with implementation. Those hoping for a formula to guarantee outcomes will be disappointed. EBM is about being prepared for surprises and accepting trade-offs. The material is more concerned with concepts and illustration than with technical detail. As such it is accessible to students and interested stakeholders, as well as a useful resource for scientists and managers, but these readers will need to pursue the details elsewhere. Interestingly some of the most concrete measures that it does identify concern steps toward communication and cooperation within communities of diverse stakeholders.

The focus on the human aspect of ecosystems raises some topics which are rare in the scientific literature. Several contributors make the case that the value of ecosystems includes their role as spiritual foci. The chapter on ethics is certainly informative and thought-provoking. For example, it is true that there are non-scientific 'ways of knowing'. It is also true that, in some moral systems, motivations are more important than means or ends. However, practitioners must still achieve tangible ends through acceptable means. These practitioners should certainly account for the diversity of human needs and objectives. Unfortunately calling for a new ethical framework recognizing the 'morally significant vital needs' of every part of the ecosystem does not seem to move us any closer to implementation, nor does comparing the central argument for EBM (healthy ecosystems provide services which meet human wants and needs) to those advocating good care of slaves.

The stylistic lurches between emotive and technical are sometimes difficult and it might be impossible to accept every argument. Nonetheless, this book is timely and mainly well-organized, well-researched and well-reasoned and is therefore welcome and necessary reading for anyone interested in marine EBM.

Reference

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The Dominant Animal. Human Evolution and the Environment

BY PAUL R. EHRLICH AND ANNE H. EHRLICH

428 pp., 24 × 16 × 3 cm, ISBN 978 1 59726 096 1 hardback, US$ 35.00, Washington, DC, USA: Island Press, 2008

When I came to Queen's, I inherited a course called 'Human Evolution and it's Environmental Impact' which was set up by the great dendrochronologist, Mike Baille. He was one of what was originally a very small band of far-sighted scientists who had the vision to understand the fragility of our planet and the increasing levels of anthropogenic damage to it. In the forefront of this band of scientific mavericks (now a mainstream view, not least because of their consistent efforts over many years), were the Ehrlichs. This substantial volume is the course text that Mike never wrote.

This book presents a solid overview of human ecology, and a sustained and carefully-reasoned argument for fundamental changes in global society to enable the equitable and sustainable use of the Earth's resources. It is done, through the synthesis of an immense range of information, as discussions of how we became what we are as a species; what we are; how we came to (mis)manage the planet as we do; and the possibilities for the future if we maintain current trends.

The Ehrlichs present a condensed account of the mechanisms and workings of evolution (chapters 1 and 2) and how these have led to the appearance of the modern human species (chapters 3 and 4). In chapter 4, the evolution of consciousness, the human mind and culture is discussed in the light of the mechanisms of genetics. Chapter 5 deals with social organization and the rise of modern states. The environmental and cultural contexts of human perception, how these limit our ability to perceive environmental change, the biological basis and evolution of belief systems and the general slipperiness of concepts of race are discussed in chapter 6. Chapter 7 deals succinctly with human population biology and dynamics, ending with a discussion of the issues faced by populations which have passed the demographic transition. The concept of human progress and cultural evolution are dissected in chapter 8. Chapter 9 is an introduction to ecological cycles and the functioning and interconnectedness of the planet's systems. This ecological theme is followed in chapters 10–15 where the impact of humans on the biosphere is considered in some detail. Chapter 16 deals with conservation biology, its importance and costs to human society. Governance and the difficulties the global community has with concerted action are explored in chapter 17. Finally, the epilogue argues for the adoption of sustainable ways of managing the Earth through the adoption already-available alternatives to current practice.

The book represents a considerable intellectual achievement and is by two of the most revered names in ecology, but it is difficult to understand quite at whom this book is aimed. The book is written clearly, logically and accurately. The material is well-selected and nearly all current, although I felt that the material on global problems in chapters 10–15 could have been considerably condensed, as much is now very well-known. The real challenge today, given the widespread awareness and discounting of these problems, is to how solutions might be implemented and 'sold' to the public, and this is hardly touched upon. The impending fate of the World's ecosystems and populations are unfortunately too remote from most people's experience and day-to-day lives to cause spontaneous behavioural change. The book was, however, written during the Bush presidency, when policy making was explicitly blind to many of the issues explored here and there was a pressing need for the balance to be redressed. The focus of the book is largely on the First World, and in particular the USA, and it would undoubtedly be highly beneficial to the rest of the planet's population if every affluent citizen read and learnt from it. Unfortunately, this is likely to be a vain hope. *The Dominant Animal* is probably too long and too scholarly to appeal to many policy makers or members of the general public, and too generalized to appeal to many established academics. It has a place in any undergraduate course requiring an accessible overview of human ecology and I have recommended it on this basis to my first year class.

