without indicating why it is controversial or balancing the selected scenario with the alternate position. Moreover, known and predicted scenarios are often mixed without proper caution. (8) If a weakness is identified, as for example in the species/area curve for estimating species extinctions, it is the one that underestimates extinctions while those weaknesses that exaggerate extinctions with this method are ignored.

These lapses of analysis diminish the value of this book for students, scientists or critical readers. Since the book lacks suggested solutions, it might not be of use to managers or policy makers. The book also raises questions about this kind of conservation biology. Does the tropical biota lack capacity to adapt and adjust to environmental change? What solutions or alternatives are available to society beyond an awareness of the problems?

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Large-Scale Ecosystem Restoration: Five Case Studies from the United States

EDITED BY MARY DOYLE AND CYNTHIA A. DREW

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This edited book, one in a series of books supported by the Society for Ecological Restoration International (SER), describes, in 15 chapters, five large ecosystem restoration projects in the USA. Each of the five case studies, namely the Florida Everglades, the Platte River Basin and the Upper Mississippi River Basin in Midwestern USA, the California Bay/San Joaquin Bay in northern California and Chesapeake Bay in eastern USA, are described in sections divided into 3 chapters. The first chapters in each section give overviews of the restoration being undertaken and are written by a number of authors, including the book editors. The second chapters describe the ecology of the systems being restored and progress to date; all five of these chapters are written by the same author, wetland ecologist Tom Chrisman of Florida International University, giving the book good continuity in ecological descriptions. The third chapters in each case are provided by invited social scientists to address the economic issues of these restoration projects.

A final conclusion chapter by one of the editors, Mary Doyle, summarizes the case studies in the book as 'photographs,' recognizing that the projects and sometimes the ecosystems are constantly changing. Perhaps a better metaphor might be that these are non-ending movies, not photographs, something that cannot be captured in a book alone. She describes the projects in terms of timing and level of funding; their costs are collectively in the US$ tens of billions. Setting and meeting goals are described as essential yet difficult to do in practice. Other issues described in this chapter include federal-state partnerships (important in the USA for such projects), the quality of the science, adaptive management (ecosystem-based management) conflict management (human-based management), and building and maintaining public awareness and support.

The book is intended for scientists, policy makers and possibly even the general public, anyone who is interested in ecological restoration. It is also meant to focus on large projects, both in terms of area being restored and in term of fiscal budgets.

The projects are indeed enormous, both in complexity and in size. The unintended message in the book may be that managing restoration at this scale may indeed be impossible, given the political complexities. For example, there is a decidedly mixed review currently of whether the Everglades restoration project, perhaps the biggest project described here, has had much of a measurable (ecological) effect, even though it is being carried out in only one state and enormous sums of money have been spent. The restoration has brought a lot of attention to the Everglades nationally and has bolstered many wetland researchers' careers with grants and publications. But will the Everglades be a healthier ecosystem in the end? The Upper Mississippi River restoration, only part of the much larger Mississippi-Ohio-Missouri (MOM) River Basin, is less clear on its goals, given that there are 26 locks and dams currently on this river system with no discussion of a true river restoration even remotely on the table.

There are almost no illustrations in the book until Chapter 13 (the general description of the Upper Mississippi River), where 10 figures (four are actually tables) appear. I found this lack of data and graphics illustrating principles and history, especially ecological, to be a weakness of the book, as change in ecological characteristics over time is the essence of restoration. Maps are provided at the beginning of each restoration project description, but are not illustrated in a consistent style. The maps lack the most important part of any map, a scale. Indeed this book is about large scale, but to people not familiar with the USA, some of the maps could be showing a few square kilometres.

I am surprised that this book (and perhaps others in this series) does not use SI units. I am writing this review for an international journal and I am sure non-USA readers would be frustrated with the miles, acres and square miles throughout the book. This book is supported by Society for Ecological Restoration International (underscore is mine). However, in order to restore USA ecosystems, engineers and landscape architects are required as well as scientists, hence perhaps the use of units still employed in ecological engineering and restoration in the USA. Nevertheless, metric units should have been supplied in parentheses.

A useful feature of the book is a nine-page list of abbreviations and acronyms. A sign of bureaucratic times is that there are so many acronyms, so this list will be quite useful to the reader. It would have been useful if the editors had provided definitions or functions of these terms/organizations, as well as their names.

Another criticism is that the positions and affiliations of the authors of this book do not appear anywhere; these would help determine the expertise or at least background of the authors. Conversely, the names and addresses of the Island Press Board of Directors and their affiliations are given in the back of the book.

