

and temporal bounds, the authors endeavour assiduously to bring order to their treatment and presentation. They enlist the help of others as well. Aside from numerous tables and figures, the book is embedded with 21 boxes written by 25 different authors, on subjects ranging from the effects of noise pollution on dolphin behaviour to the definition of ecosystem management. A masterful text in conservation science is the result. *Save the coastal realm, save nature: here is what you need to know.*

Coastal-marine conservation begins with an exhaustive review of subjects related to the challenge of stewardship in the coastal zone. Armed with this background, the reader is then immersed in three nicely contrasting case studies: the Chesapeake Bay, the Bering Sea and the Bahamas archipelago. The Chesapeake Bay, one of the world's great estuaries, is situated on the eastern seaboard of a densely populated, heavily industrialized country, and suffers as a consequence of both. Stress in the system, we learn, can be monitored in terms of oysters — their health and abundance. In the Bering Sea, the relationship between walrus and sea ice is shown to be crucial to understanding the function of the ecosystem. And for the tropical Bahamas, with sovereignty over extensive, intrinsically diverse and aesthetically appealing coral reefs, we learn that the national economy is almost entirely dependent on the coastal realm. But unlike so many coastal-marine systems, the economic value of the Bahamian coastal zone is not related so much to a direct harvest of living resources as to its enjoyment by tourists, and to the revenue derived therefrom.

The book goes on to address contemporary, very alarming circumstances in the coastal realm. Ray and McCormick-Ray dwell on the principle of 'change' in the greater ecosystem. They discuss several types of change — depleted fisheries, altered terrestrial drainage patterns, pollution — and stress that what is unique and threatening about these modern-day, human-induced changes is their speed. The rate of degradation is growing. The rate of response, society's efforts to conserve, restore or mitigate the damage, is not keeping pace with the losses.

In a closing chapter entitled 'Synthesis', the authors discuss mechanisms that can be brought to bear on the dilemma in the coastal realm. Here, and elsewhere in the book, emphasis is placed on the role of science as a central component of any management campaign. Science, the ability to articulate quantitatively the state of the environment, and to document changes therein, is and will remain crucial to conservation and restoration. But the authors also speak of the need for a new outlook, for enlightenment among

the human occupants of the coastal realm: 'Human–environmental well-being will also depend on a new ethic'.

Society's move toward a 'new ethic' with respect to coastal-marine ecosystems may have been given a boost in September of 2003 at the fifth World Park Congress in Durban, South Africa. By the end of this 10-day event, the international conservation community had made more and grander pledges to save the seas than ever before. A specific commitment was made to establish a global network of representative marine and coastal protected areas. Scientific research was encouraged. Reform in fisheries management policy and practice was called for.

If, as we hope, the Durban congress has heralded a new era in marine conservation for the world then *Coastal-marine conservation: science and policy* will surely become the handbook for its success. Release of this excellent volume could hardly be more opportune.

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A new paradigm for a transdisciplinary science of desertification

Reynolds, J.F. & Stafford Smith, D.M. (eds) (2002) *Global desertification: do humans cause deserts?* Dahlem Workshop Report 88. Dahlem University Press, Berlin, Germany. xviii + 438 pp, figs, tables, line diagrams, halftones, colour plates, glossary, index. Hardback: price £40.50, ISBN 3-934504-108.

Understanding the causes and mechanisms of desertification and developing effective management and mitigation plans are crucial for ecological and socioeconomic sustainability and political stability at local, regional and global scales. It is evident that science must play a critical role in this endeavour. However, progress in the science of desertification and its application has been dismal, considering that desertified lands have kept marching forward at an accelerating rate worldwide; and scientists are still debating what desertification is. The root causes of the slow progress have much to do with the multifaceted and multi-scaled nature of desertification. That is, desertification in the human-dominated world is a complex, self-reinforcing phenomenon, hinging

on the interactions between biophysical and socioeconomic processes on a wide range of spatial and temporal scales. In dealing with such problems, disciplinary or multidisciplinary approaches are inherently inadequate and beget controversies and misunderstandings.

