

**Win-Win Ecology. How the Earth's Species Can Survive in the Midst of Human Enterprise** by Michael L. Rosenzweig (2003), xii + 211 pp., Oxford University Press, New York, USA. ISBN 0 19 515604 8 (hbk), \$27.00.

This is a powerful book intended for a wide audience. The message is compelling: extinction rates can only be arrested by reconciling activities in production landscapes (farms, suburbs and industrial zones) with the preservation of nature. The book contributes significantly to the large and growing literature on 'off-reserve' conservation, which deals with backyard biodiversity and bringing biodiversity concerns into the mainstream in sectors such as forestry, energy and agriculture. What is especially important about this excellent book is the way this message is conveyed (delightfully readable) and the good standing of the author (the doyen of diversity research).

Rosenzweig's case rests on species-area theory. The book provides an account of this theory that is accessible to a wide readership. Rosenzweig argues thus: by disrupting the processes that maintain and generate diversity (source-sink dynamics, immigration and speciation), loss of habitat is creating a huge extinction debt. Indeed, the gloomy prediction is that the proportion of species that will persist globally bears a one-to-one relationship with the proportion of pristine habitat remaining. So, if we strive to conserve 12% of the globe (the current estimate), then we can expect 12% of species to survive. Clearly, as Rosenzweig forcefully argues, the traditional strategy of reservation ecology will not by itself save nature, as too much habitat has already been lost. He further contends that restoration ecology's contribution is likewise limited because much of the world's space will be required to keep humans in food and fibre. The pivotal argument is that reconciliation ecology, defined as 'sharing our habitats deliberately with other species', can save most of the world's species. Strategies and action plans to conserve biodiversity in perpetuity should consider all three – reservation, restoration and reconciliation – although the urgent need is to devote much more attention to the last mentioned. I couldn't agree more.

The book provides numerous cases of reconciliation ecology at work, often involving unexpected partnerships between industry and conservation. These are very heartening. The book also documents cases where

ill-conceived, albeit well-meaning, conservation policy and legislation are thwarting reconciliation ecology. As conservation biologists, we are urged to look beyond the remnant wilderness and figure out how we can manipulate our own backyards to make them more appealing to that subset of species that can thrive in landscapes heavily impacted by humans. Reconciliation ecology offers a deeply compelling and satisfying way forward, giving us hope and inspiration.

But how do we implement reconciliation ecology at the scale required to slow the pace of extinction? This is the weakest part of the book, and to be fair, probably not its primary aim. However, the chapter entitled *Clearing Hurdles* is disappointing. Changing the behaviour of individuals and organizations to the extent that they take biodiversity into their mainstream policies and day-to-day activities, is a huge challenge. We will need to rethink our institutional frameworks, worry a lot more about incentives, and massively curb consumerism in the developed world. This will require visionary government and empowered civil society. It will also require a huge change in the mindset of those millions of people who are either too greedy or too hungry to care about biodiversity. This book, along with others (e.g. G.C. Daily & K. Ellison, 2003, *The New Economy of Nature*, Island Press, Washington, DC, USA), does an excellent job in communicating new and imaginative approaches to conservation. Everyone with an interest in saving nature should read it.

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**Contested Nature: Promoting International Biodiversity with Social Justice in the Twenty-first Century** edited by Steven R. Brechin, Peter R. Wilshusen, Crystal L. Fortwangler and Patrick C. West (2003), xvi + 321 pp., State University of New York Press, Albany, USA. ISBN 0 7914 5775 3 (hbk), \$59.50, ISBN 0 7914 5776 1 (pbk), \$19.95.

It has been a long time coming, but conservation has finally admitted that it is political in nature, and social

and economic as well. In case I didn't already believe this, the Seventh Conference to the Parties (COP-7) of the Convention on Biological Diversity, which I recently attended, made this point very, very clear. Most delegates, and a swarm of small NGOs and indigenous groups, made constant reference to a heady mix of issues including the rights of local and indigenous peoples, the impact of the creation of parks, access to resources and profits, and national sovereignty.

The editors of this book would be very pleased at this fact, for their central argument is framed by the criticism that the creation of parks has been responsible for significant disenfranchisement, particularly of the most vulnerable peoples. The solution to this problem, expounded throughout the book, is that incorporation of social justice into conservation is the only way for conservation to continue with any legitimacy. The social justice proposed by the editors '... is built on the right to self-determination, a principle that guides most international initiatives concerned with securing human rights for all people. By this we mean the right to participate at all levels of the policy-making process as equal partners, the right to self-representation and autonomy, and the right to choose one's political, economic, and cultural systems. These rights imply responsibilities entailing politically constructive participation.'

This edited volume takes on one of the important questions currently facing us: how will biodiversity protection occur and who will enjoy the benefits or bear the burden for its impacts. Clarification of the question of the 'contested nature' of the title they argue is primarily a matter of human organization. After a long introductory chapter comes part one of the book entitled *Politics, Power, and Social Justice in Biodiversity Conservation* that analyses the political dynamics associated with biodiversity conservation interventions. It has eight chapters of a mixed set, two of which by two of the editors lay out conceptual approaches to 'incorporating social justice and human rights in protected area policies' and 'a conceptual view of power in politics' and six chapters covering cases from Columbia, Belize, Benin, and Ecuador, and one on privatizing protected areas.

