

BOOK REVIEWS

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The Lakes Handbook Volume 2, Lake Restoration and Rehabilitation

EDITED BY PATRICK O'SULLIVAN AND COLIN S. REYNOLDS

viii + 560 pp., 25 × 19.5 × 4 cm, ISBN 0 632 04795 X hardback, GB£ 125.00/US\$ 195.00, Oxford, UK: Blackwell Science Ltd, 2005

This book is well organized and contains a wealth of information on lake restoration and rehabilitation. There are separate parts or subsections dealing with 'General Issues', 'Regional Studies', 'Human Impact on Specific-lake Types', 'Lake and Catchment Models' and some 'Legal Frameworks' involved in lake management. Each of these subsections contains chapters written by numerous contributing authors from around the world. Although there is some unevenness in the quality of writing, for the most part this is an excellent book and addresses its title very well.

The first part on 'General Issues', one chapter by P.E. O'Sullivan and another by W. Ripl and K.-D. Wolter, establishes a background as to the value (difficult to quantify) of lakes and describes some assaults (continuing as human populations grow) on lakes.

The second part on 'Regional Studies' will be likely to appeal to many who have followed with interest some of the changes noted in a variety of lakes of the world over the years. This subsection of seven chapters summarizes some specific lake histories and, for me, was one of the more interesting parts of the book because it updates and expands knowledge about some familiar lakes. For example, M.S. Evans provides a nice overview of some historical chemical and biological (algae, benthos, fish) changes in the five Great Lakes of North America and some other large lakes in Canada. In still another repeat of the Lake Washington story, W.T. Edmondson shows (when long-term support is provided) the value and insights gained from nearly four decades of monitoring one lake. H. Simola and L. Arvola do an impressive job of providing an overview of lakes in northern Europe (Norway, Sweden, Finland, and the nearby Russian regions). It was unsettling to read that concentrations of mercury in pike (*Esox lucius*) are still above levels considered safe for humans in 5000–10 000 Swedish lakes! M.T. Dokull says that most of Europe's alpine lakes (spread from the high to low Alp regions of Switzerland, Italy, Austria and the Bavarian plateau of southern Germany) are monomictic or warm-dimictic types. L.G. Butorina reviews the cases of Lake Baikal, the Aral Sea, and Lake Balkhash. The Aral Sea appears to have been one of the worst ecosystem disasters in the world. Indeed, the massive degradation of the Aral Sea shows what happens when politicians ignore scientific advice. Is there an unlearned lesson here for other countries? There are some errors in Table 7.1 and the text of Butorina, in that the transparency (m) values for Baikal are incorrect. Additionally, the salinities given for the Aral Sea in Table 7.1 are lower than referenced in the text. The last two chapters of this subsection, one by the late W.D. Williams describing the temporary and unpredictable nature of lakes in arid environments, and the other by J.M. Melack highlighting the large number of ecologically important floodplain lakes (mostly tropical, such as along the Amazon River, and subtropical) are both valuable contributions.

The next part on 'Human Impact on Specific Lake types' has three chapters. One chapter by G.I. Phillips and another by P.L. Osborne remind us that the degradation of lakes by eutrophication is 'lake-blind' (my term), in other words non-discriminatory. Shallow temperate, shallow tropical and most categories of lakes are degraded by excess nutrients. As one who spent an interesting post-doctoral fellowship reviewing literature on eutrophication and interviewing scientists from around the world, I am more inclined to attribute a lake's resilience to eutrophication as a function of nutrient loading and retention time, not simply its shallowness. The third chapter in this subsection, by the late M. Straskraba (completed by the book's authors from a draft provided before Straskraba's death in July 2000) summarizes information about the huge numbers of reservoirs around the world. The proximity of most reservoirs to human population centres makes them of great economic importance and creates the need for managers to learn the specific details about each reservoir system. There is no one-size-fits-all approach to management.