To move forward, the impediments to progress must be identified and a new paradigm is needed. These are the goals of the book *Global desertification*, edited by Reynolds and Stafford Smith. The book is based on an international workshop on desertification (a Dahlem Conference) held in Berlin, Germany in June 2001. It consists of 21 chapters, with 36 authors from 15 countries. The first chapter by the coeditors critically reviews the conceptual and methodological issues, and articulates a new synthetic framework for desertification research. The framework is characterized by the distinction and connections among three dimensions of desertification (meteorological, ecological and human) and social organizational levels (farm/household, community, national and international), as well as an emphasis on the scale multiplicity, feedbacks and thresholds in various processes and their interactions. Although the elements of the framework may not be really new, the framework as a whole is much more than the sum of the parts. Chapter 2 discusses the importance of scale in detecting desertification, and suggests hierarchy theory as a useful conceptual framework for dealing with scale issues which are absolutely essential but poorly addressed in the context of desertification. Chapter 5 integrates the concepts of scale, resilience, self-organization, thresholds and irreversibility, offering a number of new ideas and insights into the problem of desertification. Although the chapter focuses on biophysical resilience, the resilience framework is widely known as a powerful way of understanding complex socio-ecological systems.

Chapter 3 discusses the climate factors in desertification, while Chapter 4 reports on the effects of land-cover change on regional climate, based on numerical simulations. More comprehensive assessment models that integrate both the biophysical and human dimensions are briefly discussed later, in Chapter 13. A number of chapters provide case studies of desertification in different parts of the world, including Africa (Chapters 6, 7, 8), USA (Chapters 6, 7), Australia (Chapters 6, 7), China (Chapters 10, 11) and Tunisia (Chapter 12). The human dimension of desertification is the focus of several chapters: social resilience and vulnerability (Chapters 9, 14), the role of markets and policy (Chapter 15) and the role of institutions (Chapter 16). Most of these chapters are informative. But it is

disappointing that several key concepts, such as scale, hierarchy, thresholds and resilience are not well reflected in these chapters. Repetitive discussions of the various definitions of desertification in many of these chapters are not only unnecessary but also confusing. The chapter on social resilience has no mention of the recent literature in resilience research, and does not even cite Chapter 5 whose senior author is one of the leaders in this area. Chapters 17–20 are group reports, which focus on desertification issues at household/farm, community, national and international levels, respectively. These chapters are excellent in that they identify critical problems at each level, integrate biophysical and socioeconomic factors and explore hierarchical linkages. Although the somewhat arbitrary separation of organizational levels may hamper a comprehensive understanding of an intrinsically multiscaled and complex phenomenon, the authors are able to discuss the issues effectively in a hierarchical context. The last chapter by the editors is a synthesis of the entire book, leading to the development of the so-called Dahlem Desertification Paradigm. This new paradigm emphasizes the coupling among biophysical and socioeconomic processes, nonlinear dynamics (thresholds, emergent properties), and hierarchy and scale (organizational levels, fast and slow processes).

Traditional science has been successful in studying the isolated ‘patches’ in a complex ‘problem landscape’, resulting in glamorous ‘knowledge islands’. Multidisciplinary science increases the diversity of these islands, whereas interdisciplinary science promotes understanding of the interactions among these islands. To deal with desertification, we must consider the whole problem landscape that consists of ‘patches’, ‘corridors’ and ‘matrix’ — representing a variety of biophysical and socioeconomic entities, processes and interactions using a transdisciplinary approach. Although ‘knowledge islands’ may be useful for understanding certain aspects of the problem, it is the ‘knowledge landscape’ that allows for an adequate understanding of the whole problem of desertification. This seems to be the ultimate goal of the Dahlem Desertification Paradigm. Overall, this is an excellent book, and anyone who is interested in the issues of desertification should read it.