The book's second part, entitled *Institutions, Organizations, and Participatory Processes* presents a set of conceptual tools and approaches for increasing human organizational capacity. It has six chapters that include dense treatments of organizational theory, case studies from Madagascar, Mexico and the Philippines, and an examination of the tool of impact assessment.

The editors state that this volume is intended as a reader for upper level undergraduates, graduate students, and practitioners. The structure of the book is loose, the ordering of the chapters is not always clear and the reader would have benefited from section

introductions. Despite the editors' claim, it is not clear who the real audience for this book would be; there are important lessons offered to conservation practitioners, but often they are housed in dense academic language (e.g. organizational theory). To the mind of this reader the book in effect has two parts, an extended essay by the editors that consists of the introduction, the first chapter, the conclusion and some of the chapters they authored, and second, a set of only loosely connected case studies. The first of these parts is excellent and should be widely read, the second is not up to the standard of the first.

The editors lean over backwards to try to make a balanced argument, which I found particularly refreshing after many of the presentations at the Conference of the Parties meeting. They are avowedly 'pro-park' but are convinced that 'the process by which nature protection is carried out must be ecologically sound, socially and politically feasible, and morally just.' They gingerly take on several important issues, including the special status being accorded to indigenous peoples in the current debates, maintaining that seeking conservation based on the broad set of rights and responsibilities they advocate should account for 'both distributional and procedural equity for communities regardless of categories.' The book carries a very important message to all of us concerned about the fate of nature: '... conservation will not succeed in the long run if it is built on the backs of the poor. It must maintain the moral high ground or it will lose its soul.'

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**Wolves: Behavior, Ecology and Conservation** edited by L. David Mech and Luigi Boitani (2003), xvii + 448 pp., The University of Chicago Press, Chicago, USA. ISBN 0 226 51696 2 (hbk), \$49.00.

The grey wolf is in a continuous state of flux. Revered by many people, to whom the wolf epitomizes the wilderness, it is reviled by others, particularly those living close to wolves. The species was relentlessly eradicated from many areas, yet they are slowly making a remarkable recovery, creeping back into former range and even stalking their way in search of food into villages and urban areas in India, Italy and Romania, unbeknownst to residents. Formerly the world's most widely distributed mammal (a title now usurped by the versatile red fox), the grey wolf occurred throughout the northern hemisphere, from the Rockies to the Arctic circle and from central India and the Arabian Peninsula to the Russian tundra, even extending beyond the Sinai into Africa. Unfortunately, the wolf's adaptability met its match.

State-funded extermination campaigns and the sheer bloody-mindedness of many livestock owners, hunters and outdoor-men had succeeded by the 1970s, using poison, trap and gun, to reduce the wolf's original worldwide range by one-third, extirpated in much of Western Europe, Mexico and much of the USA.

It is to the credit of wolves' resilience and versatility that these cunning social carnivores are still present in three continents and over 60 countries, occupying many habitats, from the Arabian desert to the Arctic ice shelf. Wolves may occur solitarily or in packs of up to 36 individuals, occupying territories up to 2,500 km<sup>2</sup> in size. Since about 1970 legal protection, land use changes, and human population shifts from rural regions to cities have arrested wolf population declines, and fostered natural recolonization in parts of western Europe and the USA, where their numbers have also been boosted by reintroduction. Remaining wolf populations occur wherever there is suitable food, primarily deer, moose and reindeer. They are sympatric, and compete with, many other species of carnivore (including 11 other canid species).

*Wolves* provides an outstanding overview of the biology and conservation of the species, delivering an up-to-date and unparalleled account of grey wolf biology, with 13 comprehensive chapters dealing with topics encompassing wolf physiology, reproduction, behaviour, communication, feeding ecology, predator-prey relationships, population dynamics, molecular genetics, evolution, relationship with humans, and conservation. It also includes a thorough account of the restoration of a close relative, the red wolf. Those that work with carnivores need no convincing that wolves are fascinating creatures, but what is it that makes them so riveting for the wider public as well? Human behaviour towards carnivores in general and wolves in particular tends to contain elements of fear and aggression, but also of strong curiosity. I particularly enjoyed the section *Wolves and Humans*, chartering the complex ecological relationship between man and the most hated and revered carnivore ever from the medieval times to present.

This is a monumental volume, crafted by 22 world-class carnivore biologists combining 350 person-years of wolf expertise, and led by trailblazing Mech and Boitani, widely regarded respectively as North America and Europe's greatest wolf biologists. As wolf populations have rebounded, scientific studies have also flourished, but there has not been a systematic, comprehensive overview of wolf biology since Dave Mech's (1970) classic *The Wolf: The Ecology and Behavior of An Endangered Species* (Natural History Press, New York, USA). The science contained herein should not only inform the conservation of grey wolves worldwide, but enlighten conservation management of many other carnivore species.

