BOOK REVIEWS

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World Atlas of Great Apes and their Conservation
EDITED BY JULIAN CALDECOTT AND VERA MILES

456 pp., 28.5 × 22 × 3 cm, ISBN 0 520 24633 0 clothbound, GB£ 29.95, Los Angeles, USA: University of California Press, 2005

This is a big book indeed, addressing big issues with the backing of big conservation. Its heavy-weight glossy paper not only brings the best out of more than 200 colour photos and 50 full-colour maps, but also contains an amount of solid information that has never before been assembled. And while this tome is a little dense to appeal to general readers, for academics, conservationists and policy-makers it sets the gold standard for years to come, be it only because such a monumental task can only be taken on every couple of decades.

The World Atlas of Great Apes highlights the plight of our closest living relatives. Millions of these utterly fascinating creatures roamed the Earth until decades ago, but most populations have disappeared or are seriously threatened, owing to habitat destruction, a relentless trade in bushmeat, diseases and trade. This is true for the orang-utans in South-east Asia, as well as the gorillas, chimpanzees and bonobos in Africa. They now all live in a more sinister way than envisioned in Goodall (1971). And if this is not bad enough, there are those that conservation politics relegate to an existence ‘in the shadow of great big conservation. Its heavy-weight glossy paper not only brings the best out of more than 200 colour photos and 50 full-colour maps, but also contains an amount of solid information that has never before been assembled. And while this tome is a little dense to appeal to general readers, for academics, conservationists and policy-makers it sets the gold standard for years to come, be it only because such a monumental task can only be taken on every couple of decades.

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The book is the result of collaboration between several organizations, notably the United Nations Environment Programme and the UK Department for Environment, Food and Rural Affairs, and its dozens of chapters have been compiled by as many authors. Section one (Great ape biology) introduces ape habitats, followed by chapters dedicated to each species, including basic information on genetics, distribution, behaviour and ecology. Section two (Conserving the great apes) reviews challenges to great ape survival, conservation measures in play, lessons learned and the path ahead. Section three (Where are the great apes and whose job is it to save them?) devotes a chapter to each single country where apes are found, covering background and economy, distribution of great apes, threats, legislation and conservation action, future conservation strategies and details of research at various field sites.

The material is presented in a fairly standard text book format, with page-long ‘boxes’ and tables used extensively. Photographs are abundant, with at least every second page containing an illustration. If the quality is not always high, this is principally because many of the pictures are taken by field workers, and so represent the real practical side of ape research and conservation. This is in fact a strength of the work, as those seeking higher-resolution ‘cleaner’ images can refer to a multitude of other volumes. The maps are well reproduced, although at times the distribution symbols do not stand out sufficiently from the background. Each chapter contains a concise selection of further readings. Citations are given within each chapter, and refer to numbered reference lists available online; a rather frustrating feature for those who delve into the Atlas during their fieldwork. An annex briefly outlines the scope and aims of the Great Apes Survival Project (GRASP) and lists the partners involved in this venture.

The editors had to decide how many taxa of apes exist, probably knowing that there will never be agreement about the number of populations that are ‘just’ subspecies or ‘good’ species. Is there only one species of orang-utan, or do the red apes on Borneo and Sumatra represent two species? Are there four subspecies of chimpanzees or, as expert opinion after the publication of the Atlas indicates, are there five? It is doubtless easier to create awareness and sell the conservation issue for a type of ape that is ‘special’, but the danger is also that funds and efforts become more and more fragmented. Triage is a hard decision, but in the end it might be wiser to concentrate the resources on those few populations which have a fair chance of survival.

The main sections of the Atlas are introduced by Jane Goodall, Toshisada Nishida and Ian Redmond. Their careers epitomize a typical mutation from academic primatologist to political conservationist. All three started out as field-workers interested in the socioecology of our closest living relatives, just to become more and more entangled in the extinction crisis. Nowadays they devote their time and energy trying to delay what at times seems like the inevitable. This difficult balance permeates the whole Atlas, that of presenting what can only be a stark message in a way that does not simply destroy all hope.

