered on in the latter chapters of the book: the goals and means of conservation are best kept separate. The authors are wise in stressing that there is no “correct” way to go about conservation and that, in the end, it always comes down to ethical choices.

In the third unit of the book, the authors examine various scales of resource use relevant to any conservation discussion, from the foraging individual in a horticulturist group (Chapter 5), to local institutions that manage common pool resources (Chapter 6), to broader historical, transnational, and global contexts whose courses influence all aspects of conservation (Chapters 7–9). The behavioral ecology and evolutionary perspective on self-interest foragers as related to conservation is an interesting contribution for an introductory text and a vital one given that, ultimately, all conservation is about self-restraint. The authors highlight in Chapter 6 that research over the last 30+ years has demonstrated local management of common-pool resources is far more complex and oftentimes more effective than “the tragedy of the commons” would have it and conservationists best study carefully such institutions. Common property regimes are usually evolved for the management of a focal resource and may lack national legal recognition. Such institutions can make great conservation partners though, if tweaked to fit wider objectives.

The broader context introduced in Chapter 7 draws on a political ecology framework to examine ultimate forces driving the loss of biodiversity, as opposed to the more proximate drivers considered thus far. I welcomed this dose of complexity. Despite the fact that in Chapters 8 and 9, the authors consider increasing integration of indigenous peoples into international conservation efforts, the marketing of green

products, and the monetary valuation of natural capital through payments for environmental services, I do not feel they adequately elaborate on the implications of the geographic disconnect between threats in this global context and endangered biodiversity in the developing world (the focus of this book). By narrowing their discussions predominantly to indigenous peoples at the parks/people interface in developing nations, the authors have effectively covered the relevant material from an “on the ground, at biodiversity hotspots” perspective. However, this limited scope of the book hampers the authors in effectively discussing one of the gravest threats to the conservation of biodiversity everywhere: consumption of natural resources by those in the developed world and cascading problems like climate change.

The final unit is truly the book’s greatest strength. In contrast to the often-repeated doom and gloom forecasts or overly optimistic silver-bullet solutions, this unit presents an enlightening overview and objective critique of specific conservation strategies from protectionism to integrated conservation and development projects (Chapter 10). The emphasis is on combining elements of different conservation tools to best fit a given context. Finally, in Chapter 11, the authors graphically present a means of devising innovative solutions by conceptualizing the degree of management centralization

as a continuous axis orthogonal to a given protected area’s concept (a continuum of preservation versus utilitarian). New readers, and seasoned professionals alike, should find this conceptual tool useful in thinking beyond traditional management and protected area concept associations (e.g., centralized management with strict protectionism).

Ultimately, the players in conservation are many and varied. By realizing that each conservation action and approach has its tradeoffs, this book emphasizes that choices should be made consciously and strategically. By the end of this book, the unacquainted will have learned a tremendous deal from the accumulated conservation experience to date. In providing such a toolset whereby the next generation of conservationists can begin conceiving complementary strategies and alternative solutions, the authors have made a valuable contribution to the conservation of biodiversity.

AMY E. DANIELS

*University of Florida
School of Natural Resources and Environment
P.O. Box 117315
Gainesville, Florida 32611
E-mail: adaniels@ufl.edu*

Ecology, 86(10), 2005, pp. 2842–2843
© 2005 by the Ecological Society of America

CAN MAINE’S WILD ATLANTIC SALMON BE RESTORED?

National Research Council. 2004. **Atlantic salmon in Maine**. The National Academies Press, Washington, D.C. xxvi + 275 p. \$45.00, ISBN:0-309-09135-7.

Key words: Atlantic salmon; endangered species; Maine; restoration.

The Atlantic salmon seems to instill a sense of bewilderment in many people because it symbolizes the wild majesty of a past era. At the same time, the species’ disappearance in many river systems in Europe and North America is used as a barometer for assessing environmental degradation and human impacts. The problem is particularly acute in New England, and especially Maine, where salmon once occurred in the hundreds of thousands but now may number <1000 wild adults. So serious is the situation that Atlantic salmon was listed as a federally endangered species in 2000. That action, and the subsequent controversy over the listing, led the U.S. Congress to enlist the advice of the National Research Council to form a committee to review the science relevant to understanding the decline of Atlantic salmon in Maine, and to suggest strategies for restoration. This book, team written by an impressive collection of international scientists, responds to that goal.