The editors and authors are to be congratulated for their wisdom in bringing large-scale ecological restoration projects into one volume. These are indeed large scale and any attempt to find general principles in these types of mega restoration projects is appreciated. I am disappointed in the lack of evenness from section to section and the issues I discuss above. Perhaps the restorations need to be given with science-based ecological engineering (or restoration) principles (see Mitsch & Day 2004,

2005; Mitsch & Jørgensen 2004) to provide additional perspective and depth and application to similar large-scale projects in the future.

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The World System and the Earth System. Global Socioenvironmental Change and Sustainabilty since the Neolithic

EDITED BY ALF HORNBORG AND CAROLE CRUMLEY

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Is there a relation between the scattered, local and regional environmental changes that humans caused in the past and the globalizing environmental change, perilous in many ways, that is now on the rise? Are significant parameters of 'unsustainable' human behaviour rooted in evolution? Even more fundamentally: can we quantify or map the human impressions on the earth and atmospheric systems over the long term?

In an ambitious volume drawn from a conference at Lund University, Sweden, in 2003, human ecologist Alf Hornborg and archaeologist Carole Crumley have collected 21 papers that circle around questions like these. There is much to be said in favour of this collection. Perhaps most important is the many takes on a physical and material interpretation of 'economy' in different historical periods, including our present. Not just Hornborg himself, but several others (for example Nina Eisenmenger and Stefan Gilljum, and Andre Gunder Frank, to whose memory the volume is dedicated) here analyse flows of resources and wealth within communities and across boundaries.

Anthropologist Thomas Abel connects to Howard T. Odum's tireless preoccupation with flows of resources and how to discern a 'realistic' account of the economy from a sustainable point of view. Sociologist Thomas D. Hall and biologist Peter Turchin argue, with a conceptual start in population ecology, that there are 'pulsations' in the world system over the long term, indicating 'long-distance synchronicity'.

Several authors go even further to discuss periodizations. Obviously, a world history as seen from the angle of two large interacting systems, one human, the other physical, must be different from one focusing on human intentionality. Not surprisingly, broad brush patterns follow. Political scientist George Modelski argues for the periodic arrival of 'dark ages' and tries to impose a neat sequence of such periods on human history, reflecting the supposed existence of some global systematics or structure dating back at least to the Egyptians. Other authors speak of a 'cultural-economic rhythm' (political scientist William R. Thompson), of ancient high cultures, or point to demographic parallels across scales and regions (sociologist Chris Chase-Dunn, T. D. Hall & P. Turchin). Yet others, like archaeologist Kristian Kristiansen, observe major patterns of change simultaneously occurring in world regions (Eurasia and Eastern Asia), again suggesting a pulsating pattern in the larger history. Several solid diachronical case studies of the book, such as those of Amazonia (Hornborg and Betty J. Meggers, respectively), implications of climate change in Eastern Africa (Karin Holmgren & Helena Öberg), and I would also include Kristiansen and Thompson in this group, are characterized by a more compacted time and space and refrain from far-reaching speculation of pulsations and connections.

There is an element of tragedy in some of these papers, in the sense that after having read them the links between past and present unsustainabilities seem less sure. Thompson's earnest attempt to connect periods of economic decline, crises and regime shifts in ancient south-western Asia to harsh climates and detrimental environmental change is a telling case, both in that he fails to find either any such connection or any obvious periodization.

With all their diplomatic grace, even the editors seem reticent about some of the most drastic formalizing approaches to the past. Hornborg cites Gregory Bateson, an early sceptic of 'delegating to computers our responsibility for pursuing knowledge'. Still, there is a lot of computer-based work in this book, and rightly so. There are modelling studies from regions as diverse as China, Europe and the Middle East. They share many heuristic insights. The problems arise in the historical approaches, when ambitions grow beyond what models can justify. John Dearing, presenting arduously compiled and very interesting environmental history data from Lake Ennai in Yunnan, runs into problems when he ventures into 'foresight' based on models, still he only reluctantly backs off from what seems a hopeless mission to model 'future socioenvironmental change', not just for Yunnan, but for the entire world.

While generously welcoming everybody to this volume, Hornborg is right in warning in his foreword of 'imperial' tendencies of scientists entering the chaotic and anarchic worlds of human mores and missions. Carole Crumley, evoking C. P. Snow, is also right in suggesting the continued meeting of the two cultures of humanities and science in the further attempts to understand how humanity has ended up where it is. The contribution of this volume is that the editors have, unreservedly, allowed this meeting to take place in the free spirit of academic exchange.

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