

BOOK REVIEWS

Biodiversity and Ecological Economics – Participation, Values and Resource Management

BY LUCA TACCONI

xiii + 254 pp., 8 figs., 24 tables, 7 boxes, 23.4 × 15.3 × 2 cm,
ISBN 1 85383 676 1 paperback, US\$ 25.00/GB£ 14.95, London,
UK: Earthscan Publications Ltd, 2000

At the Convention on Biological Biodiversity in June 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro, biodiversity was propelled to the attention of ecologists, economists and the general public alike. Defined as ‘the diversity of life at all levels’, biodiversity is responsible for maintaining resilience and functioning of ecosystems and, therefore the ability of these systems to provide resources for human consumption. As such, biodiversity conservation is fundamental to the sustainable management of our natural resources. Ecological economics focuses on the interactions of the natural world (ecosystems) and the anthropocentric world (economies). Its role is to identify problems arising in these interactions, suggest and analyse effective policy responses and then guide the implementation of these policies. The problems are evident. Overexploitation, pollution, introduction of invasive species, development of industrial agriculture, fisheries and forestry are amongst the most serious causes of degradation of natural environments and depletion of commercial stocks (Norse 1993; Perrings *et al.* 1995). In response, some potentially effective policies have been proposed such as: protected areas, emission taxes and biological controls. But how far have we gone in implementing these policies and how successful have we been?

Earlier studies in this field have focused on economic instruments, which may be used to tackle biodiversity conservation (Barbier *et al.* 1994; Perrings *et al.* 1995). In contrast, the present study concentrates more on the social (science) issues involved in implementing policies. In this way, the book makes a new contribution to the literature. The aim of this book is ‘to contribute to the conservation of biodiversity by developing an improved ecological economics framework’ (p. 3). This improved framework is designed to consider present and future people’s values, the methods needed to research and address these values and the problems encountered in doing so. The case studies highlight specific aspects of the theoretical framework and, by addressing the processes involved in policy implementation, demonstrate how they can be put into practice.

The book has two parts. In Part 1 Tacconi presents the theoretical framework of ecological economics. With rejection of the ‘objective-detached analysis’ of positivist philosophy, Tacconi defines the tone of the book. In the theoretical chapters, Tacconi outlines the shortcomings of neoclassical environmental economics paradigms and the role of ecological economics as a possible complement or even substitute. He discusses the economic value of biodiversity, the use and problems of cost-benefit analysis and the limitations of discounting. In light of our inability to value biodiversity effectively, the precautionary principle and safe minimum standard are offered as guidance for sustainable management. Tacconi concludes Part 1 by focusing on the process of land-use planning, the need to manage whole ecosystems and the importance of stakeholder participation.

In Part 2, a diverse range of case studies is presented. These, in general, focus on the issues of conflict resolution, protected area

establishment and management, and the avoidance of encroachment on local people’s lives. Two case studies are based in Australia. The first describes the Regional Forest Agreement in Australia, which is aimed at allocating ecosystems for production or conservation. This agreement has shown some success in providing a structured process, which has helped to bring conflicts under control and bring stakeholders into the decision process. The second details the challenges associated with the development of Australia’s National Representative System of Marine Protected Areas, with particular attention to participation and reconciling opposing stakeholders’ interests. A study of Indonesia, one of the world’s most biologically diverse countries, focuses on the effects of policy and politics on community resource use and participation and protected areas. An interesting case is that of Vanuatu since, unlike most tropical areas, the indigenous people, not the state, own the land. The focus is on reconciling the national agenda for biodiversity and the locals’ needs for development. Other case studies include those of Adirondack Park in the USA, an Indian Ecocodevelopment Project (Rajiv Gandhi National Park in Karnataka) and finally conflict management in Lakekamu Basin IDP, Papua New Guinea.

This book provides a comprehensive introduction to the crucial issues of biodiversity conservation and the role of ecological economics in guiding policy and management decisions. It also demonstrates that these policies can be implemented successfully, though much work is yet to be done. Undergraduate students of natural resource management, environmental or ecological economics would benefit from the theoretical framework provided and the examples of practical cases which have been so lacking from economics literature to date. Graduate students and others with more background in ecological or environmental economics may also benefit from the new and interesting case studies presented. Those immersed in economic theory may enjoy the novelty of real world application and the problems involved. Luca Tacconi and contributing authors have provided an accessible and enjoyable book, which makes a valuable contribution to the growing literature on biodiversity conservation. This book complements other main works in this field.