At under 200 pages (plus references and appendices), the book is easy to read, concise, and logically organized. The

first two chapters provide a background to the problem for Atlantic salmon in Maine, describe the process leading to the listing of the Atlantic salmon in the eight DPS (distinct population segment) rivers and the goals of the committee. A brief description of the complex life history and ecology of Atlantic salmon with special emphasis on the environmental conditions in Maine’s rivers is also provided. The tables and figures are informative, especially the maps denoting the location of the rivers, although I would have liked to see a map showing details of the Maine coastline (e.g., banks, currents, local migration patterns) to which reference was often made. Collectively, the introductory chapters provide a sobering assessment of the many factors that have contributed to the decline in salmon numbers in Maine in particular, and the north Atlantic in general.

Chapter 3, “Threats to Atlantic salmon in Maine,” is one of two key chapters in the book. Here, the committee ranks the many threats using a risk analysis model. Threats as diverse as climate change, marine survival, acidification, predation, competition (including from non-native brown trout and smallmouth bass), forestry, and aquaculture are given brief but adequate treatment. Dams, of which there are hundreds in Maine’s rivers, are identified as a major threat to salmon restoration in the state. There is room for optimism here as agreements have recently been struck to remove dams on the Penobscot and Kennebec Rivers. The history of hatcheries and extensive stocking efforts are also reviewed. The

committee sagely advises that any future role of hatcheries in restoration efforts should be carefully assessed for its effectiveness (e.g., by comparing relative survival of smolt versus fry stocking, and by assessing the number of adult returns that contribute to the next generation of salmon).

Chapter 4 is probably the book's most innovative chapter in that the committee uses risk assessment and decision analysis models to quantify the relative threats to salmon restoration (described in the previous chapter) and to suggest how management decisions can be made that consider scientific, technical, political and socio-economic factors. The committee admits to not "hav[ing] a magic solution" to the problems faced by Atlantic salmon in Maine (or elsewhere). Rather, they offer a framework for evaluating management options and establishing priorities. Based on this analysis, obstruction to fish passage (dams) is the human-caused factor most affecting salmon mortality, followed by hatcheries, fisheries, and aquaculture. Even more impressive, the authors provide two hypothetical examples that clearly demonstrate the value of the decision analysis approach to addressing the important risks. Unlike many books that provide exhaustive accounts of population declines and causal factors, this chapter (together with the list of recommendations in the final chapter) offers a realistic approach, with various options, to taking action and potentially resolving a complex environmental problem.

My main criticism is that, when exploring the individual threats in Chapter 5, the threat of dams was hardly addressed as it pertains to the various rivers in Maine despite its ranking as the major threat to future salmon restoration (previous chapter). Rather, the threat of hatcheries and problems associated with indiscriminate stocking practices are thoroughly examined. The committee goes on to make sound recommendations that the future role of Maine hatcheries should involve gene banking and a program evaluation by comparing stocked and unstocked rivers, including non-DPS rivers like the Penobscot which the committee correctly recognizes as key to any future restoration effort. The imbalance of detail

and focus on hatchery issues may simply reflect the interests of many of the committee members.

The final chapter nicely rounds out the committee's efforts by providing a useful list and prioritization of recommendations for restoring Atlantic salmon in Maine. The inclusion of appendices is a useful addition to the book. These provide detail for the reader interested in specifics of the Endangered Species Act and a summary of the respective roles and responsibilities of the various agencies and organizations involved in decision-making (governance).

This is not a particularly attractive book, and lacks the color illustrations and numerous informative figures and photographs found in Ed Baum's wonderful book on the status and history of the salmon of Maine (1997. *Maine Atlantic salmon: a national treasure*. Atlantic Salmon Unlimited, Harmon, Maine). Rather, it is a "bare bones," dry but thorough, scientific treatment of a complex problem. I was impressed with the breadth of the information and the effort to provide constructive recommendations through quantitative analysis and realistic modeling approaches. Theirs was a daunting task given the complex nature of the species' biology and the various threats and competing interests and regulatory bodies. In my opinion, the committee succeeded in meeting its goal. They have produced a book that will be useful as a reference text for readers interested in the myriad of factors that contribute to a species' decline, as well as for resource managers seeking realistic scientific approaches to hopefully rebuild what Ed Baum astutely described as a "national treasure."

RICHARD A. CUNJAK

*Canadian Rivers Institute
Department of Biology and Faculty of Forestry and
Environmental Management
10 Bailey Drive
University of New Brunswick
Fredericton, New Brunswick E3B 5A3
CANADA
E-mail: cunjak@unb.ca*

Submit books and monographs for review to the Book Review Editor, Janet Lanza, Biology Department, University of Arkansas at Little Rock, Little Rock, Arkansas 72204 (telephone (501) 569-3500).