The fourth part of the book has seven chapters dealing with 'Lake and Catchment Models'. Twelve authors contributed to this subsection and, among other things, provided some practical approaches to predicting nutrient loads, modelling lakes and reservoirs, reversing eutrophication, biomanipulating lakes (more failures than successes) and restoring acidified lakes (mostly through liming at intervals of ~2.5 hydrological turnovers). Scientists, engineers and lake managers alike will find this subsection important reading. H.M. Wilson (chapter 13) in this subsection raises a special tribute to R.A. Vollenweider (1968) for his early but workable estimate for phosphorus losses from animal waste of 1–5% (translated to 3%) for modellers. Two points worth remembering by modellers were made by S.-E. Jorgensen (chapter 15). These points were that; (1) modelling may need to trade off learning much about little or little about much, and that (2) the collection of data is the most costly (80–90%) part of the total modelling effort.

The last part on 'Legal Frameworks' has four chapters that provide some of the legal background that underpins attempts at lake restoration and rehabilitation. Examples are given from the USA (Clean Water Act), Finland and Sweden (various Water Acts), and east Africa (Environmental Action Plans) and South Africa (Acts involving Lakes Areas Development, Environmental Conservation, National Parks, Water and Forests). In east Africa, low budgets and the 'lack of political will to implement management policies and measures', are limiting effectiveness. In South Africa, the many 'Acts' appear to have generated confusion between water laws and environmental laws.

There is no easy way to summarize this fine book. However, there are two take-home thoughts. One is that the restoration of anthropogenically altered lakes to a pre-settlement or original condition is unrealistic. The other is in the form of a question posed to me by a colleague many years ago, namely why is it that we can spend so much money and effort trying to restore a lake . . . but can't spend a much smaller amount to protect it in the first place?

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The Politics of Air Pollution. Urban Growth, Ecological Modernization, and Symbolic Inclusion

BY GEORGE A. GONZALEZ

viii + 144 pp., 23.5 × 15.5 × 1.5 cm, ISBN 0 7914 6335 4 hardback, US\$ 55.00, New York, USA: State University of New York Press, 2005

Air pollution politics in the USA has received surprisingly little attention by the scholarly community in the last 40 years, if book-length treatments of the subject are any indication. The USA's Clean Air Act of 1970 (along with its amendments and further state regulations) costs private industry at least US\$ 8–10 billion per year and occupies a sizable portion of state legislative as well as congressional agendas each year. The few classics (Charles O. Jones' *Clean Air*, Ackerman and Hassler's *Clean Coal/Dirty Air*, R. Shep Melnick's *Regulation and the Courts*) still offer very useful insights, but are long out of date; thus, Gonzalez's *The Politics of Air Pollution* is all the more timely and welcome.

Gonzalez devotes his short volume to a provocative argument, namely that we can best understand clean air politics and regulation in the USA as the work of '... economic interests that monetarily benefit from local economic and population growth, and, subsequently, increasing land values as well as an expanding consumer base' (p. 35). In essence, Gonzalez refutes the notion that air quality regulations arise from a pluralist struggle between health advocates and manufacturers; instead, the 'urban growth machine' across the country was mobilized to clean up urban air as a way of guaranteeing continued sprawl and escalating land values.

To support his arguments, Gonzalez sets for himself the task of recreating local urban air pollution politics from the late 19th century to the present. After a first chapter briefly describing the motives and mechanisms of local growth coalitions, Gonzalez devotes a second chapter to articulating an economic elite model that can best explain government responses to air pollution. His third chapter recounts a fascinating history of anti-smoke politics in the 19th century (for example against coal and locomotives) that he uses to show how local elites failed to impose technology-based air pollution controls on industry prior to World War II. Moving into the postwar period, Gonzalez shows how doomed trolleys and light rail were in most cities in the USA unable to meet the needs of increasingly far-flung cities and suburbs. Indeed, he attributes the 'rise of the automobile' to collusion between local government, developers, road builders and the auto industry; a story that has been told before, but that Gonzalez reprises here quite well. Los Angeles,

its smog, growth and transportation politics serve as the subject of his fourth chapter, which principally argues that local elites promoted automobile emissions controls in large part to prevent the public from mobilizing around health aspects of smog (and thereby possibly imposing more radical solutions than tailpipe standards).