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Waste Trading Among Rich Nations

BY KATE O'NEILL

xix + 298 pp., 22.5 × 15.5 × 2 cm, ISBN 0 262 65052 5
paperback, GB£ 14.50, Cambridge, USA/London, UK: The MIT
Press, 2000

Most of us consider hazardous waste trading as rich nations dumping toxic waste on poor developing countries. However, 80% of the world's waste trade takes place between industrialized nations. The main question Kate O'Neil asks is why? Why should some countries be prepared to take the additional risk associated with importing hazardous wastes, whilst other countries are only too keen to get rid of such waste? Or, perhaps, why do some countries view waste as a problem whilst others see it as a market opportunity?

This fascinating book is not so much about 'waste', but about the institutions that control waste management. O'Neil compares the regulatory systems for the import and export of hazardous waste in five countries, namely the UK, Germany, France, Australia and Japan. This is achieved using an academic but very readable approach, setting the questions in a theoretical institutional framework. However, the reader does not need to have any previous knowledge of institutions, or indeed hazardous waste management, to appreciate this book. The second chapter includes full details of hazardous waste regulation in industrialized countries, environmental risk perceptions and market failures and the consequential globalization of waste management.

The following chapter is concerned with an institutional explanation of the waste trade. Although very theoretical it is clearly written with good explanations. However, it is not necessary to follow all the arguments in this chapter, or even to read it all, to understand the following three chapters that describe the situation in five countries. In the fourth chapter, rather worrying for a UK citizen, the situation in the UK is examined and explained. Not only is the UK one of the world's greatest importers of hazardous waste, but it also appears to be one of the industrial countries least able to dispose satisfactorily of the waste. A situation that the national government seems to have been unable to rectify due to the country's regulatory system.

In the next chapter, the situation in Germany is described. Germany's adherence to the precautionary principal and polluter pays principal (but not it seems the proximity principle) has led this country to a risk averse attitude towards waste and it has thus become a major exporter of hazardous waste. This risk averse behaviour is shared by Australia and Japan, both net exporters of waste, whilst France, a major importer of hazardous waste, has a highly decentralized environmental regulation structure, similar to that of the UK. How each country has arrived at its stance on hazardous waste trade makes fascinating reading.

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Coastal Conservation and Management. An Ecological Perspective

BY J. PAT DOODY

xx + 308 pp., ISBN 0 412 59470 6 hardback, US\$ 129.00/
GB£ 90.00, Dordrecht, the Netherlands: Kluwer Academic
Publishers Group, 2001

Coastal Conservation and Management: an Ecological Perspective is part of the Kluwer Conservation Biology Series. Its author, Pat Dooley, has a great track record of coastal conservation working for various UK conservation agencies. Thus it is very much a personal and practitioner's view of the subject. It also provides a good blend of theory and practical experience, and those experiences have not triumphed over a hope that coasts in Great Britain and more widely can be managed in a sustainable manner based on sound ecological principles.

I enjoyed reading the book. It is clearly presented. The figures and tables help present information succinctly and complement the text well. Chapter 2 on general principles sets the scene well. I found chapter 3 on sea cliffs of great interest and appreciated its European-scale view. Having described their habitat, chapter 4 considered seabirds in a wider context touching on various impacts (predators and competitors, pollution, fishing) and interactions between multiple impacts, including poor management of nesting habitat. A long and detailed chapter on saltmarshes followed. This gave a good summary of ecology and major impacts, including managed retreat, and this set the scene for a chapter on *Spartina anglica*. This covers the plant's genesis, spread, impacts on native species and questions to whether it should be controlled. The section on *Spartina* in the USA was tantalisingly brief and I would have liked to have known more. Chapter 7 covers sand dunes comprehensively, namely distribution, nature conservation value, human activities and conservation, grazing, hydrology, golf, climate change and sea-level rise. Chapter 8 is on shingle emphasizing the dynamic nature of such coasts, and it sets the scene for treatment of the English coast at Dungeness as a case history (chapter 9). I found chapter 9 a fascinating integration of history, coastal geomorphology, engineering and natural history. Chapter 10 ambitiously encompassed estuaries, deltas and lagoons under the banner title of coastal wetlands. I felt that the hydrography of these systems was perhaps not given the emphasis it deserved, nor was the ecology of the invertebrates treated fully enough. The artificial wetlands of grazing marshes and salinas were then considered (chapter 11).