In his foreword, the United Nations Secretary-General Kofi Annan is not only politically correct: ‘Often, people treat great apes better when they treat each other better, as a result of education, good governance, and reduced poverty.’ Unfortunately, we have already run out of time for this vision of a better world to become reality. It is therefore likely that the UN will soon embark on missions to protect their own self-declared World Heritage species, and we may before long see blue-helmeted troops cordoning off remnants of wildernesses in which they hang on to dear life: the enchanting gibbons, the enigmatic orang-utans, the mighty gorillas, the scheming chimpanzees and the hedonistic bonobos. There is nothing wrong with romanticizing apes in such a way because realizing that ape extinction will have severe economic and ecological consequences is only part of the necessary enlightenment. The sadder consequence is actually the deflation of the aesthetic dimension. Without apes, this will simply be a poorer planet.

Reference


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An Introduction to Cultural Ecology

BY MARK Q. SUTTON AND E. N. ANDERSON

xiii + 385 pp., 14 tables, 55 figs (including maps), 15 × 23 cm, ISBN 1 84520 056 X clothbound, 1 845 20057 9 paperback, US$ 34.95, Oxford, UK/New York, USA: Berg Publishers, 2004

Two anthropologists, both based in Californian universities, have produced a handy introductory textbook to cultural ecology, defining
this discipline as the 'study of the ways in which culture is used by people to adapt to their environment' (p. 3). Human cultures, reflecting instinctual, social, epistemological, adaptive, decision-making and managerial types of behaviour, have generated distinctive modes of interaction with their environs. Because traditional peoples are mainly in focus, the patterns of interaction are discussed under the rather standard headings of 'hunting and gathering', 'horticulture', 'pastoralism', 'agriculture' and 'intensive agriculture'.

Urban life is left aside, though intensive agriculture includes modern cash-cropping and agro-business as by-products of urbanization. Conditions covered and exemplified are hunting and gathering (case studies of the Nuu-chah-nulth culture of Vancouver Island [Canada] and the Mbuti [northern Congo]); horticulture (the Dani of West Papua [Indonesia] and the Lozi of Zambia); pastoralism (the Maasi of Kenya and Tanzania, and the Navajo of south-west USA); and intensive agriculture (south-coast China, the Maya of the Mexican Yucatan Peninsula). To essay general introductory analyses of these 'subsistence strategies' (or 'modes of production' as Marxists call them) and then follow up a detailing of the above cases are mainly in focus, the patterns of interaction are discussed under the rather standard headings of 'hunting and gathering', 'horticulture', 'pastoralism', 'agriculture' and 'intensive agriculture'.

The authors opt for a species of cultural evolutionism and place a chapter on 'the origins of food production' between those dealing with hunting and horticulture. This move allows them to formulate a culturo-ecological macrohistory that will be of interest to those less familiar with anthropological issues. Once 'agriculture' or 'farming' arose in the Near and Middle East during the seventh millennium BCE, it set in train a series of environmental impacts that have intensified to this day. Unlike horticulture, taken to be 'low intensity small-scale' agriculture (as with terrace gardening and the swidden system, p. 187, cf. pp. 191–6), agriculture proper resulted in increased population (initially at 2% per annum) and greater clearing of land. The eventual competition for resources, leading to warfare, urbanization and resulting density-linked diseases, ended in a 'dangerously narrow base' on which our contemporary cultural ecology has to rest (pp. 184–5). This mind’s-eye version of history is straightforward and matter-of-fact, and there is not a jot of metaphysics in it; it is an interesting approach, and provides a clear rationale for environmental conservation programmes.

The book has some problems. The distinction between cultural ecology and ethnoecology (see pp. 97–8, 370) is not convincing or sufficiently explored, the latter being assimilated into ethnosience. Culture is reified too much, as if it (or some individual instance of it) does something actively, when only people do. Strangely omitted from the book are discussions of waste (including merde), and of either sacrificial or funerary practices (especially body disposal), and the relative importance of so-called totems in cultural ecological study is glossed over glibly (p. 116). If, as they admit, Melanesia experienced an agro-horticultural revolution around the same time as the Middle East (pp. 169, 171), never explained is how or whether it fits the expressed broad macrohistorical schema. Some relevant writing crucial in the field is also left out of consideration (for example Head & Heinzmann 1990; Sillitoe 1998; Flannery 2001). I was also shocked to find the first cited reference wrong (it should read Lynn White, Jr, not Lynn Wilson), not a promising beginning! Be these weaknesses as they may, however, environmentalists will find this a handy resource book.