The book is well-produced, easily legible, printed on recycled paper of good quality and with virtually no typographical errors. The

illustrations are generally clear, although the typeface in diagrams, such as Fig. 3.3, is a little lacking in impact, and some photographs, such as Figs 13.21 and 15.2, are slightly muddy. The text is supported by endnotes and well-chosen annotated bibliographies and there is a useful index.

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Modern American Environmentalists: A Biographical Encyclopedia

EDITED BY GEORGE A. CEVASCO AND RICHARD P. HARMOND

xv + 557 pp., 24 × 16 × 4 cm, ISBN 978 0 8018 9152 6 hardback, GB£ 57.00, Baltimore, USA: Johns Hopkins University Press, 2009

This encyclopedia profiles 139 American environmentalists who lived and worked in the twentieth century, from biologists and zoologists, to park planners and museum scientists, to poets and artists. Eighty-seven scholars contributed to this volume, which, published after the deaths of both editors, stands as testament not only to the environmentalists who come to life on its pages, but also to those who devoted their lives to studying their methods and motives.

The editors hoped that *Modern American Environmentalists* would be a valuable reference tool for supporters of environmental causes. Its greatest value lies in its illumination of the internal lives of those whom it profiles, in particular revelations about their conversions to environmentalism. Understanding how these scientists and thinkers explain their devotion to their cause is likely to help readers articulate their own standpoints. This encyclopedia is no *Rules for Radicals*, but in mapping a genealogy of environmentalism's past, it makes easier imagining its future.

That genealogy includes familiar names, less familiar ones and surprising ones. Pioneers receive the attention they merit. They include Edward Abbey, author of *The Monkey Wrench Gang*; Aldo Leopold, the father of wildlife management, who in the eyes of a dying wolf saw what it was to 'think like a mountain'; Rachel Carson, whose dread of 'a small world made lifeless' motivated her to write the profoundly influential *Silent Spring*, about the impact of pesticides on the environment; and David Brower, the uncompromising activist whose Friends of the Earth brought us the slogan 'Think Globally; Act Locally.'

Surprising profiles include that of George Washington Carver, who, contributor Mark Kersey suggests, was less the Peanut Man than a scientist who understood the effects of humans' behaviour on the natural environment. Years before *Silent Spring*, Carver knew that the chemicals farmers used ended up in our bodies, and his advocacy for eating locally, his effort to revive underused crops, and his despair at the declining quality of farmed food were ahead of their time. Notorious eugenicist Madison Grant left us the Bronx Zoo in addition to his noxious *The Passing of the Great Race*. Celebrated aviator Charles A. Lindbergh, whose non-stop trans-Atlantic flight epitomized America's technological prowess, later questioned the significance of his achievements and the progress they symbolized. Late in life, he wrote, 'If I had to choose, I would rather have birds than airplanes'.

By bringing new figures into the fold, *Modern American Environmentalists* highlights what may be the environmental movement's greatest challenge: its lack of cohesion. More than a few of the people profiled here would have been unlikely to describe themselves as environmentalists, and most certainly never saw themselves as members of a unified movement. Some of the most influential environmentalists profiled in this volume were philanthropists who donated vast sums of money to preserve wild areas that remain under siege by the industrial interests that gave the donors their wealth. Others write beautifully of nature, but their impact on the health of the planet is uncertain. The divide between environmentalism as a personal philosophy and environmentalism as a social movement, and the tension between the two, endures.

There is something tragic too about *Modern American Environmentalists*, an example of a threatened, if not endangered, medium (the encyclopedia) describing the lives of mostly dead people (of the 139 entries, just 21 profile living people). Johns Hopkins University Press reassures its readers that it uses environmentally-friendly book materials whenever possible. But the Press, with its well-earned reputation for forward-looking digital projects, might have considered online publication to improve access, both by offering the material widely and reducing the price, and to avoid printing 557 pages of paper.

Environmentalists both living and dead, though, offer their contemporary counterparts models for the kind of leadership any movement needs to produce change. At a time when environmentalism has been absorbed and co-opted by the governments and businesses which once opposed it, models of environmental leadership are never more in need.

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