The previous chapters were the precursors to the heart and soul of the book, namely chapter 12 on ecological networks, chapter 13 on integrated coastal management and chapter 14 on habitat protection and conservation. Chapter 12 gave some good avian examples, but it was a shame it did not mention the large-scale circuits of migration of fish back and forth from spawning to nursery ground, nor the broad-scale dispersal by pelagic larvae of many coastal invertebrates on which birds feed. Chapter 13 summarizes legislation, both national and international, and gives an update on recent European Union initiatives. Chapter 14 looks at successes and failures in the context of natural changes in coastal systems.

Throughout, the book does well to emphasize the dynamic nature of our coastlines and the need for an integrative view of management. The consequences for wildlife of short-term engineering-based solutions are highlighted, but at the same time the role of people in creating the current coastal landscape is appreciated. That erosion is only a problem when people have fixed assets on the coast is a stark truth. The author deserves much credit for these last

two chapters that espouse a pragmatic 'win some, lose some' philosophy; accepting change as inevitable may be the best way forward.

Whilst I enjoyed and learnt a lot from the book, I do have some reservations. The wet end of the coast is neglected. In section 1.4 the author states explicitly that rocky shores are included. It is a shame that there was not more on rocky shores and sandy beaches. It would have been a much better book for it. My disappointment as a coastal marine ecologist is perhaps epitomized by Figure 10.75. This shows some lovely lugworm casts, but the legend just states 'tidal mudflats are rich in invertebrates, the food for large wintering populations of waterfowl visiting estuaries'. Perhaps a bit more on bird food, fish food and fish, plus the hydrography of the coast, would have given a more balanced and comprehensive account.

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Water Management in Islam

EDITED BY NASER I. FARUQUI, ASIT K. BISWAS AND
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xxiv + 149 pp., no figs., ISBN 92 808 1036 7 paperback,
 US\$ 19.95/GB£ 14.75, Tokyo, Japan: United Nations University
 Press, 2001

This book is based on the findings of a Workshop on Water Resources Management in the Islamic World, held in Amman, Jordan in December 1998. It provides a much-needed discussion of the Islamic perspective(s) on water resources management. The first chapter of the book by Naser I. Faruqui does a fine job of pulling together some of the main themes of Islamic water management principles, addressing such water issues as demand management, reuse, integrated management and connections with social equity. Chapters 2 and 3 of the book address the relevance of Islamic water management perspective to the Dublin Statement on water and Sustainable Development, and concerns with environmental quality, respectively. Chapters 4–7 and chapters 10–11 of the book discuss formal water management practice in the Eastern Mediterranean region, Pakistan, Saudi Arabia, the Palestinian territories, Iran and the overall region of Middle East and North Africa, respectively. Sandwiched between these regional and nation-based 'reports' on Islamic water management are chapters 8 and 9, which tackle the thematic issues of water rights and water trades, and ownership and transfer of water and land in the Islamic tradition. Chapter 12 of the book, which is also the last chapter, compares international law on shared international waters with the Islamic principles of water management.

The book will be valuable for researchers and policymakers concerned with water management in North Africa and the Middle East. In fact, some of the actual water management practices described in the book may also be instructive for water managers concerned with equity and efficiency issues in water management in the developing world in general.

The stated aim of the book is to highlight the nexus between culture, especially the religious aspect of it, and water resources