Gonzalez succeeds best when he argues the logic of his position; the evidence to support his provocative points is weaker. Throughout the book, he draws on existing scholarship and a small handful of interviews to show that end-of-pipe emissions controls were good for urban growth and served to placate public concerns about air pollution. Gonzalez discredits environmental organizations for advocating a weak programme of ecological (industrial) modernization rather than '... challenging the prerogatives of capitalists to invest when and where they wanted...' (p. 49). Undeniably, American environmental policy largely addresses the mitigation of environmental damage after it has happened; 'pollution prevention', 'source reduction' and energy efficiency improvements are almost always voluntary and unevenly distributed throughout the American economy.

But significant political efforts to challenge growth and the very nature of industrial production do occur widely throughout the USA; consider the many anti-sprawl organizations active today. The fact that their successes are few demonstrates just how difficult it is to succeed with the more radical agenda Gonzalez advocates. Gonzalez suggests that '... the environmental lobbying community should exit the polity and join with their rebellious brethren in civil society... in this way, those resources currently deployed lobbying officials within government could be more fruitfully directed at educating the public' (p. 102). Such a serious recommendation should be accompanied by a persuasive account of how an oppositional, radical, education-based strategy has or could work.

Despite these evidentiary issues, Gonzalez's beautifully-written volume introduces readers to an urban history that they would not find elsewhere. Students, historians, environmentalists and air quality regulators will all find a wealth of information, presented in an accessible and thought-provoking monograph.

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Earth System Analysis for Sustainability

EDITED BY HANS JOACHIM SCHELLHUBER, PAUL J. CRUTZEN, WILLIAM C. CLARK, MARTIN CLAUSEN AND HERMAN HELD

xiv + 454 pp., 51 figs., 23.5 × 15.5 × 2.7 cm, ISBN 0 262 19513 5 hardback, GB£ 24.95/US\$ 38.00, Cambridge, MA, USA: The MIT Press, 2004

As indicated by its title, this book is the result of a bold endeavour undertaken by the 91st Dahlem Workshop. Held in May 2003, this workshop focused on understanding global change and the dynamics of life since its inception on Earth in order to derive principles for global sustainable management. The Dahlem Workshops were

created in Germany to foster interdisciplinary communication, identify knowledge gaps, and expand current understanding.

An introductory chapter lays the groundwork, presents an overview of the workshop's results and proposes research questions for Earth system science. Contributions of the 40 participants are synthesized in 19 chapters organized around four themes.

Chapters 2–6 offer an overview of the coevolution of biosphere and geosphere. Contributors discuss conditions necessary for the appearance of life and review current understanding of the interactions between the environment and the biosphere. Chapter 5 is especially enjoyable; after examining theories of migration of life in the cosmos, the authors assess the destiny of humanity from the point of view of astrobiology, which studies the origin, the evolution and the future of life in the cosmos.

The next four chapters focus on climate variability during the Quaternary. Scientists currently believe that climate variability is mostly due to a combination of orbital forcing with internal feedbacks involving ice sheets and biogeochemical cycles. Although many questions remain unanswered, the existence of strong nonlinearities and positive feedback loops in the Earth system are widely acknowledged. Paleoclimatic evidence also points to the possibility of catastrophic climate changes.

In the third section, the book examines how humans have affected the Earth system. A first overview covers the last million years and the second focuses on the last two centuries; they are followed by a forward look at global climate change. Contributors stress the uniqueness of the current situation and highlight the spatial dimensions of human impacts. They also review the current capabilities and limitations of Earth system modelling.

The last four chapters inquire as to how to incorporate sustainability in scientific research agendas, highlight the need to broaden stakeholder participation, and recommend better scientific communication. Contributors also emphasize the value of a broad diversity of knowledge, the need for technology transfers, and the importance of institutions. They recommend adaptive management before offering final recommendations.

This edited book is rightly targeting a wide audience, from Earth system scientists to policymakers. Despite the remarkably varied backgrounds of its contributors, it should be widely accessible, even though several chapters rely excessively on specialized vocabulary; a glossary of key technical terms would have alleviated this difficulty. Also missing are a table of figures and a table of tables.