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A return to Eden: managing the pastoral

Phillips, A. (2002) *Management guidelines for IUCN Category V Protected Areas: protected landscapes/seascapes*. Best Practice Protected Area Guidelines Series no. 9. Series editor: Phillips, A. IUCN, Cambridge, UK. xv + 122 pp, figs, line diagrams, colour plates. Paperback: price £14.50, US\$21.75, ISBN 2-8317-0672-6.

In May 2004, I was part of a team of protected-area specialists from North, Central and South America who met to attempt to adapt concepts of zoning in protected areas, as they are used in several developed countries, for possible use in Latin America. We had a chance to reflect on how this changes for different protected-area categories. I find some of our musings about protected landscapes helpful as I review this book by Adrian Phillips. Some of our members envisioned a day when the idea of protected landscapes might become passé. In this best of worlds, beautiful, biologically diverse and productive landscapes would be the norm and protection would be inherent in the stewardship of most public and private lands, and in the planning done by national, regional and local governments. Urban and ex-urban sprawl would have slowed, and globalization would have evolved to where it could distribute wealth and opportunity without sacrificing cultural diversity, beauty and tradition. We envisioned that the economies of scale and technology would, of necessity, morph to more human and nature-friendly levels. People in developed countries, we hoped, would be consuming less and people in many places would come to favour local products produced in harmony with nature, using sustainable practices. Food and other products would frequently be associated with particular landscapes (already a link to protecting landscapes in some countries), which would be using the resources around them more sustainably. The work of rural people would be valued and supported, thus enabling multiple generations once again to live on and work the land. A diversity of small towns would prosper and reflect the local climate, topography and ecosystems. In a sense, we were describing the characteristics of the special places maintained with the Category V Protected Landscape designation — the focus of this book.

This musing does serve to remind us that until the above scenario becomes a widespread reality, it will behoove us to protect those places where human activity and natural process have evolved carefully together and

have, over time, shaped one another to produce landscapes and residents that inspire us. We really need to see places where human activity is harmonious with the natural world as benchmarks to help us find our way back to the future. In the USA, we are not likely to be creating many more national parks. However, I think we will follow the Europeans and others by creating more protected landscapes and promoting private land conservation and restoration. Local government open-space programs are creating some of the components for this. But managing larger integrated landscapes with many owners and multiple jurisdictions is a more daunting task than managing an open-space area, national park or nature reserve. It is with all this in mind that we owe Professor Phillips and members of an IUCN World Commission on Protected Areas task force on Protected Landscapes a good deal of thanks for providing us with this set of management guidelines and case studies.

The book begins by describing (a) where Protected Landscapes fit into the IUCN protected area categories (Category V); and (b) the key characteristics of Protected Landscapes. It goes on to address (c) the initial planning and designation for these areas in some detail; and focuses us on (d) 12 management principles. This is followed by an extensive section on (e) objectives, policies and the planning process including the development of management plans and the related plans that are needed to make Protected Landscapes work. The template for a management plan is annexed. The body of the book closes by describing (f) the means or the formal institutional arrangements that could be used to oversee the creation and management of Protected Landscapes. Throughout the book, case studies of already-designated landscapes or those with the potential to be Category V Protected Landscapes, which help to illustrate each of the concepts (a) to (f) above, are featured. That many are not yet designated as Protected Landscapes speaks of the difficulty of doing so.

I had to work diligently at piecing together an understanding of this complex topic and the diversity of applications. The book takes on a lot and in order to fit it all in, resorts to a fair amount of summarizing. In addition to the text, there are 35 call-out boxes containing the guidelines themselves (45 main and 280 associated guidelines) as well as variety of checklists and concept summaries. There are also 26 case studies, 13 figures and eight colour plates used to address the topic. Nonetheless, I was motivated to stay the course and urge other readers to do the same, partly because protecting landscapes in an integrated way is a concept whose time is now. Disguised as a