management. The specific charge of the contributors to the anthology was evidently to elucidate the Islamic perspective on the following contemporary themes in water management: (1) water as a social good; (2) economic and non-economic instruments of water demand management and (3) integrated water management. The editors and contributors to the book have given us a useful first attempt at addressing the very important connection between water management and religion. The contributions to the book, however, suffer from two important shortcomings. First, most of the authors in the book take a very legalistic perspective on Islam and focus almost exclusively on formal, generally government-based, water management. The actual sources of Islamic law are fairly critical to understanding water management practices and prospects for water sector reforms in the Muslim world and therefore the authors' focus on them is understandable. Islam, however, in addition to being an amalgam of religious texts and laws, is also a lived religion of more than a billion people, with its historical/cultural geographical nuances. The book comes up short when addressing the important question of how the Islamic faith affects informal cultural water management perspectives and what if any lessons modern decision-makers could draw from those. The two local-level case studies on religiously-influenced cultural perspectives on water management in Pakistan and Palestine could have benefited from more detailed descriptions of the methodologies used, and more in depth discussion of the case-study results. Second, even in terms of focus on formal water management and Islamic water law, except for chapter 9 by Dante A. Caponera, there is very little reference to the diversity of legal religious interpretations within Islam. The discussion that is there, however, is quite instructive to understanding the complexity and diversity of water management in the Islamic world.

Hussein Al-Amery in chapter 3 of *Water Management in Islam* (p. 40) sums up the importance of the type of discussion that the book purports to encourage, as the following quote illustrates: 'Given Islam's recognition of water's pivotal importance, a management instrument that broadens traditional (for example economic) water management approaches to include non-traditional, cultural and spiritual approaches is more likely to succeed in the Muslim World'.

The book provides a useful glossary of relevant Islamic/Arabic terms, as well as fairly good index. The cover is quite attractive and the text is well edited and free of typographic errors.

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Environmental Monitoring and Biodiagnostics of Hazardous Contaminants

EDITED BY MICHAEL HEALY, DONALD WISE AND MURRAY
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xiv + 337 pp., 153 figs., 61 tables, 17.0 × 24.0 × 2.2 cm, ISBN 0
 7923 6869 X hardback, EUR 159.00/US\$ 139.00/GB£ 99.00,
 Dordrecht, the Netherlands: Kluwer Academic Publishers, 2001

This volume contains a selection of 25 peer-reviewed papers from the 4th International Symposium of the International Society for

Environmental Biotechnology held at Queen's University, Belfast, Northern Ireland, during 20–25 June 1998. It reports work from groups of international researchers in the field of environmental biotechnology, focused on the themes of: mine drainage, removal, toxicity; waste treatment and monitoring; integrated systems; bioremediation, namely that *in situ*, the reactors involved and basic studies; water quality; biodegradation; and local/regional/national issues. The papers provide a useful overview of the current state of the science and demonstrate a diverse range of applications and case studies. The quality of material is generally high and individual authors have done well to present their studies in a concise and legible manner. The papers present a mixture of fundamental laboratory-based studies of biologically-mediated reactions in the absorption and treatment of inorganic and organic contaminants, through to pilot-scale studies of reactor systems applied to specific industrial problems. A number of papers include studies of more diffuse interactions in the wider 'natural' environment.

As a compilation of papers, the volume will be most useful to researchers in the field and end-users involved in the management and remediation of contaminants in terrestrial and aquatic environments, but I am a little disappointed by the lack of any editorial introduction. The impact of the volume could have been enhanced by a more discrete focus on the contributing theme, which might have been emphasized through the inclusion of a short overview or state-of-the-art commentary.

Overall the production quality of the volume is good, and text, figures and tables are clear and legible, with very few typographic errors. This is a useful contribution to the area.

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Footprints in the Jungle: Natural Resource Industries, Infrastructure and Biodiversity Conservation

EDITED BY IAN A. BOWLES AND GLENN T. PRICKETT
 xix + 331 pp., 18 figs., 13 tables, 24 × 16 × 3.5 cm, ISBN 0 19 512578 9 hardback, US\$ 45.00/ GB£ 35.00, Oxford, UK: Oxford University Press, 2001

In order to maintain the Earth's biodiversity, it is critical to understand the present and future condition of tropical forests. The question is not whether humans can coexist with these ecosystems, but how, since human presence is already *a fait accompli*. This book addresses the interplay between development and conservation within the tropics and explores how they might coexist. The various chapters describe the rationale for both biodiversity conservation and diverse development pressures within the planet's remaining tropical forests. Multiple-chapter subsections focus specifically on oil and gas extraction, mining, logging and regional infrastructure plans. Many of the chapters are written from the perspective of a conservationist, but there are also several contributions from representatives of natural-resource industries that provide interesting insights and examples of development projects that appear to be working in conjunction with conservation goals. The intended audience includes environmental activists, corporations, local communities,

government and conservation organizations. I would add that this book should appeal to anyone with serious interest or concern about the future of tropical forests.