The main weakness of this book is shared by many writings on sustainability: this term is used extensively, but not defined in a way useful for crafting policies. In the first and last chapters, sustainability is defined by reference to Agenda 21. The only other attempt at defining sustainability appears in Chapter 11, which states that sustainability is achieved when '... the local time rate of change for all resources used by all organisms in the ecosystem is zero'. This definition ignores that the Earth system is an open, constantly evolving system, even without human interaction. I would argue that the challenges of sustainability lie at the interfaces between nature and the economic system, so a dialogue on sustainability should also include economists and ethicists. Too little space is devoted to the limitations of cost-benefit analysis, discounting, or intergenerational equity. The difficulty of getting different disciplines to communicate, however, is reflected in chapter 19, where the authors seem to doubt the possibility of a scientific understanding of the Earth system, in sharp contrast with the scientists who collaborated in this volume. Finally, some policy proposals seem naïve, including the suggestion that changes in the tax code could cure urban sprawl (p. 224).

In spite of these limitations, this book takes a huge step in the right direction by enhancing the reader's understanding of the Earth system. This tremendously useful work should be read by physical and social scientists alike, as well as by policymakers.

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Getting Biodiversity Projects to Work. Towards More Effective Conservation and Development

EDITED BY THOMAS O. MCSHANE AND MICHAEL P. WELLS

xviii + 422 pp., 22.5 × 25 × 2.5 cm, ISBN 0 231 12765 0 paperback, US\$ 42.50, New York, USA/Chichester, UK: Columbia University Press, 2004

The information-gathering phases of global biological conservation continue to improve in their rigor and effectiveness, but the best tools of science will never suffice in a world of increasing demands on natural resources. The 26 contributors to this edited volume have taken on the complex implementation phases of conservation, that is, the 'people' problems. This book began as a workshop held at Columbia University in October 2000, to review progress in implementing integrated conservation and development projects (ICDPs). Its focus is on interactions between protected areas and those who live in and around them, primarily in tropical and subtropical biodiversity hotspots inhabited by rural poor. After a decade or more of testing the ICDP model under many different circumstances, the authors (from 10 countries) describe opportunities lost and lessons learned. As a treatise on how to develop a worst-case ICDP, those lessons might be summarized as follows.

First, develop an elaborate, highly optimistic plan from afar, designed to satisfy the hopes of international donor agencies for rapid, win-win resolution to conflicts among people, wildlife conservation and forest resources. Second, assume that the local community members associated with parks and preserves form homogeneous, conservation-minded, highly integrated coalitions that share benefits freely and equally. Third, rather than identify specific, scientifically measurable conservation targets, with incentives tailored to reach them, assume that any infusion of resources and expertise will lead to positive conservation outcomes. Fourth, ignore the physical, cultural and social landscape, and focus instead on local ecosystems. The list could (and does) go on, but the book is far more than a litany of well-intentioned mistakes. It is a critical analysis of the state of many of our better attempts to build ecologically sustainable communities and institutions.

The introductory chapters provide excellent background, with clear and forthright critiques of the assumptions and expectations behind the ICDP concept. Section two, entitled 'Applications and issues', is the heart of the book. Ten of its chapters are case studies that delve into specific projects or summarize the broader experiences of particular organizations, including many international agencies and NGOs (CARE, Conservation International, IUCN, UN Global Environment Facility, World Bank and WWF). Every chapter is

rich in fascinating details, far too diverse to summarize here. The contributors have done their homework at ground level, absorbing more than their share of disappointments, but they overcome temptations to gloss them over in the name of good donor relations. Authors from donor institutions are equally frank. For example, in chapter 6, Agnes Kiss of the World Bank estimates that US\$ 4 billion was spent in direct payments for 226 ICDP-related projects over 10 years without much apparent success in either the conservation or development realm.

Whether and how to remove and relocate people from conservation areas is a running theme. We are reminded that violence and forced relocations marked the beginnings of world-renowned Yellowstone and other national parks in the USA. However, in many of the contemporary cases here, ethical norms and ancestral rights clearly limit resettlement options; furthermore, empowerment of indigenous peoples may lead to better forest protection, at least under certain circumstances.