We welcome offers to review books for *Ecology*, but we cannot accept an offer to review a *specific* book. Anyone who wishes to review books for *Ecology* should send a current *curriculum vitae*, a description of competencies, and a statement of reviewing interests to the Book Review Editor. Authors of reviews must verify that they have no conflict of interest that might interfere with their objectivity, and that they have not offered (and will not offer) a review of the same book to another journal.

Spotlight

RECENT PUBLICATIONS OF PARTICULAR INTEREST

Platt, Harold L. 2005. **Shock cities: the environmental transformation and reform of Manchester and Chicago.** The University of Chicago Press, Chicago, Illinois. xvi + 628 p. \$49.00, £34.50, ISBN:0-226-67076-7 (alk. paper). This book focuses on the environmental changes in Chicago (U.S.) and Manchester (U.K.) as the cities first became industrialized and also as they reformed their environmental policies. The topics include air, water, and soil pollution, as well public health, environmental justice, and class and gender politics.

Thornton, Vera, AND Bob Thornton. 2005. **Chasing neotropical birds.** The Corrie Herring Hooks Series. Number 61. University of Texas Press, Austin, Texas. xiii + 240 p. \$34.95, ISBN:0-292-70589-1 (alk. paper). Read this book if you want to see spectacular color photographs of neotropical birds and read personal accounts of tracking down these birds. There are over 100 photos, taken in more than 11 countries in Central and South America.

BOOKS AND MONOGRAPHS RECEIVED THROUGH MAY 2005

- Barrett, Brendan F. D., editor. 2005. **Ecological modernization and Japan.** Routledge, New York. xxi + 214 p. \$65.00, ISBN: 0-415-35166-9.
- Bowler, Peter J., and Iwan Rhys Morus. 2005. **Making modern science: a historical survey.** The University of Chicago Press, Chicago, Illinois. viii + 529 p. \$65.00 (cloth), ISBN: 0-226-06860-9 (alk. paper); \$25.00 (paper), ISBN: 0-226-06861-7 (alk. paper).
- Bradbrook, Adrian J., Rosemary Lyster, Richard L. Ottinger, and Wang Xi, editors. 2005. **The law of energy for sustainable development.** IUCN Academy of Environmental Law Research Studies. Cambridge University Press, New York. xi + 618 p. \$120.00, ISBN: 0-521-84525-4.
- Broadley, Martin R., and Philip J. White, editors. 2005. **Plant nutritional genomics.** Biological Sciences Series. CRC Press, Boca Raton, Florida. xviii + 321 p. \$169.95, ISBN: 0-8493-2362-2.
- Burgman, Mark. 2005. **Risks and decisions for conservation and environmental management.** Ecology, Biodiversity, and Conservation. Cambridge University Press, New York. xii + 488 p. \$120.00 (cloth), ISBN: 0-521-83534-8 (alk. paper); \$60.00 (paper), ISBN: 0-521-54301-0 (alk. paper).
- Cox, John D. 2005. **Climate crash: abrupt climate change and what it means for our future.** Joseph Henry Press, Washington, D.C. 215 p. \$27.95, \$37.95 (Canada), ISBN: 0-309-09312-0.
- Dale, Virginia H., Frederick J. Swanson, and Charles M. Crisafulli, editors. 2005. **Ecological responses to the 1980 eruption of Mount St. Helens.** Springer, New York. xx + 342 p. \$89.95, ISBN: 0-387-23868-9 (acid-free paper).
- Evens, Jules, and Ian Tait. 2005. **Introduction to California birdlife.** California Natural History Guide Series. Number 83. University of California Press, Los Angeles, California. xi + 382 p. \$45.00 (cloth), ISBN: 0-520-23861-3 (alk. paper); \$16.95 (paper), ISBN: 0-520-24254-8 (alk. paper).
- Fleming, Andrew J., editor. 2005. **Intercellular communication in plants.** Annual Plant Reviews. Volume 16. CRC Press, Boca Raton, Florida. xiv + 280 p. \$169.95, ISBN: 0-8493-2363-0.
- Fortin, Marie-Josée, and Mark R. T. Dale. 2005. **Spatial analysis: a guide for ecologists.** Cambridge University Press, New York. xiii + 365 p. \$110.00 (cloth), ISBN: 0-521-80434-5; \$55.00 (paper), ISBN: 0-521-00973-1.
- Greenberg, Russell, and Peter P. Marra, editors. 2005. **Birds of two worlds: the ecology and evolution of migration.** The Johns Hopkins University Press, Baltimore, Maryland. xxiii + 466 p. \$110.00, ISBN: 0-8018-8107-2 (alk. paper).
- Hanski, Ilkka. 2005. **The shrinking world: ecological consequences of habitat loss.** Excellence in Ecology 14. International Ecology Institute, Oldendorf/Luhe, Germany. xxvii + 307 p. €47.00, ISSN: 0932-2205 (acid-free paper).
- Huisman, Jef, Hans C. P. Matthijs, and Petra M. Visser, editors. 2005. **Harmful cyanobacteria.** Aquatic Ecology Series. Volume 3. Springer, Dordrecht, The Netherlands. xiii + 241 p. \$65.00, ISBN: 1-4020-3009-6 (acid-free paper).
- Janick, Jules, editor. 2005. **Plant breeding reviews.** Volume 25. Wiley and Sons, Hoboken, New Jersey. ix + 344 p. \$199.00, ISBN: 0-471-66693-9 (alk. paper).
- Lehman, Roy L., Ruth O'Brien, and Tammy White. 2005. **Plants of the Texas Coastal Bend.** Gulf Coast Studies. Number 7. Texas A&M University Press, College Station, Texas. 352 p. + CD-ROM. \$40.00, ISBN: 1-58544-408-1 (alk. paper).
- Mitchell, Alanna. 2004. **Dancing at the Dead Sea: tracking the world's environmental hotspots.** The University of Chicago Press, Chicago, Illinois. 239 p. \$25.00, £17.50, ISBN: 0-226-53200-3 (alk. paper).
- Neumann, Roderick P. 2005. **Making political ecology.** Human Geography in the Making. Oxford University Press, New York. x + 213 p. \$35.00, ISBN: 0-340-80939-6.
- New, Tim R. 2005. **Invertebrate conservation and agricultural ecosystems.** Ecology, Biodiversity, and Conservation. Cambridge University Press, New York. xii + 354 p. \$120.00 (cloth), ISBN: 0-521-82503-2; \$60.00 (paper), ISBN: 0-521-53201-9.
- Platt, Harold L. 2005. **Shock cities: the environmental transformation and reform of Manchester and Chicago.** The University of Chicago Press, Chicago, Illinois. xvi + 628 p. \$49.00, £34.50, ISBN: 0-226-67076-7 (alk. paper).
- Thompson, John N. 2005. **The geographic mosaic of coevolution.** The University of Chicago Press, Chicago, Illinois. xii + 443 p. \$75.00 (cloth), ISBN: 0-226-79761-9