The editors have done well in providing a succinct compilation of the development situation throughout the tropics. They do not belabour the sad situation that exists in many regions nor the litany of past environmental abuses, but choose instead to focus on how both development and conservation can be improved in the future. This is a laudable approach, but one which should have been given some context. The chapters providing industry perspectives and case studies are tremendously interesting and illustrative of how 'best practice' development can be carried out in the tropics, but the reader is left with the impression that these approaches are becoming common and widespread. It would have been helpful if at some point in the book the editors had given some indication of the magnitude of natural resource extraction in the tropics and some idea of the percentage of companies that are currently attempting to 'do the right thing'. The number of mergers and acquisitions of the companies of the contributing authors from industry is also intriguing and makes me wonder if these projects continued after the companies were acquired.

The editors' stated intent to stimulate debate about natural resource development in the context of biodiversity conservation and social sensitivity may occur on many levels. For conservationists and activists, the debate may centre on how well their beliefs square with the conservation goals of Conservation International (CI), since the book is largely written by members of CI or those affiliated with CI projects. By far the most controversial chapter of the book is by R. Rice *et al.* (chapter 10) that challenges the tenets of what the authors label Natural Forest Management (NFM). This is a misleading piece based on an overextrapolation of a single unrepresentative study. The arguments given have been debunked within the scientific literature (e.g. Lugo 1999). Recommendations to conserve previously logged forests are not without merit, but the intimated dichotomy of NFM versus conservation does not exist (Cabarle 1998; Chazdon 1998; Gascon *et al.* 1998; Hartshorn 1998), and this false dichotomy should not be promulgated.

On the whole the book is very informative and points to future as well as current trends in development. Everett Santos' chapter 2 on private sector participation in infrastructure development points to new possibilities and pitfalls in the future of infrastructure projects. An example is currently being played out on a grand scale in Brazil, where the *Avanca Brasil* project is soliciting funding from private investors for US\$40 billion dollars to support infrastructure development in the Amazon (Laurance *et al.* 2001). Nigel Sizer provides an excellent overview of the global tropical timber trade. Mining is well treated by chapter 12 from Nash, who explains that the current international pricing structure for non-ferrous metals precludes the passing on of environmental protection costs to consumers, while Smith and Kormos discuss the difficulties of real-world application of stakeholder involvement in development projects. Of special note is John Reid's insightful treatment of roads and tropical forests (chapter 17), complete with practical and useful approaches for dealing with the issues that roads bring with them, as derived from a variety of case studies.

Bowles and Prickett have provided the most complete treatment of tropical infrastructure development and resultant conservation issues to date. The book is well edited, very readable and accessible to a wide audience. It should be on the shelf of government planners, conservationists, and company heads alike.

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People Managing Forests: the Links Between Human Well-being and Sustainability

EDITED BY CAROL J. PIERCE COLFER AND YVONNE BYRON
 xiii + 447 pp. 22.8 × 15 × 2 cm, ISBN 1 891853 05 8 clothbound/
 ISBN 1 891853 06 6 paperback, US\$ 50.00, Washington DC, USA:
 Resources for the Future, 2001

Is it possible to establish a universal set of social criteria and indicators to assess whether forest management practices maintain the well-being of local populations? A six-year study in six countries with 25 scholars examined the causal links between sustainable forest management and human well-being, for the purpose of field-testing the Center for International Forestry Research's generic template of social criteria and indicators. The results of the study comprise the sixteen chapters of the well-edited and richly informative volume *People Managing Forests: The Links between Human Well-Being and Sustainability*.

The social criteria and indicators consist of a hierarchy of principles, criteria and indicators. For example, within the principle 'Forest management maintains or enhances fair intergenerational access to resources and economic benefits' is the criterion that 'local management is effective in controlling maintenance of, and access to, the resource.' Further down the hierarchy, one indicator of this criterion is whether 'local people feel secure about access to resources'. Clearly, assessment involves subjective judgement and calls upon a variety of social science techniques.

