

Resilience Thinking: Sustaining Ecosystems and People in a Changing World by B. Walker and D. Salt (2006), xvi + 174 pp., Island Press, Washington, DC, USA. ISBN 1597260932 (pbk), GBP 17.50.

I have never before responded to reading a book by buying two copies to send to my college-age children. I did so with this book. As a long standing bystander and fan of the group of people working on resilience (they even have a team name: the Resilience Alliance) I have always bemoaned the fact that they had created a secret language that was very difficult to understand unless you were on the team. Despite the opaqueness of their writings, what they were saying seemed very important to me and seemed that it would be important to others. But how to convince others of this as they would never work through the resilience-speak? This book provides a way.

For those of you who haven't been watching the comings and goings of Team Resilience, for over a decade a group of social and natural scientists have been working on a view of environmental management substantially different from the one humans have been using since the time of the agricultural revolution. Instead of thinking of management as an optimization problem they point out that ecological and human systems are dynamic, with structural and functional components continually changing over time. Social and ecological systems are linked with shocks and changes rippling across scales, across states, and across both systems, operating through a linked set of thresholds and adaptive cycles. In isolating a single resource type (both goods and services) and creating management regimes designed to optimize harvest of this single resource, we have made a mess of the world.

In this short paperback (174 pages), attractively and simply laid out, Brian Walker, one of the star players of the Resilience Alliance, has worked with David Salt, an environmental journalist, to provide readers with a translation of the group's dense academic work into guidance for people interested in applying their principles in the real world. It contains five case study chapters ranging from the vast wetlands of the Everglades, USA, through a semi-urban area of southern Sweden to the dairy farming region of south-eastern Australia. These are alternated with six chapters outlining the theory and practice of resilience thinking that follow a three step approach. Firstly, laying down a foundation for understanding resilience thinking; secondly, outlining the core of the approach; and thirdly,

addressing how this thinking can be used to help change the world.

This book is a hortatory call to stop humans behaving as they have for millennia, always seeking to control nature and natural resources with 'more control, more intensification, and greater efficiency'. Instead the book offers a primer to a way that creates options rather than limiting them. The authors state that the audience for the book is meant to be very wide, from resource managers, to the public, to students. Does it succeed in meeting the needs of these audiences? As a fan of the general approach I think this book is an excellent step in explaining the approach to the rest of the world but it does not entirely succeed. Much of the complexity of the resilience approach is tough to understand on first encountering it (e.g. adaptive cycles, state variables, and panarchy). There are no easy explanations and although this volume makes heroic efforts, the material is still dense. Finally, the book says it is about 'solutions' but in the end it doesn't solve anything or tell anyone else how to solve something. I think the book is more about problems and how to think about them in more constructive ways than we have in the past. This may be even more important. But despite this I'm still a fan, and hope my children, and many others, will be too. This is very important stuff and worth the work to understand it. This book makes the work much easier.

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Globalization and New Geographies of Conservation edited by K.S. Zimmerer (2006), x + 357 pp., University of Chicago Press, Chicago, USA. ISBN 0226983447 (pbk), USD 35.00/GBP 22.50.

This book intends to examine the increased role of globally organized management institutions, knowledge systems, monitoring and coordinated strategies aimed at issues of resources, energy and conservation. As an edited volume, it covers a wide range of topics, including certification of agriculture in southern Mexico, satellite remote sensing for management and monitoring of certified forestry in the Brazilian Amazon, representation of bee-keeping in the Brazilian Amazon, the role of urban house-lot gardens and agro-diversity linking urban and rural habitats in Santarém, Brazil, multi-level geographies of seed networks in the Andean countries,

the politics of conservation science and development in the Sahel, conservation initiatives and transnationalization in the Mekong River Basin, a transnational perspective on national protected areas and ecoregions in the tropical Andean countries, the historical continuity of conservation goals within Peru's protected areas system (apparently the only topic with an author from the country being discussed, with Lily Rodriguez listed as the junior author), contradictions among conservation, globalization and democratization in the Maya Biosphere Reserve of Guatemala, decentralization, land policy, and politics of scale in Burkina Faso, and the impact of fences on the pastoral lifestyle of Inner Mongolia, China.

The volume clearly is focused on developing countries, implicitly as the victims of globalization rather than beneficiaries. Protected areas receive considerable attention as an international approach to ensuring the conservation of biodiversity in the face of global pressures for resource exploitation. The editor, in both his introductory chapter and concluding chapter, speaks for all of his collaborators, indicating that the book has a unified perspective rather than providing conflicting or at least contrary views on issues that remain highly controversial. But the volume also has numerous references at the end of each chapter, enabling further reading on any controversial topics. Virtually all of the chapters have location maps and other useful illustrations.