References


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Restoration of Aquatic Ecosystems

BY ROBERT J. LIVINGSTON


Robert Livingston has admirably created a synthesis of studies carried out since 1970 on various wetlands (coastal and estuarine systems) of the eastern and south eastern USA and, as such, this is the latest in a series of volumes on that extensive data series. It covers long-term field studies and laboratory and field experiments and thus is a reflection of multidisciplinary studies with a huge number of collaborators. All of this work, however, is brought together by Livingston, who rightly puts an emphasis on functioning and processes in response to anthropogenic change. The book especially emphasizes the role of good science in restoration programmes and tantalisingly indicates the future use of research information for indices of ecosystem change. However, it is likely that readers, especially those from outside the USA, will consider the title to be a misnomer in that this is a set of case studies, albeit covered in detail, rather than a general discussion of habitat restoration.

The volume is divided into sections, each consisting of two or more chapters, is logically organized and has the benefit of a single author rather than the alternative of being written as an edited set of chapters. It is valuable in looking at restoration and remediation methods and is both admirable and much needed not only for bridging the divide between the scientific, socioeconomic and political fields, but also for the novel feature of indicating the way in which media have reported the findings; these parts include the use of quotations for effect. Workers worldwide will be both familiar and frustrated with this type of press coverage, which well illustrates the emotive side of environmental decision-making.

Section I covers definitions and the restoration paradigm, namely that much ecosystem restoration has an unscientific basis and that it is not based on knowledge of system processes leading to realistic goals. A continuation of this paradigm is that restoration purports to enable a return to an original natural system, even though this state may not be known. The work focuses on the specific factors which lay the basis for successful and sustainable restoration, namely scientific research, regulation and enforcement, education, economical/political considerations, legal actions and the news media. However, the discussion needs to be clearer with regard to the terms used; for example, restoration related to polluting discharges would be better termed 'treatment'.

Section II concentrates on North Florida as a microcosm for restoration including studies on eutrophication (or cultural eutrophication as it is referred to in the USA), pulp-mill discharges, loadings and the effects of nutrients. It concentrates on the effects
of nutrients on lakes, estuaries and coastal areas in a little urbanized region, and the synthesis continues looking at processes and gives much emphasis to natural productivity. Long-term data series are used to illustrate the features; there is a wealth of information for interested bodies and for comparisons with other areas.

Section III provides a synthesis of studies carried out on the major restoration programmes in the Chesapeake Bay and Florida Everglades systems, arguably two of the most well-studied wetland systems anywhere. In this, Livingston shows the need for and value of multidisciplinary studies and assessments. Section IV emphasizes the restoration of toxic waste sites and discusses the toxicity, fate and effects of the major compounds of concern, especially mercury and dioxins. Section V then progresses to discuss planning and management, especially in relation to the Apalachicola system, although this has general messages for other similar systems. The book concludes with two appendices which cover the field and laboratory research methods including statistical analyses; these give details of great benefit to other studies which are often not given in scientific publications because of space restrictions. The studies had the great value of being supported by a database and computer programme, which are mentioned throughout the book and in the appendices.

The conclusions (chapter13) are valuable in pulling out the main messages as a final discussion, including various political points relating to the current USA presidency and the political dimension in wetland restoration and management. As such, the book contains much valuable information that will be needed in the aftermath of Hurricane Katrina. Furthermore, it is valuable in questioning the assumption that merely removing the load of a polluting substance will cause the aquatic ecosystem to revert to its previous pristine and/or productive state; in Livingston’s words this is ‘without scientific verification, and probably not valid’. In this discussion, however, there is the need for consideration of recent concepts such as hysteresis, in that the recovery path taken by ecosystems is not necessarily the same as the path during degradation.

The volume is nicely produced, although spoilt by the use of only black and white figures which make it difficult to discern the patterns in the many maps presented. In this day and age, colour prints would have been very worthwhile. Given the size of the book and the wealth of information, it has a relatively brief index which is mostly arranged around the geographical case studies. The 24 pages of references create a valuable source for graduate students and other researchers, although almost all are from North America and miss the extensive relevant European, Australian and South African literature. The general sections and the management aspects would have greatly benefited from wider geographical considerations and a move away from an ‘Americo-centric’ view. The references reflect the extensive works of the author over a 30-year period and also indicate many unpublished reports, although I question whether these will be widely available.