The study covers a continuum of 'forest-rich' and 'forest-poor' sites in East Kalimantan (Indonesia), Cameroon and Para (Brazil). In these sites, comparable methodologies were used to examine relationships between forest management and well-being of the local human populations. The initial assumption that 'forest-richness' at a particular point in time equates with sustainable forest management, much less human well-being, turns out to be invalid. The authors harshly critique their own study design. By the end of the book, they conclude that the comparative case studies fail to provide evidence of straightforward, direct, and causal links between forest management and well-being of local populations. The reductionist

approach of criteria and indicators turns out to be insufficient for describing complex dynamic systems, each with its unique historical and cultural context. This conclusion is not good news for a set of simple social indicators, but the case studies do provide in-depth and well-documented descriptions of the management practices and varied cultural practices in these case studies. The book is organized around four main topics: namely gender and diversity in forest management, a conservation ethic, security of intergenerational access to resources, and rights and responsibilities to manage the forest cooperatively and equitably. Individual authors explore particular case studies; others compare results across the case studies. The case studies involve expertise from a range of backgrounds including social science, ecology and remote sensing. However, the focus is clearly on the social sciences more than the biophysical aspects of sustainable forest management.

Those interested in human-environment interactions in forest ecosystems will find the volume useful not only for the varied case studies, but also for the analysis across case studies made possible by the use of consistent methodologies. From an ecologist's point of view, the book highlights the intricate role of human populations in forest ecosystems. From a social scientist's point of view, the book highlights the pitfalls in generalizing human-forest relationships outside of a local context. For forest managers, the book plainly asserts that assessing whether a particular forest ecosystem is being managed sustainably for human well-being involves more complex local understanding than universally-applied criteria applied at a single point in time.

Considering that the book is an edited volume of chapters from individual authors, the format and editing are remarkably consistent throughout. Each chapter contributes to the overall study in a logical sequence. The book culminates in the authors' unforgiving conclusions about their own study. After exploring causal linkages between forest management and human well-being on three continents, they conclude that 'the search for straight-line, cause-and-effect links is simply a chimera, a holy grail that we must stop seeking'.

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Marine Resource Management: Conflict and Regulation in the Fisheries of the Coromandel Coast

BY MAARTEN BAVINCK
 394 pp., 10 figs., 22 × 14 × 2.5 cm, ISBN 0 7619 9470 X
 clothbound, GB£ 35.00, New Delhi, India: Sage Publications India
 Pvt Ltd, 2001

This authoritative comprehensive overview of the fisheries of India's conflict-ridden Coromandel Coast brings new insight to the sociology of both artisanal and commercial fisheries, and the tensions that arise when the rule systems of each clash over common resources. Bavinck presents detailed anthropological descriptions of social institutions along a wide stretch of India's east coast, of the way in which rule-making at the caste, community, provincial, state, and of other levels evolved, and of the intrinsic characteristics of these societies and their governance regimes that have set the stage for eventual, and perhaps, inevitable conflict.

This is without question an exhaustive, although sometimes exhausting, account of the complexities of human social organizations. The book will appeal to those trying to understand the link between population pressures and common property resource-use and condition, and the inherent limits to effective resource management facing decision-makers in many parts of the globe. The arguments are well laid out and supported by observation, though at times the book reads less like a scholarly work intended for a general audience and more like a dissertation in which the student has confused quantity with quality. As an ecologist, I was unused to the density of anecdotal information, and by the last third of the book found myself desperately searching for empirical data to back up Bavinck's personal and somewhat random observations, assertions and theories. However, students and professionals in sociology, anthropology, and political science will be coming at the book from a different perspective and will undoubtedly find it a useful work.

Bavinck's writing is clear, albeit certainly not concise, and his central tenets are organized in a logical and engaging manner. Though his subject matter is quite specific, his thoughtful analysis of how artisanal and mechanized fishers view marine resources and territory, how these social groups are organized, what may have led to their perceptions, expectations, and need to evolve their rule-making, and how conflicts within and between these groups emerge, are widely applicable in many coastal areas of the world. The book is noteworthy in describing cultural evolution over a relatively long time frame; this is a feature that sets it apart from many other snapshot analyses of human populations and the way a changing environment can shape, and is shaped by, them. The author succeeds in dispelling some extremely common myths about fishing societies, namely that marine tenure regimes are old and inflexible, that new commercially-oriented entrants into traditional fisheries lack self-regulation, and that plurality between 'public government' and 'private government' is a recipe for conflict rather than something towards which to aspire.