In the last quarter of a century there has been a widespread recovery of wolf populations worldwide, resurgence made partly possible by the advocacy of several of the book's authors. Proof of this success is that the species has been downlisted to Least Concern on the IUCN Red List, with only the Mexican wolf subspecies and a few isolated populations requiring special protection. The challenge ahead for wolf scientists is to cement this resurgence, and ensure the wolves' persistence not only in the wilderness we have come to associate wolves with, or in protected areas alone, but across its range.

This is undoubtedly the most important book ever published on grey wolves. A hefty volume, beautifully published, with many black and white photographs and quality colour plates, at a reasonable price. Fifty-seven pages of references provide a life-time of reading for those interested in perusing the original data and accounts. A must-have reference book for the carnivore biologist, boreal ecologist, landscape conservationist, behavioural ecologist, student of people-wildlife conflicts, and countless wolf lovers worldwide.

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**Capturing Carbon & Conserving Biodiversity: The Market Approach** edited by Ian R. Swingland (2003), xxiv + 368 pp., Earthscan, London, UK. ISBN 185283 950 7 (hbk), £55.00, 1 85383 951 5 (pbk), £19.95.

This book makes no claim to guide the reader through the complexities of the arguments surrounding the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. Instead it attempts to present a case for the maximum use of carbon sinks, particularly in the developing world. This is controversial, mainly for the following two reasons: carbon sink trading may allow developed nations to delay or avoid actions to reduce fossil fuel emissions, and the technical and operational difficulties associated with measuring and monitoring carbon sinks.

Both arguments have been made by environmental NGOs, who say that the main cause of global climate change is the emission of greenhouse gases by industrialized nations. Under the Clean Development Mechanism of Article 12 of the Kyoto Protocol, industrialized countries will be able to 'purchase' Certified Emissions Reductions (CERs) from a project in a developing country, or Removal Units (RMUs) if the project concerns carbon sequestration through afforestation or reforestation. This means that the industrialized nations will be able to avoid reducing emissions in their own countries.

In addition, critics say that carbon sequestration in any given forest not only requires baseline measurement, but also needs to be monitored in perpetuity because carbon sequestration rates will change, and even reverse, over time. The same applies to 'leakage' in which carbon sequestration projects inadvertently cause carbon emissions elsewhere. It is argued that this measuring and monitoring is both technically difficult and expensive.

The contributors to this book concede that forest carbon sinks are only part of the solution to climate change but argue that as 20% of anthropogenic CO<sub>2</sub> emissions are produced by land use change, particularly tropical deforestation, it is right that greenhouse gas impacts from land use activities are incorporated into the Kyoto emissions trading framework. Furthermore they believe that the use of sinks in the developing world should be maximised because 'The current asymmetry in the treatment of forests favours the rich against the poor and monoculture over biodiversity.' Specifically, they suggest that: (1) Restricting allowable forestry measures to afforestation and reforestation under the Clean Development Mechanism, and excluding protection of threatened native forests, may create incentives for clearing native forests in developing countries. (2) The Kyoto Protocol, as currently drafted in Article 3.4, could cause certain commercial forestry operations to relocate to developing countries which, given current timber extraction patterns in developing regions, would almost certainly lead to considerable loss of biodiversity.

The central thesis of *Capturing Carbon and Conserving Biodiversity: The Market Approach* is that where Governments and central planning have failed, a market approach based on 'on the clear and appropriate definition of carbon entitlements with the proviso that trading respects the rights and needs of local and indigenous peoples' can work to protect biodiversity and reduce

greenhouse gas emissions. They argue that greenhouse gas mitigation markets exist, function well, and have potentially great benefits for developing countries. A model is presented in which 48 developing countries could reduce the atmospheric carbon burden by about 2.3 billion tonnes of carbon, generating a net present value of about \$16.8 billion for these countries. The second major theme of the book is that the technical and legal impediments associated with measuring, monitoring and attributing carbon sequestration are surmountable.

The book is divided into three parts. Part 1, Carbon and Climate Change, looks at the impact of carbon sinks on greenhouse gas emissions and examines the technical issues associated with measuring and monitoring this impact. Part 2, Environmental Services, looks at the broader environmental issues and benefits associated with sustainable land use activities. Finally, Part 3, The Future Model, deals with how the global carbon market could work to protect biodiversity. The three parts of the book are made up of 20 stand alone chapters written by 'ecologists, biologists, conservationists, economists, lawyers, community and tribal specialists, market-makers, financial specialists, climatologists, resource managers, atmospheric scientists, project developers and corporate fund managers'. Given the multiplicity of perspectives and complexity of the arguments, our one criticism of the format is that there are no abstracts of the chapters available to the reader wanting less detail for some of the subjects covered. On the whole, however, this book is a significant contribution to climate change literature, and will particularly appeal to the muscular conservationist looking for compatible solutions to climate change, biodiversity loss and sustainable development.

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