Several of the authors seem to take the position that protected areas are imposed by outside interests, even though protected areas invariably are established under national legislation and run by government institutions or local communities. The chapter on the Mekong Basin, for example, excoriates conservation advocates for inserting themselves into social conflicts over water in the basin, ignoring the reality that water decisions are being made far upstream, and that government agencies typically do not have the best interests of the local people in mind when making decisions on major development projects. The international conservation voice is a fairly modest balancing of the global demand for the resources of the Mekong Basin. The author is clearly concerned about the influence of international conservation organizations, even going so far as to claim that IUCN 'will receive a direct payment of USD 65 million from the World Bank. . . in exchange for support of Nam Theun 2' (the latter a dam project). He also claims that freshwater biodiversity of the Mekong has been overlooked, despite the detailed work conducted by Karl Lagler, one of the world's leading experts on freshwater fish when he conducted his research on the Mekong in the early 1970s.

The modern approach of conservation organizations is already following the prescriptions of this book,

namely to recognize that the scales and networks that enable conservation to happen are constantly shifting and require approaches at all scales, from the local community to international environmental conventions. On the other hand, most conservation organizations also recognize the importance of development and ensuring that conservation and development are complementary and ideally mutually reinforcing. After all, virtually all of the landscapes that are now of international conservation interest have been significantly moulded by historical human influences. This book provides a useful perspective from sociology and geography on the complexity of human behaviour at the various scales being considered. It is particularly useful in identifying globalization as a fundamental force in driving land use in virtually all parts of the world. It is less helpful in offering solutions that have a realistic chance of working in the complex world of today's population of over 6 billion consumers.

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Coral Reef Conservation (Conservation Biology Series) edited by Isabelle M. Côté and John D. Reynolds (2006), 568 pp., Cambridge University Press, Cambridge, UK. ISBN 0521671450 (pbk), GBP 38.00.

Coral Reef Conservation skillfully covers the complex issues involved in the protection of one of the world's most threatened habitats. It originated from a Coral Reef Conservation Symposium and Workshop, organized by the editors and sponsored by the Zoological Society of London and the Fisheries Conservation Foundation in 2004. The book has three sections: Setting the Stage, Uses and Abuses: Ecological and Socioeconomic Issues, and The Way Forward.

The four chapters of Setting the Stage present coral reefs from different perspectives. The first, by Wilkinson, is taken largely from his report, *Status of Coral Reefs of the World 2004*, launched during the meeting. It provides a historical and regional review of the status of, and threats and stresses to, coral reefs worldwide, along with recommendations for future action to protect them. Using a palaeoecological approach, Precht & Aronson discuss the plausibility of different explanations (models and hypotheses) for the observed phase shift to macroalgal dominance on Caribbean coral reefs. Well written and thorough, it provides an extensive background on reef dynamics. In the third chapter, Mumby & Harborne offer a seascape-scale perspective, using remote sensing, modeling and processes to show that inter-habitat

relationships among seagrass beds, mangroves, patch reefs and fore reefs are critical for fish communities, and argue convincingly that connected habitats as such need to be protected in unison to conserve their species. Cold water reefs tend to receive relatively little attention when compared to their tropical counterparts, but Corcoran & Hain, in the fourth chapter, provide an informative overview of their status and conservation.

Part two, on Uses and Abuses, examines a wide range of topics from sustainable fisheries, live food and non-food fisheries, to tourism and climate change. McClanahan aptly tackles sustainable reef fisheries and of particular note is the well researched summary (Table 5.1 pp. 150–151) of fish yields as reported in the literature among numerous localities in the Caribbean, Pacific and Indian Oceans. Vincent follows by exploring the use of coral reef wildlife for alternative, non-nutritive, human purposes, including the luxury live food trade. Although the use of marine wildlife for trade may have less impact than other human uses of reef resources, the author shows well that the direct and indirect impacts it has on targeted species and sites and on ecosystem functioning warrants urgent research, conservation and management. The non-extractive use of coral reefs through tourism is often offered as an alternative livelihood for fisher folk, while promoting the protection of coral reefs. Jobbins examines this precarious coexistence with a case study from South Sinai. Lastly, Sheppard addresses the longer term impacts of climate change. Using insightful graphs and schematics, often paired with illustrative photographs, his focus extends beyond bleaching to examine the consequences of coral morality.

With 10 chapters *The Way Forward* is the largest section. It opens with an essay by Côté and colleagues evaluating methods used to integrate existing datasets to assess long-term and large-scale patterns of ecological change, highlighting as such the power of meta-analysis. The next three chapters discuss ways to improve coral reef management. Wells assesses the effectiveness of Marine Protected Areas, with case studies and lessons learned from her work in East Africa. Turner and colleagues cover environmental impact assessments on coral reefs, and advocate the integration of feedback monitoring to allow for reactive management. Spurgeon's chapter calls for second- and third-generation economic approaches to improve coral reef management.