On the point of environment, I only wish the author had presented more in the way of the ecology of the Coromandel Coast, and how it has changed over decades of intensive human use. The lack of rigorous descriptions of environmental parameters is something that is uniformly lacking in studies of population, consumption, and environment, just as the lack of consideration of social forces and understanding of human behaviour is almost always lacking in environmental, especially coastal, studies. Hard data on fish catch, catch per unit effort, condition of fish nursery habitats and other aspects of the coastal environs would have greatly strengthened Bavinck's arguments about the conflicts between artisanal fishers, commercial fishers, and government authorities, and would have resulted in the book having broader potential appeal.

There are some minor stylistic points to note. The photographs are not of good quality, and not in line with a hard-cover and relatively expensive book. Typographical errors are also too common, and the odd numerical format where commas are used to separate the hundreds from thousands (e.g. 100,00 instead of 10,000) is confounding. However, what the book lacks in terms of presentation it greatly makes up for with an exhaustive, and highly useful, reference list and extensive use of explanatory footnotes.

In all, *Marine Resource Management: Conflict and Regulation in the Fisheries of the Coromandel Coast* is an entertaining and thought-provoking read, one that will hopefully inspire other scholars investigating human nature in the context of the rest of nature to

think long and hard about these relationships and why and how they have come to be the way they are.

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Applied Ethnobotany: People, Wild Plant Use and Conservation

BY ANTHONY B. CUNNINGHAM

xviii + 300 pp., 97 fig., 16 tables, 24.0 × 17.0 × 1.1 cm, ISBN 1 85383 697 4 paperback, GB£ 24.95, London, UK/Sterling, Virginia, USA: Earthscan Publications Ltd, 2001

The author of this interesting, practical, well written book, is a well-known and respected ethnobotanist with years of field experience in southern Africa. His clear writing style draws the reader into the debate between traditional peoples and their need for plant resources, and the tensions that exist with others, commonly outsiders, mandated by local or central governments to manage and conserve forest resources.

Cunningham, trained as an ethnographer/ethnobotanist, presents examples of how conservation can exhibit a 'human face' where local social needs can co-exist with preservation mandates, but only if both sides exhibit mutual respect and work together. It is a given that collection and harvest of wild plant resources, whether edible or non-edible, whether for commercial sale or individual or family use, alter environmental settings and floral assemblages. Conservationists commonly fear traditional harvesting of plants, sometimes out of concerns for erosion, and it is rare that the social/cultural needs of the people they work among are considered. Conversely, traditional peoples view conservationists as 'outsiders' and fear their traditional rights and ways of life are threatened by others who do not know the land as well as they do. Cunningham argues instead for conservation involving balance and mutual respect, whereby human needs for collecting plants are not restricted merely for environmental protection and resource conservation, and urges conservationists to understand that traditional peoples commonly are protective of the lands they occupy.

The author presents his views logically within eight well-crafted chapters that consider: the historical context of vegetation conservation; the importance of understanding folk taxonomies; methods and problems associated with plant collecting; how human settlement, use and marketing of key species alter environmental settings; and concludes with solutions whereby social/environmental balances can be implemented. This reviewer especially appreciated the author's encouragement of interviews with market vendors to determine regional availability of species, how availability differs by season, how commercialization has altered plant assemblages, and how researchers working with vendors are able to access knowledge that is not readily available through other interview sources. Especially valuable, too, is chapter 4, where readers are presented with a broad range of easily manageable field methods that can be readily taught.

The intended readership of this volume, as stated in the preface, includes students and professionals who work in conservation programmes, rural development, and resource management. However, I found this statement narrow and would argue that this remarkable book should find a much broader audience beyond ethnographers and geographers, including members of the general

public and the interested lay audience. All who read this well-written treasure of applied ethnobotany will understand immediately that its message is not limited to ethnobotanists and resource managers. Indeed, I will recommend this text to all my students, in whatever discipline.

The book has an attractive cover, is well bound, and the text is free from typographical errors. While the examples cited are primarily drawn from Africa, students and practitioners of applied ethnobotany will be able to use the information directly to consider and applying the messages to all continents.

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Protecting the Commons. A Framework for Resource Management in the Americas

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It may be useful to begin with the recommendation typically ending a book review. Yes, you or your library should acquire this book, but if it is you, brace yourself: it seems to be twice the price of equivalent quite-recent paperbacks. For this price, however, the reader gets thoughtful organization by distinguished authors, good indexing, excellent graphics, and overall an aesthetically-pleasing volume.

