Stories of Global Change


Environmental scientists often write essays intended to inform the general public about key environmental problems. These books are difficult for the professional to judge. We can assess their scientific accuracy. But since they cover familiar territory at an introductory level, it is hard to enjoy them, even though they may be both entertaining and edifying for the intended audience. Rob Jackson’s The Earth Remains Forever is a happy exception to this problem. Jackson’s book is accessible to the general reader, it is accurate in the areas it covers, but most important, it is extremely engaging even for those already familiar with the global environmental problems he discusses.

Jackson examines the three major components of global environmental change: biodiversity loss, ozone depletion, and climate change. He reviews the evolution of both science and policy around these pressing issues, and he offers reflections on what we might do to reduce the human footprint on the earth. The key to his exposition is the use of case studies and the historical development of science around each of these topics. The historical approach is what makes the book entertaining even when it covers familiar ground. His stories make clear the interaction between knowledge and action. And unlike many popular treatments, The Earth Remains Forever emphasizes the way scientific understanding evolves. Caution in drawing conclusions, alternative hypotheses that have fallen by the wayside, and the limits in current understanding all feature prominently in Jackson’s exposition. Readers will emerge with basic knowledge of each of these three major global problems. In addition, because Jackson emphasizes the complexities and uncertainties in environmental research, the reader will learn to think critically. It is rare to find a volume that builds such an important conceptual foundation and at the same time is such an entertaining read. Scientific uncertainty is increasingly being invoked as an excuse to take no action on critical environmental problems. By helping the reader understand how science evolves, Jackson provides a useful vaccine against many such specious arguments about environmental policy.

But The Earth Remains Forever also has a major flaw, one that would preclude my recommending it for an introductory environmental science course. Jackson is very competent at dealing with the physical and biological science literature on global change. But he seems completely unaware that there is a literature in human ecology/environmental social science that is at least as important as the literature he cites. In well over 200 references, fewer than 10 connect with the human ecological literature, and even these are not deployed effectively in his presentation.

This greatly weakens his exposition. Many important points are supported only by argument from first principles and statistical abstracts rather than by scientific analysis. Like most biologists, he emphasizes the importance of human population as a driver of environmental
problems but also takes account of affluence and consumption. But he does so without engaging the literature (e.g. Stern et al. 1997), and as a result his analysis lacks subtlety. The literature on ecosystem services could substantially bolster his arguments regarding the value of biodiversity, which I fear will not be convincing to a skeptic (National Research Council 1999a). His discussion of discount rates (pp. 114–115) does not address key arguments in environmental and ecological economics. As a result, his position seems naïve. Jackson gives considerable attention to international environmental treaties. We know a great deal about governing the environment with institutional arrangements such as treaties, markets, regulations, and voluntary agreements (e.g. Ostrom et al. 2002). The literature on environmental treaties is especially rich. It is surprising Jackson does not build on this research, since it offers important insights into what works and what doesn’t and why. He repeatedly discusses individual decisionmaking as the nexus for dealing with environmental problems. Yet he ignores the literature on what can and cannot be expected from individual behavioral changes (National Research Council 1999b).

It is unfortunate that a book that is both entertaining and useful is so deeply marred by this blind spot. Perhaps a decade or two ago the shift from discussions grounded in science to speculation on the human dimensions of environmental problems might have been acceptable. Now it sharply limits the utility of the book as a text. I hope that if Jackson undertakes a second edition or a new volume along these lines, he will take the time to engage with the full scientific literature on the subjects he tackles. And although I would not use The Earth Remains Forever in the classroom, I can imagine leaving a copy of it next to the Gideon Bible in a hotel room, in the hopes that a bored guest might read it. I can imagine that a business traveler, after spending an evening with Jackson’s book, would have a better appreciation for the importance and complexity of the problems we face. A careful reader of Jackson’s book would be better equipped to see through the facile rhetoric currently being deployed to avoid action on global environmental problems.

THOMAS DIETZ
Director, Environmental Science and Policy Program
Michigan State University
East Lansing, Michigan 48824

References cited


IS POPULATION ECOLOGY A MATURE SCIENCE?


In the preface to this book, Peter Turchin clearly lays out its themes and functions: to review the current understanding of why populations oscillate, to synthesize the empirical and mathematical components of population ecology, to demonstrate that population ecology is on the “brink of maturity” in becoming a predictive science, and to communicate these themes to professional scientists and students alike. This is an ambitious undertaking, even though