- (alk. paper); \$28.00 (paper), ISBN: 0-226-79762-7 (alk. paper).
- Thornton, Vera, and Bob Thornton. 2005. **Chasing neotropical birds**. The Corrie Herring Hooks Series. Number 61. University of Texas Press, Austin, Texas. xiii + 240 p. \$34.95, ISBN: 0-292-70589-1 (alk. paper).
- Warner, Sara. 2005. **Down to the waterline: boundaries, nature, and the law in Florida**. The University of Georgia Press, Athens, Georgia. xiv + 266 p. \$44.95, ISBN: 0-8203-2703-4 (alk. paper).
- Weins, John A., and Michael R. Moss, editors. 2005. **Issues and perspectives in landscape ecology**. Cambridge Studies in Landscape Ecology. Cambridge University Press, New York. xiv + 390 p. \$130.00 (cloth), ISBN: 0-521-83053-2; \$65.00 (paper), ISBN: 0-521-53754-1.
- Weising, Kurt, Hilde Nybom, Kirsten Wolff, and Günter Kahl. 2005. **DNA fingerprinting in plants: principles, methods, and applications**. Second edition. CRC Press, Boca Raton, Florida. 444 p. \$99.95, ISBN: 0-8493-1488-7 (alk. paper).
- Wielgolaski, Frans E., editor. 2005. **Plant ecology, herbivory, and human impact in Nordic mountain birch forests**. Ecological Studies. Volume 180. Springer, New York. xxiv + 365 p. + CD-ROM. \$139.00, ISBN: 3-540-22909-4 (acid-free paper).

ERRATUM

In the recent paper by Isabel Reche, Elvira Pulido-Villena, Rafael Morales-Baquero, and Emilio O. Casamayor, "Does ecosystem size determine aquatic bacterial richness?" *Ecology* **86**(7):1715–1722, the equation given for the regression line in Fig. 2A (on p. 1719) is incorrect. The correct equation is as follows:

$$\log_{10}BR = 0.30 + 0.161(\log_{10}LA).$$