Robert Livingston has produced a well-written book that is not too turgid, as befits a work aimed at doctoral and postdoctoral researchers, and managers and policy makers in search of good case studies. The volume will be of value to all who are interested in the practice of coastal restoration and the amelioration of pollution problems.

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Volcanoes and the Environment
EDITED BY JOAN MARTI AND GERALD G. J. ERNST
xv + 471 pp., 25 × 19 × 2.5 cm, ISBN 0 521 59254 4 hardback, US$ 90.00, Cambridge, UK: Cambridge University Press, 2005

Volcanoes and the Environment provides the first attempt to collate information on a wide range of research concerning the effects of volcanoes on the environment. The book seeks to bridge the gap between the many disciplines and professionals that directly or indirectly study volcanoes: volcanologists, ecologists, social scientists, policy makers and professionals working on natural hazard mitigation.

The book contains 14 chapters on a wide variety of issues. These chapters are compiled by an impressive selection of well-known established scientists. The first three chapters provide a useful and concise introduction to how and why volcanoes erupt. The next two chapters reveal how volcanic rocks and gases affect the planet, including an excellent summary of climatic effects from large eruptions such as the global cooling trend recorded after Mount Pinatubo erupted in 1991. There are then several chapters relating to direct effects of volcanoes on life, from the origins of life itself to impacts on vegetation, animals, human health and even potential links between eruptions and mass extinctions. The last few chapters describe the close link between volcanoes and human lives with information on industrial uses, ore deposits, geothermal energy and culture.

The content of this book is of a high quality and presented in an accessible style. The influence of volcanoes on the environment is a blossoming area of research and the authors capture the recent interest and enthusiasm within the subject. The only weakness in content is a disappointing absence of information concerning the role of environment in forcing eruptions, indicated by a growing wealth of research.

This book is however an excellent attempt to collate material on a wide range of issues concerning volcanoes and the environment. It is concise and easy to follow with relevant figures and tables. The quality of the photographs suffers a little, since they are in black and white, however this is a minor criticism. The text is accessible to researchers of several different disciplines and would form a useful text book for students in environmental science departments. Volcanoes and the Environment achieves its goals.

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Marine Ecology: Processes, Systems and Impacts
BY MICHAEL J. KAISER, MARTIN J. ATTRILL, SIMON JENNINGS, DAVID N. THOMAS, DAVID K. A. BARNES, ANDREW S. BRERLEY, NICHOLAS V. C. POLUNIN, DAVID G. RAFFAELLI AND PETER J. L. B. WILLIAMS
xxi + 557 pp., 24.5 × 18.9 × 2.3 cm, ISBN 0 19 924975 X paperback, GB£ 27.99, Oxford, UK: Oxford University Press, 2005

From the moment you pick this volume up, you are impressed by the thought that has gone into its design and production.
The cover images are eye-catching and the internal layout, using numerous full colour photographs, diagrams and figures, and the use of marginal bullet points, all serve to draw you into the text. The main text is also supported by a number of ‘stand alone text boxes’ which provide more detail on aspects of the theme under consideration, for example a case study or an account of a relevant experiment.

Aimed at the undergraduate and taught masters market, this book is probably not likely to be read from cover to cover in sequence by many (except reviewers) and, in spite of the extensive list of authors, careful editorial work has ensured that the chapters do have basically the same style and approach to the subject matter.


The material presented is relevant to the target audience, the aim of providing a comprehensive and integrated account of contemporary marine ecology, and the role of this ecology in understanding and managing the marine environment. This is achieved by the use of subject specialists to author the individual chapters. This produces a suite of nine authors for the book’s 15 chapters. Individual authorships are not assigned and those who know the field can entertain themselves with a game of spot the author!

The three-part structure will be very useful for the target audience; it combines the traditional focus on types of marine environment with a consideration of the processes driving them and the human activities impacting them. However, there is minimal cross-referencing between chapters and this will make it harder to try to integrate in the minds of students the role of physical/chemical processes and human activities in marine systems. Whilst I must congratulate the authors on crafting a single readable work from the efforts of nine individuals, in terms of style, it does not read as an integrated synthesis. When preparing the second edition, and I certainly feel this work will deserve one, the authors should be encouraged to look at each others’ contributions and signpost these links explicitly. The authors’ preface states the desire to provide an integrated account. As it stands, it is an authoritative and comprehensive account, but the integration remains for the reader, instructor and student to develop. This is not necessarily a bad thing, as it can serve as the basis for in-course discussions and workshops.