Despite a plethora of difficulties encountered to date, none of the authors seems willing to suggest that conservation and rural economic improvement are separable. Most people in Asia and Africa are rural poor who directly depend on forests, and many of those forests are also globally precious. And yet, even successful conservation has its price, as seen in once-remote Yellowstone Park, now surrounded by large numbers of new residents seeking the benefits of its scenic environs.

In a brief, concluding chapter, the editors are joined by others in laying out a future agenda that includes adaptive management, large-scale assessments and clear estimates of unavoidable tradeoffs. McShane and Wells have done a commendable job of keeping the chapters balanced, thematically coherent, and not overly repetitious. A few illustrations suffer from conversion from colour to grey scale, while others have formatting problems that should have been corrected, but the majority of figures and tables are clear and informative. Another minor point: many chapters are replete with acronyms (I count over 70 in the index, from ACG to ZOPP), each referring to a particular project, organization, concept or stratagem, and I think a glossary would have helped.

Who should read this book? Anyone interested in the future of global biodiversity conservation should get a copy and make sure to pass it around.

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Key Issues for Mountain Areas

EDITED BY MARTIN F. PRICE, LIBOR JANSKY AND
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xiv + 273 pp., 8 figs., 23.5 × 15.5 × 1.5 cm, ISBN 92 808 1102 9
 paperback, US\$ 32.00, Tokyo, Japan/New York, USA: United
 Nations University Press, 2004

Mountains are discrete biophysical and sociocultural entities that require inherently different scientific, management and policy approaches than lowland areas. A plethora of international meetings and books during the past decade has followed on the heels

of Chapter 13 of Agenda 21 (Managing Fragile Ecosystems, Sustainable Mountain Development) adopted at the United Nations Conference on Environment and Development in 1992. *Key Issues for Mountain Areas* is another step forward for the international 'mountain movement', which has staked its territory as a collection of interdisciplinary specialists and interest groups.

The book consists of 11 chapters, each by different authors, focused on various aspects of sustainable mountain development and biological and cultural resource stewardship. The writing is scholarly and is appropriate for academicians, graduate students, and technically astute resource managers and decision makers. While previous books have focused primarily on scientific data and articulation of issues and information gaps, this volume has a much stronger focus on problem solving. As a result, it makes a unique contribution to the mountain literature.

Key Issues is ambitious in its coverage. Chapters focus on sustainability, natural resources, infrastructure, legal considerations, economics, tourism, political systems, internal and external relations, policies and institutions. This is a mixed blessing, because while the information is authoritative, the prose tends to be dense and there is little prioritization of issues within or among chapters. But if you have the patience to read through all the chapters, you will have a much better understanding of mountain biosocial systems in a global context.

Compensation to mountain communities for services provided to society is a theme that runs throughout the book. Mountains provide a wide range of services, including water, wood, agricultural products, biological diversity and recreational opportunities. Responsible stewardship of resources by mountain peoples is indeed valuable, and several chapter authors make compelling arguments for how compensation will enhance mountain communities and ecosystems, as well as provide linkages to downstream communities and systems. The need for policies and approaches that respect mountain cultures and protect resources is also a prominent theme.

The best features of the book are the information-packed case studies from mountain areas throughout the world. These are real eye-openers that describe situations and problem-solving approaches outside mainstream Western perspectives. The chapter on national policies and institutions for sustainable mountain development (chapter 9) by Villeneuve *et al.* is excellent. It is filled with thought-provoking discussion about alternative policy approaches that would benefit mountain areas, and emphasizes that successful implementation of policy requires supportive institutional capacity. This chapter takes information from preceding chapters and proposes governmental action, a must-read for anyone interested in policy and decision making in mountain areas.

On the whole, the book is well organized with a minimum of editorial problems, but it also has a few disappointments. Redundancy among chapters is common, which allows the chapters to stand alone (for example as course readings) but inhibits integration within the volume. There is little mention of North American mountain areas, although one could argue that these areas already have enough attention in the literature. Human population control is not mentioned and, although this may be a political lightning rod, it must be addressed assertively in the context of sustainability. Finally, additional figures and photos would have added a lot of visual interest to the book.

The editors have done an admirable job of capturing the diverse ideas of international experts in *Key Issues for Mountain Areas*. The title is too humble, because the book also conveys a comprehensive list of solutions to issues in sustainable mountain development. Now we need to prioritize those solutions and implement them through

effective policy and leadership, a challenging next step and perhaps a good topic for another book.