The purpose of *Protecting the Commons* is to 'review and assess the changing nature of common-pool resources and how well developments in our understanding of common-pool resources and commons institutions are helping us meet the social and environmental challenges we face.' In fact, your US\$ 60 buys you something more than this. In response to Elinor Ostrom's introductory reformulation of the commons paradigm (chapter 1), eighteen scholars venture insightful perspectives on common-pool resources (CPRs) throughout the Americas. The cumulative message: Garret Hardin's early contribution to commons research is a special theory within a more general theoretical structure on the topic. His 'tragedy' scenario is contingent; commoners can and do behave otherwise. Moreover, what constitutes a CPR far exceeds the domain of natural resources.

The following 13 chapters break the mould of most previous anthologies on the commons, the case studies of which are usually crafted to refute Hardin's assertion of 'tragedy' 30 years ago. The current authors shift the terms of reference in a number of ways. Jose Sarukhán and Jorge Larson (chapter 2) make an articulate case for Mexican CPRs in the historical context, and Clark Gibson (chapter 3) insists on greater attention to the social-political context in which commoners in Guatemala construct their self-governance tools. Alpina Begossi expands the latter view in her study of Brazilian fishing communities (chapter 5), with an emphasis on interactions among biophysical and social factors. Drawing on recent work of Garret Hardin, Jeff Richey (chapter 13) looks at

watersheds in both Brazil and the USA from a geographic information system perspective. This particular contribution is not well integrated into the book's logic and purpose.

Water-based common-pool resources occupy nearly half the book. In addition to Begossi's work, David Policansky (chapter 7) and Bonnie McCay (chapter 8) both tackle complex fisheries issues that are at once local and non-local. Joanna Burger (chapter 9) considers the coastal zone as a multiuse (and unconventional) CPR, and Schlager and Blomquist (chapter 6) compare two regional water common-pool systems, one in Colorado and one California. The conflicts among users there are roughly paralleled in Tim Clark's account of migrating mammals (elk) as a CPR (chapter 4) and in Harrison and Matson's overview of a global commons (the atmosphere) in chapter 11. What unites these sometimes disparate contributions is a quest by their authors for the fundamental variation in common-pool resources signalled by Ostrom at the outset, namely the larger model of which Hardin's tragic commons is but a single instance. For this reviewer, the non-traditional CPRs most startling in the book are the so-called 'socio-pool' resources (SPRs). Two chapters consider human health as a SPR. One is John Middaugh's troubling account of contamination of the Arctic (chapter 11); over the past half century, chronic diseases have virtually replaced infectious diseases in morbidity and mortality indicators, with cancer being a consequence of tobacco and environmental contamination. More explicitly, Gochfeld, Burger and Goldstein (chapter 12) consider medical care itself as a commons resource, thus opening the door for a new realm of CPR research on a host of human services.

After digesting these last chapters, Hardin's early essay itself might be recast through the lens of social equity. Early on, Sarukhán and Larson signal the importance of fair access and rewards for indigenous peoples in stable CPR systems, a theme echoed later in Michael Gelobter's fascinating account of CPR tragedies in America tied to social injustice (chapter 14). 'In unjust social structure', writes Gelobter (p. 307), 'commons can become another tool for domination.' His history of the interplay between CPRs and SPRs is a rewarding capstone to this already sturdy volume. I only wish that it had been the lead article and that social justice was a required dimension of all the book's chapters. Given the widely acknowledged marriage of environmental and social justice of late, this was certainly a missed opportunity.

Regretably, the book's conclusion does not live up to the preceding chapters. It is tidy, but neither as intellectually strenuous nor provocative as the contributed essays. In particular, what combination of history and agency compels reformulation of CPR institutions and constitutes the 'framework for resource management' advertised on the book's cover? How do New World case-studies speak to more universal Old World CPR problems and challenges? Are any or all human resources now SPRs and, if not, what are the critical criteria? And, of much concern in a world debating rational choice, do reformulations of CPRs influence this model of decision making or reduce its relevance among commons appropriators? Answers to these questions, however partial, would make *Protecting the Commons* more useful as a text for college classes, land-use managers, and resource practitioners.

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