Those using this for teaching will welcome the associated on-line resources, which include the artwork and also links to the website URLs cited in the book. Overall, I think this book is an excellent addition to the range of available marine ecology text books and has many advantages over its competitors, not least the fact that it is international in its coverage and not USA centred! I will certainly be using it as the main text book for basic marine biology courses from now on.

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Metacommunities: Spatial Dynamics and Ecological Communities
EDITED BY MARCEL HOLYOAK, MATTHEW A. LEIBOLD AND ROBERT D. HOLT
xi + 513 pp., 23 × 15 × 3 cm, ISBN 0 226 35064 paperback, US$ 38.00/GB£ 24.00, Chicago, IL, USA: The University of Chicago Press, 2005

The prefix ‘meta-’ has been used in a variety of senses, including to refer to something at a higher level (providing a bigger picture), something that refers to itself (metadata is data about data), something that is subsequent or more developed, and something that is behind (for example a metathorax). This book is about metacommunities, each of which is a set of local communities (a collection of species in a particular locality or habitat) linked by dispersal. It thus plainly concerns something at a higher level than the historically prevailing focus on individual local populations and communities, or that of the more recent focus on metapopulations (a set of local populations of an individual species linked by dispersal). It is also in some sense about something that is self-referential, in that the very notion of metacommunities is recognition that local communities do not exist independently of one another, but constitute some larger entity. It is arguably about a more developed notion than that of the metapopulation, in that it recognizes that species do not exist in isolation from one another. However, it also reflects something that, at least in any explicit sense, has been surprisingly behind in ecological thinking.

The stated objective of this volume is ‘to provide for a broad community of basic and applied ecologists the essential conceptual building blocks for further exploration of metacommunities’ (p. 7). This is attempted in 20 chapters, divided amongst five sections addressing, respectively, an introduction (one chapter), core concepts (two chapters), empirical perspectives (six chapters), theoretical perspectives (four chapters), and emerging areas and perspectives (seven chapters). The last four sections are each prefaced by a short introduction, reinforcing an evident drive towards maintaining a broad overview throughout much of the volume.

The chapters in the introductory section and that on core concepts provide a valuable review of why it is important to have a metacommunity perspective, rooted in spatial processes and species interactions, and the main issues that it concerns. They provide a convincing argument for why a metacommunity approach can fundamentally alter interpretation of ecological patterns and processes, and it would not be a surprise if some of these chapters become highly cited. The empirical perspectives section documents an array of real-world examples of different facets of metacommunities (including assemblages variously centred on mosses, pitcher plants, zooplankton, rock pool invertebrates, butterflies and beetles).
These chapters perhaps serve as much to highlight that which is not known as that which is about the full diversity of metacommunities that must exist. Regardless, some of the study systems are undoubtedly fascinating. Law and Amarasekare (p. 235) observe that ‘At the roots of metacommunity dynamics lie stochastic, multispecies, birth-death-movement processes that occur in heterogeneous environments’. The section on theoretical perspectives instructively brings together a variety of modelling approaches to explore these processes. The section on emerging areas and perspectives comprises seven chapters tackling a heterogeneous set of topics, including the future directions for metacommunity ecology. There is ample material here to inspire numerous novel and valuable empirical and theoretical studies. Finally, the book concludes with a two-page coda, listing the major findings of the book, an inclusion that could usefully be employed in many other edited volumes.

Used as a noun, a ‘meta’ was one of the conical columns that marked the turning point in a race in a Roman circus, although it came more generally to mean a turning point. Whether this volume will fulfil such a pivotal role, in the way that key edited volumes on metapopulations arguably did, remains to be seen. It would not be a huge surprise if it did.