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Conservation. Linking Ecology, Economics, and Culture

BY MONIQUE BORGERHOFF MULDER AND PETER COPPOLILLO

xx + 347 pp., 23 × 17.5 × 1.75 cm, ISBN 0 691 04980 7 paperback,
 GB£ 26.95, Princeton, NJ, USA/Woodstock, UK: Princeton
 University Press, 2005

In substantial detail, this broad volume explores ecological, economic, cultural, anthropological, philosophical and political perspectives on conservation, sketches their differences, and depicts how the differences are resolved (or not) on the ground in particular instances. A series of 64 large boxes exemplifies the issues and outcomes with well-chosen international examples of conservation problems and initiatives. The authors, an anthropologist and ecologist respectively, have done a remarkable job of marshalling facts, figures and insights to produce what is perhaps the most comprehensive treatment to date of the difficulties in actually practising conservation. The scope and erudition are impressive, and the writing is clear.

Several themes run throughout the book. Foremost is that 'conservation' means different things to different people, with a chief dichotomy between biocentrists who wish to save biodiversity at all levels and anthropocentrists who see humans and their cultures not only as part of the diversity to be preserved but the central part, to be saved even at cost to other components. Another axis, not completely orthogonal, runs from protectionism, the philosophy that nature should be protected from humans and preserved for its own inherent worth, to utilitarianism, the notion that nature is to be saved principally as a source of human wealth and welfare. The third key axis relates to the location of conservation activity and authority, from centralized control at a national level through regional control to devolved local control. The authors depict the strengths and weaknesses of the endpoints of these various gradients by describing the history of thinking on these topics, as informed by particular cases. This book thus serves, incidentally, as a concise history of conservation. Among the strengths for an ecologist is a 1000-entry bibliography with many citations from social sciences, such as anthropology, sociology, economics and policy science, that are highly relevant to conservation, rarely if ever cited in environmental conservation literature, and show the depth of the divide separating natural scientists from social scientists on fundamental conservation issues.

In the course of this exposition, the book describes various approaches that monopolized conservation efforts for a period, then waned as overarching principles when they failed in one or more cases, including sustainable development, community-based conservation, integrated conservation and development, and ecotourism. The key take-home message is that none of them was a 'silver bullet' that would solve all problems, though many had limited success in particular instances. The authors' detailed explorations of cases in which each failed are among the most instructive aspects of this work. For instance, it is received wisdom in many circles that local

peasants and especially indigenous peoples, when empowered, are the best protectors of biodiversity, but counter-examples are numerous: the Chipko movement in Uttar Pradesh and the cooption of Alaskan natives by pulp companies. In other instances, local control has served conservation well, such as the activities against logging by Dayaks on Borneo and by Kayapó in Brazil. Borgerhoff Mulder and Coppolillo parse such cases to determine not whether the entire approach works or does not work, but rather what the circumstances are in which it is most likely to be effective.

A concluding chapter, 'Red flags: still seeing things in black and white', articulates the take-home message, that no one philosophy is 'correct', no single strategy works all the time and most approaches contribute to effective solutions in at least some circumstances. However, the authors are not blindly ecumenical, criticizing some ideas heavily and expressing optimism about others that they would like to see more widely applied. Chief among the latter are direct payments and co-management. Direct payments are seen as an often effective pre-emptive strike against commercial interests that sooner or later subvert many initially promising conservation projects. In developed nations, easements fall in this category, but there are many other possibilities. The authors describe several versions of paying for concessions to certain rights, like logging, and they contend that this approach, though not without dangers, generally excels integrated conservation and development schemes. With respect to co-management, they argue that power-sharing between national and local levels is often a powerful blend between the strengths of national and communal property regimes, with local autonomy legitimized by the state. Kakadu National Park in Australia serves as an example of both the difficulties of making such an arrangement work and its effectiveness when parties persist in the attempt.

Anyone interested in conservation, at any level of expertise and from any perspective, will learn a lot from this book. It is also an excellent sourcebook for all of conservation science.