The critical role all stakeholders play in coral reef conservation cannot be understated, and is addressed in the subsequent three chapters. The first (Alcala *et al.*) reviews community-based efforts in the Philippines, and the second (Browning *et al.*) education as a tool for conservation. Brown then looks at the need to compre-

hend the governance system and institutional dynamics for successful conservation. Ways to restore damaged coral reefs are reviewed by Jaap and colleagues, who insist, however, that their work is no substitute for good stewardship. Following on, Roberts and his co-authors call for the development of more strategic regional approaches in the design of marine reserve networks so as to promote resilience to the numerous insults that humans devise. The final chapter by Knowlton is a short overview of coral reef research that stresses the importance of socioeconomics and the need for a better understanding of the abilities for humans to respond to the crises that coral reefs face.

As a coral reef ecologist and conservationist, I strongly recommend this book. The research, reviews and opinions of the 39 authors provide a solid review of the complex issues surrounding the conservation of coral reefs, whilst also exposing the reader to broad, diverse and thought-provoking discussions on the way forward. It allowed me to broaden my scope of understanding in a number of aspects, with the firm feeling that the information provided was fair, authoritative and comprehensive.

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Otters: Ecology, Behaviour and Conservation by Hans Kruuk (2006), 280 pp., Oxford University Press, New York, USA. ISBN 0198565860 (hbk), GBP 60.00; 0198565879 (pbk), GBP 27.50.

The first four chapters of this book present an overview of the ecology of the 13 otter species, their distribution, distinctive features, ecology, evolutionary relationships and habitats. The author reports his vast experience in studies with otters, especially with the Eurasian otter, and whenever possible compares the results with other otter species. To do that, the author traveled around the world visiting otter habitats in Alaska, Thailand, Africa and South America. There is a very good review of the evolution of otters in Chapter 3, which also deals with research and field methods. However, I missed in this section the playback technique, which is giving excellent results with giant otters: it attracts them, thereby permitting researchers to record the gular patches, which can be used to identify individuals and which will probably be similarly successful with other otter species.

There are some typographical errors, including the scientific names of the sea otter on pages 10, 30 and 64 (it should be *Enhydra lutris* and not *Enhydra lutra*) and the elephant seal on page 181 (*Mirounga angustirostris* instead of *Mizounga angustirostris*). However, these do not detract from the work as a whole. When describing

the mating system of the Eurasian otter in chapter 6 the author mentions that this species appears to be polygynous as well as polyandrous. This, in other words, means promiscuity, as polygyny and polyandry together leads to a promiscuous mating system. Another confusion seems to occur on page 81 when describing scent communication amongst otters. It is said that giant otters have interdigital or pedal glands that participate in scent marking. What happens is that, while defecating or urinating, giant otters also liberate scent from the anal and proctodeal glands, spreading everything with their feet. The feet movements may cause the false impression that they possess scent glands on their paws, which to my knowledge have never been described in this species.

Another question is raised when dealing with feeding habits (chapters 7, 8 and 9). The book stresses that Eurasian otters select their prey and that several otter species have been shown to select especially slow, bottom-living fish species rather than fast, pelagic species, noting that this preference probably holds true for all otter species. On the other hand, the author also mentions that otters seem to feed on prey according to their availability. This therefore suggests that otters tend to be opportunistic feeders, at least during some times of the year. Probably what happens is that otters can select their prey when availability is high but feed opportunistically during those periods when prey items are less available. Perhaps more than a preference, otters prey on

certain species according to their catchability, i.e. those prey that suit the otters' hunting ability.

Chapters 10, 11 and 12 deal with thermo-insulation, populations, recruitment, competition, survival and mortality, and present a fantastic review of several aspects of the biology and physiology of otters. However, chapter 11 mentions the black caiman *Melanosuchus niger*, which would 'frequently steal fish from neotropical otters in the Pantanal'. However, there are no black caimans in the Pantanal, and the caimans that could compete with otters there are probably those of the genera *Paleosuchus* or *Caiman*. Chapter 13 presents an excellent synthesis of the subjects from previous chapters, with an emphasis on habitat, foraging and population dynamics. Finally, chapter 14 deals with the anthropogenic actions that influence the conservation of otters.

Overall, I found this book an excellent reference work, providing a great deal of relevant information that will help everyone, from students to researchers, engaged in the study of otters. In particular, several overview chapters provide in depth comparisons and syntheses of otter ecology and conservation. I highly recommend this book.

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