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Sustainable Management of Headwater Resources. Research from Africa and India
EDITED BY LIBOR JANSKY, MARTIN J. HAIGH AND HAUSHILA PRASAD
xv + 304 pp., 23.5 × 16 × 2 cm, ISBN 9 280 81108 8 paperback, no price, Tokyo, Japan and New York, USA: United Nations University Press, 2005

The text is a disjointed collection of papers presented at an international conference convened in Nairobi, Kenya, in 2002. The conference was organized to discuss problems associated with headwater resources management in mountainous regions. Unfortunately, the diverse nature of the papers makes it impossible to develop a useful text for academic instruction or for applied development programming. While the issues addressed by the authors are clearly relevant to watershed management and address important problems for people living in mountainous areas, the text adds little to existing knowledge other than to confirm the existence of environmental problems in portions of Africa and India that have been identified in numerous other regions of the world.

There are several themes that permeate the text. Some of the most frequently articulated themes are as follows: water is a scare resource, water resources are not managed well, holistic planning and implementation procedures are required for effective watershed management, the watershed is the best unit of analysis of water resources problems, degradation of water resources is a global problem, agriculture is a major claimant on existing water resources and is a major polluter, the demand for high quality water will increase in the near term and scarcity will become even more problematic in the long term, mountain areas are one of the major sources of surface and groundwater for down-stream users, and most water resource degradation and scarcity issues are sociological in nature and not technological. While these issues are important environmental concerns, they have been articulated many times during the past three decades and in much more cogent and convincing ways. The primary contribution the text makes to the existing literature is that the papers are focused on watersheds that have not received much research attention in the past.

The physical science papers in the text address water resources issues that range from climate change to stream characteristics. Attempts are made to demonstrate how these factors affect quantity and quality of water resources in headwater regions and at the watershed level.

The quality of the science employed in the conduct of the research reported in these studies appears to vary extensively. Numerous times a reader is unable to evaluate the credibility of the data sources and the validity and reliability of the measurement devices used in the studies, given the information provided in the papers. Without such information a reader is unable to evaluate the merits of the findings presented. Some of the assertions made in the text appear to have been made from casual observation rather than rigorous empirical analysis. This is especially true when comments are made that the major factor contributing to the water resources problems identified is increase in resident populations. Such comments are not very useful when sociological research has not been conducted to determine what specific behaviours have contributed to the creation and maintenance of the environmental problems identified.

The social science papers included in the text are particularly subject to criticisms about the lack of empirical support for broad general assertions made by the contributing authors. Many of the statements made about the impacts of social, economic and political factors on water resources problems and watershed development in both the physical and social science papers are advanced with little or no data to support them. For example, several of the authors argue that local people have developed good environmental management skills via trial and error; unfortunately, no data are provided to support such assertions. What criteria were used to assess the abilities of local people to effectively manage headwater resources? What constitutes effective resources management practices? How did the management practices of the local people compare with established scientific recommendations for the local environmental conditions? What would have been the outcomes for local people, if alternative management systems had been applied? How were these questions assessed in terms of data and statistical modelling? Unless such questions are addressed adequately, the assertions made in the text about the utility and effectiveness of indigenous knowledge are nothing more than suppositions by the authors. The conclusion advanced in the text that water resources development in headwaters should be based on indigenous knowledge is not appropriate given the lack of empirical tests to examine the impacts of alternative development approaches on the environment and resident populations.

The text advances a myopic perspective relative to the involvement of local groups in the management of watersheds. Arguments advanced in some papers for integrated and holistic watershed planning, are refuted in others that advance planning for the socio-economic viability of local people at the cost of others in the watershed.
or for the region or society. If we argue that watersheds are composed of various interdependent components, then local people are only one of many socio-political groups that should be involved in the decision-making process about how natural resources will be used. The authors that advance development of local resources by and for local people fail to recognize the rights of all people to equal access to the resources within the society and to the benefits associated with use of those resources.

Another major shortcoming of the text is the lack of consideration by the paper contributors of alternative approaches to addressing the environmental issues identified as being problematic in headwater regions. There are numerous action options that would be effective in resolving the environmental problems identified by text contributors. Public policies could be implemented to protect headwater resources from exploitation by any member of society. Settlement could be prohibited in sensitive ecological areas such as sensitive groundwater recharge areas. Polluting activities such as the use of toxic chemicals or resource degrading agricultural practices could be prohibited. Animal production could be constrained so that the carrying capacity of local ecosystems would not be exceeded. The list of effective policy approaches is almost endless. Unfortunately such policy options were not discussed at the conference and none was included in the text to give it balance.