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Marine Protected Areas for Whales, Dolphins and Porpoises: a World Handbook for Cetacean Habitat Conservation

BY ERICH HOYT

xx + 492 pp., 11 colour & 30 black & white figs., 235 × 155 × 27 mm,
 ISBN 1 84407 064 6 paperback, US\$ 39.95/UK£ 24.95, London,
 UK: Earthscan Publications, 2005

Erich Hoyt is a master at compilation. As a result of his meticulous slog, we have a comprehensive understanding of how the whale-watching industry went through its meteoric rise to become the US\$1 billion global business it is today. He has now turned his attention to the issue of marine protected areas (MPAs) for cetaceans (whales, dolphins and porpoises). In the process, he has produced this book; a definitive inventory of all the protected areas, extant or proposed that have relevance to cetaceans across the globe.

The book is divided into five chapters bracketed by an introduction and epilogue. The first four chapters deal with the history, thinking behind, political background and managerial processes of cetacean MPAs. The real substance of the book, however, is the fifth chapter, which consumes two-thirds of the page count. In it he has broken

up the globe into 18 marine regions, following the IUCN World Commission on Protected Areas scheme, and then described the relevant historical and political background, before going into the detail of each of the cetacean-relevant MPAs or sanctuaries in that area. This is a truly impressive piece of work. It is easy to browse, authoritative and up to date. The chapter is also peppered with maps that clearly illustrate the geographic spread and scale of the different sites. The key strength of Hoyt's work is that he does not just pick examples, instead he presents everything in such a way that you can pick your own examples to form an appreciation of the whole. For me, the number of existing (358) and proposed (176) cetacean-friendly MPA sites was simply staggering.

The other chapters also contain substantial synthesis, particularly on the political background to these designations, and he includes some interesting discussion on the concept of MPAs in the high seas. Hoyt is clearly a keen advocate of the protected areas concept and his optimism is infectious. I can see why the approach has many attractive features for managers, interest groups and marine resource users. However, as we rush headlong into the production of hundreds of these designations (with associated focus groups, education schemes, policing plans and so on), we must not lose sight of the central issue: do they actually work? Or more specifically, do they, on balance, improve the population status of cetaceans sufficiently over other conservation tools to warrant the resources that they consume? Hoyt's book does not answer this question and, to be fair, it is perhaps too early to be conclusive, but this issue, above all others, should be central to the debate.

I am very glad that Hoyt took up the challenge of putting this book together. It is the definitive reference of the current extent of cetacean ecosystems-based-management and something I can see myself returning to on a regular basis over the next few years. It should also be of value to professionals and students with interests in wider marine management issues. However, readers would do well to complement this text with others that consider the difficulties in identifying critical habitats and in evaluating the metrics of success.

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Soils: Genesis and Geomorphology

BY RANDALL SCHAETZL AND SHARON ANDERSON

xiii + 817 pp., 25×19×4 cm, ISBN 0 521 81209 1 hardback,
 GB£ 45.00, Cambridge, UK: Cambridge University Press, 2005

This is a big book in size, concept and ideas. This text, intended for students with some grounding in natural science, introduces and then develops understanding and insight into the science of soil in wonderful fashion. In addition, the book also considers the interaction between soil and landscape in both temporal and spatial contexts. The book is lavishly illustrated, with an extensive reference list providing the student reader with a ready gateway into the research literature. A large glossary of terms associated with both soils and geomorphology is also a welcome addition to the book.

The book has three sections, namely the building blocks of the soil (158 pp.), soil genesis from parent material to soil (295 pp.) and soil geomorphology (190 pp.). Each section is often approached in quite fresh and new ways, and I also liked the way the history and characters of the subject itself are developed. My limited points of concern are that the book is rather USA orientated, the illustrations, although excellent in content, vary hugely in quality of reproduction and the same can also be said for the photographs, which seems such a shame for a book that in all other respects has been so thoughtfully and skilfully put together.

My final point is that for a book looking in some respects to the interaction between geomorphology and soils, soil erosion is not extensively considered. However, with all this said, there is absolutely no doubt this book is one of great quality and a more than welcome addition to the academic communities of both soil science and geomorphology.

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