

ENVIRONMENT

Ecology and Our Endangered Life-Support Systems

By E. P. Odum. 1988. Sinauer, Sunderland, Massachusetts. 212 pp., illus. U.S.\$14.95.

To those of us raised to believe in the separation of ecology and environmentalism, Odum's *Ecology and our Endangered Life-Support Systems* is slightly shocking. Although at times I found the synthesis awkward, it is timely to instruct future would-be ecologists and citizens in the Leopold school of land ethics.

Oddly, I was unmoved by the Prologue, a dramatic recounting of an imperilled Apollo mission. Despite the attempt to connect Apollo's vulnerability to the embattled life support systems of Earth, I did not find that the book began in earnest until Chapter 3, The Ecosystem. The chief difference that sets this book favorably apart from Odum's 1963 *Ecology*, is that while it provides the more traditional curricula such as biochemical cycles, population ecology, succession, and ecosystem types, these all are ultimately discussed in their relationship with current human mismanagement of global affairs. For example, the analogy is made between successions of ecosystems and human societies, and while maximizing production may be an appropriate occupation for young ecosystems and civilizations, in natural ecosystems a "protective" strategy takes over. As biomass exceeds productivity and nutrients are locked away in biomass, the more limited resources are increasingly committed to maintenance and not growth. In parallel, Odum

suggests that in developed urban industrial centres energy and resources must now be devoted to services which "maintain what is already developed and pump out the disorder inherent in any complex high energy system".

If Odum plans a third book on this theme, I think it should go into more detail on practical alternatives to current problems. Examples of successful and potential, sustainable replacement technologies are needed to counteract the more easily accessible examples of eco-crisis. I would like to see presentation of how alternative systems work, from pulping of wood by white rot fungi, microbial alternatives to straw burning, traditional principles of crop rotation and allee cropping, to the long practice of biogas generation in Asia.

Overall, I have little bad to say about this book. It could fill the introductory ecology text niche very neatly. It does not attempt to cover all the major figures in ecology by any means, but there is good smattering of Darwin, Clements/Gleason, Tansley, Lotka, Harper, Connell and Lovelock, and others. It is short, well-informed, and readable, in marked contrast to the overwhelming, pretty texts that now belabour the minds and arms of students.

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State of Washington Natural Heritage Plan

Washington Natural Heritage Program. 1989. Department of Natural Resources, Olympia, Washington. 164 pp., illus.

This report will interest conservation biologists. It presents the status of one of the leading Natural Heritage Programs in the United States. The Washington Natural Heritage Program is the clearing house for information on Washington State's Natural Area System which presently contains eighty-four natural areas. The Washington State Natural Heritage Program has published a Natural Heritage Plan on a biennial basis since 1983. This report is the 1989 edition.

This plan contains an inventory of the "elements" presently in the Natural Area System. Elements are plant communities, rare animal and plant species, aquatic systems, and other natural features including geologic features. The known

elements for the seven physiographic regions of the State of Washington are listed with the degree of their representation in the Natural Area System. Those elements which are poorly represented, or not represented at all, are identified as needing further work.

This plan identifies the need to obtain better representation of marine ecosystems, wetland systems, and geological features. These elements are also poorly represented in the natural area systems of other states. This report contains plans to improve their representation in Washington State. These plans are positive indicators of the greater attention that these types of elements are starting to receive from the natural area community.

This report also contains an inventory of the elements present in each natural area that is



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