Given the obvious commitment of paper contributors to grass roots democracy and to the maintenance of control of resources at the local level, it is not surprising that many of the most effective approaches for achieving conservation of natural resources in headwater regions were not discussed. It is very easy to advance the position that external involvement in the form of technical assistance, environmental education and technological innovation are not needed because such approaches are not often politically acceptable to the local governing elites who do not want change. Introduction of new techniques and technologies could change existing power bases and result in established elites being displaced. Thus, it is much more difficult and politically more costly to advance the position that drastic policy changes will be required to adequately address environmental issues and that huge investments of human and economic capital at the national level (not foreign investments) will be required to address the issues raised in the text.

Publications that advance such a narrow perspective as those presented in this text are counterproductive to environmental management programmes and conservation initiatives within lesser-scale societies. Proponents of indigenous knowledge approaches to resolve environmental problems in lesser-scale societies should recognize that people have been abusing natural resources around this planet for centuries and that existing degradation of natural resources is the product of those activities. I personally think that residents of this planet can no longer risk placing the future of environment quality in the hands of those who have demonstrated for decades that they cannot maintain the socioeconomic viability of the land and water resources they manage and control. It is time that society assumed the role of protector of natural resources and the means of doing so is via public policy that is conceived in science and implemented in an equitable manner.

Many may say that a policy approach to environmental protection is utopian and not feasible in lesser-scale societies, given the corrupt nature of many governments and bureaucracies on this planet. That may very well be true, but the inability/unwillingness of governments to act is not justification for accepting the status quo and seeking to tweak the edges of the environmental problems via the physical sciences, as advanced in this text.

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Plant Conservation: a Natural History Approach
EDITED BY GARY A. KRUPNICK AND W. JOHN KRESS

xviii + 346 pp., 39 figs., 8 tables, 23 × 15 × 2 cm, ISBN 0 226 45513 0 paperback, GB£ 21.00, Chicago, USA: The University of Chicago Press, 2005

I am writing this review as my aeroplane traverses the Sahara desert, its landscape apparently denuded of plant life and frequently obscured by huge sandstorms. It leads me to reflect that my granddaughter may witness such events with increasing regularity and perhaps far closer to home. Most people on Earth still need to wake up to the slow strangling death we are meting out to all life on Earth including our own.

The volume for review is divided into four parts: Plant diversity: past and present (as the preface points out this is the framework for understanding plant diversity); Plant diversity: habitats and taxonomic groups (primarily case studies); Contemporary causes of plant extinction (fragmentation, invasive species, climate change); The conservation of plant diversity: assessment, management strategies and action. Each part is divided into chapters, each chapter of which has a short, italicized introduction and many are divided into sections. References are cited at the end of each chapter.

The preface outlines the roles of museums and botanical institutions and repeats well-used arguments to confirm the significance of the information found in museums and herbaria. Much of the information is still locked up on herbarium sheets and in the minds of botanists and even the electronic ‘revolution’ finds institutes and universities struggling to cope, with the volume of data, the resources to enter it and scientific expertise on the decline.

The editors make it clear that this book is a view from the perspective of Smithsonian botanists and their colleagues at other natural history institutions covering marine and terrestrial plants. In the foreword, Daniel Janzen describes the book as a collective review on the current position of scientists on the natural history of plant conservation. Janzen’s thesis is that if anyone could put a name to a plant or animal using a simple gadget and a georeference then the whole world would become interested in conservation. However, some want a name so that it can be revealed as widespread and can be mined, built on or irretrievably transformed.

Contributors are listed at the end of the book, of whom 38 are from the USA, three from Germany, three from the UK, two from Venezuela and one from Brazil; 25 authors are from the Smithsonian. Many authors will be very familiar, but there are masses of data and much of the volume, not surprisingly, I found
well written and informative, providing insights into the systematics of selected families, habitat alteration, hotspots, species assessments and management strategies. The question of whether the CBD, or CITES for that matter, is protecting plant diversity is discussed, although there is little about the negative aspects of the politicization of SBSTTA or the role of WIPO or GATT on the impact of access and benefit-sharing.

The volume is attractive and legible, although it is densely worded with few diagrams. Near its centre are 11 plates showing study sites, species richness distribution, plants and dinoflagellates, ecosystems, degradation and fragmentation and a single Landsat-7 image. I found no typographical errors; perhaps I enjoyed reading the chapter contents too much!

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