Global Issues

Biodiversity II. Understanding and Protecting Our Biological Resources. MARJORIE L. REAKA-KUDLA, DON E. WILSON, and EDWARD O. WILSON, Eds. Joseph Henry (National Academy) Press, Washington, DC, 1996. vi, 525 pp., illus. $29.95. ISBN 0-309-05227-0.

This book is presented as a follow-up to the seminal 1989 work *BioDiversity* edited by E. O. Wilson, a leader and source of inspiration for many students and scholars interested in the diversity of life on Earth.

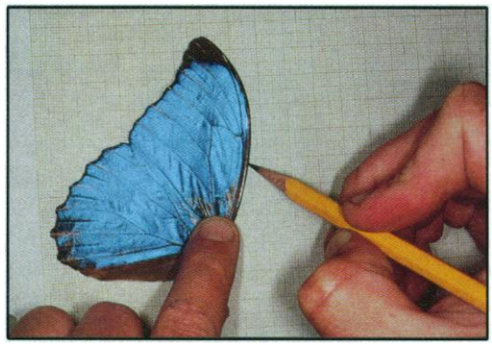
The book stems from a symposium organized by the Consortium for Systematics and Biodiversity representing five institutions in the Washington, DC, area, and it is difficult to overlook the contrast between the subject of the book and the regional, national, and institutional lack of "diversity" among the contributors. Only one of the 47 authors of the 32 chapters lives in a country (Australia) outside the United States; of the rest, 80 percent work in eight institutions within a 125-mile radius of Philadelphia, Pennsylvania. (The earlier *BioDiversity* had a much wider geographic representation within the United States and at least five or six contributors from other countries.) This surely does not reflect negatively on the intrinsic quality of the chapters in the book, but I am afraid it will convey to the non-expert reader an unduly narrow view of the wide array of thought and work being brought to bear on this global human problem. The restricted "eastern U.S." viewpoint also contrasts with the editors' forceful argument for pooling resources and coordinating efforts of existing institutions to conserve the world's biological resources.

Biodiversity II starts with an eloquent and convincing presentation about what biodiversity is and why it is important to understand it. It is particularly directed to a non-expert public in order to trigger or heighten their awareness of the threat to biological diversity as a central global issue.

A main question in biodiversity studies is the actual number of species on Earth, and part 2 of the book provides a thorough review of estimates of that number, based on extrapolations from relatively well-studied groups. It becomes obvious that we are very far from knowing the number of species to a close approximation and that estimates are bedeviled by an appalling lack of data to define biological patterns at a global scale. An important insight introduced in this part is the need for a "common currency" in which the genetic diversity of evolutionary assemblages can be compared, the suggestion being made that its units might be molecular markers.

Part 3 of the book, concerned with known and potential losses of species, shows more our ignorance on the subject of what we might lose than a real capacity to predict the changes to come. This section does not add much that conceptually goes beyond previous studies such as that of Robert May (*Science* **241**, 1441 [1989]) or what was contained in the first *BioDiversity*. Part 4, notwithstanding a reference in its title to "using" biodiversity, is mostly concerned with taxonomic analyses of different groups of organisms that are presented as "star" groups for this type of study and in general adds little to what was already known.

The section (part 5) dealing with the search for solutions, new directions, and applications adds important and relevant topics not dealt with in the volume's predecessor. It discusses a mosaic of approaches, systems, and methodologies for improving our knowledge of biodiversity, underlines the lack of information on microbes and coral reefs, and presents an excellent introduction to ecological restoration that underlines, by its scanty references, how much more work should be done on this important issue. Only Daniel Janzen's richly experienced contribution touches, however tangentially, on the social component of the use and conservation of biodiversity.



Tracing a wing. [From *Biodiversity II*]

Part 6, on the institutional and information infrastructure of conservation efforts, is an important section of the book, but it is a pity that it is almost exclusively centered on U.S. (and particularly U.S. government) experience. The Australian ERIN (given only a passing reference) is by far the most advanced national biodiversity information system in the world and deserved a chapter of its own. Other efforts that might have been covered are Mexico's CONABIO and Costa Rica's InBio, with important experience of their own, particularly being based in countries with high biological diversity and more developed as national information centers than Brazil's Bin21, or, among international efforts, the Expert Center for Taxonomic Identification and Species 2000. And even within the United States more attention should have been paid to such efforts on data modeling, computerization, and networking as TROPICUS, SMASCH, and MUSE.

The book is structured to represent most topics central to the science of biodiversity. But two essential ones are lacking. One is the role that biodiversity plays in ecosystem processes and how ecosystem stability is affected by species diversity. The other is what is commonly called the "human dimension"—the linkages between the cultural attributes of societies and the building of a scientific understanding of biodiversity, the effects of population pressure on species diversity, and the participation of people in the maintenance of biodiversity. This, in the opinion of many people working on the subject, holds the key to conservation, restoration, and sustainable use, specially in the tropical areas.

There is no doubt, however, that *Biodiversity II* is an appealing and richly informative book. It will certainly inspire new avenues of research and action and will help increase awareness of the responsibility the present generations bear for preserving for those to come what we have been borrowing from them. Because of the extensive lists of references, the book will also be a useful source for those working on the science of biodiversity.

José Sarukhán
Universidad Nacional Autónoma de México, Ciudad Universitaria, México, D.F., México

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Browsings

Culture Change and the New Technology. An Archaeology of the Early American Industrial Era. Paul A. Shackel. Plenum, New York 1996. xxxii, 217 pp., illus. $37.50. ISBN 0-306-45333-9. Contributions to Global Historical Archaeology.

A study of the town of Harpers Ferry, West Virginia, in its heyday as the site of an innovative armory that flourished in the early 19th century; based on a research project of the National Park Service.

Science and Civilisation in China. Joseph Needham. Vol. 6, Biology and Biological Technology, part 3, Agro-Industries and Forestry. Agroindustries: Sugarcane Technology, by Christian Daniels; Forestry, by Nicholas K. Menzies. Cambridge University Press, New York, 1966. xxx, 740 pp., illus. $150. ISBN 0-521-41999-9.

The magisterial work begun by Needham in 1954 continues posthumously, now under the general editorship of Christopher Cullen.