

## BOOK REVIEW

ASHOK GADGIL, LAWRENCE BERKELEY, and DIANA M. LIVERMAN (EDS.). 2010. **Annual Review of Environment and Resources, Volume 35, 2010**. (ISBN: 978-0-8243-2335-6, hbk.). Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, U.S.A. (Orders: [www.AnnualReviews.org](http://www.AnnualReviews.org), [science@annualreviews.org](mailto:science@annualreviews.org), 1-800-523-8635, 1-650-493-4400). \$80.00, 389 pp., 7 3/8" x 9 3/8".

*The Annual Review of Environment and Resources, Volume 35*, edited by Ashok Gadgil and Diana M. Liverman, is an in depth overview of current scientific and policy issues concerning environment, development, and resource management. It is a collection of papers by leading experts examining emerging research in their respective fields and highlighting a range of critical issues.

The review targets practitioners, policy makers, and scholars in the environmental and policy fields who wish to be current on a particular subject, but who perhaps do not have time to consult the multiple journals and periodicals necessary to gather the required information. The editors also state that the *Review* targets "non-scientists charged with making sense of changing environmental issues." While non-scientists will benefit from the in-depth information available in the review, a number of the articles would require great persistence on the part of a non-scientist to glean and synthesize the desired information.

The *Review* is divided into three major sections. The first section, "Earth's Life Support Systems," offers three articles addressing a variety of issues dealing with the ecological impact of human activity on the natural world. The authors examine how humans have substantially altered natural ecosystems and discuss the need to identify and implement a variety of management options to control negative impacts.

The second section, "Human Use of Environment and Resources," provides a wide variety of in-depth analyses of the human behaviors that drive environmental degradation. Five articles address energy, water, agriculture, urbanization, and environmentally friendly or "green" consumption patterns. The articles provide insights on the socio-economic drivers of human behavior and the respective consequences of that behavior on the resource base at local, national, and international levels. The authors offer a variety of scenarios for future research and change.

The third section, "Management, Guidance, and Governance of Resources and Environment," makes the link to policy and governance with five articles linking human behavior and environmental degradation to the decision making arena. This section examines the global interconnectedness of human impact on the environment and analyzes the enormous socio-economic, institutional, and political complexities involved in resolving environmental issues.

Four reoccurring themes rise to the surface when reviewing this compilation of articles—vulnerability, resilience, adaptation, and rescaling. All of the articles address one or more of these characteristics. To highlight just a few, in the first section, authors Donald Strong and Kenneth Frank address issues of vulnerability and resilience of food webs. The authors argue that the human impact on food webs and the subsequent loss of large "apex" predators on land and in water has drastically altered producer/consumer relationships and the ecosystems that sustain them. They also challenge future researchers to focus on less conspicuous organisms in a food web as their plight may shed light on the ecosystem as a whole. Author, Klaus Kümmerer, examines human and environmental vulnerability to the deposition and transformation of pharmaceuticals in aquatic environments. He states that the health risk to humans is poorly understood and makes the case for better handling and use of pharmaceuticals at the source as well as for improved biodegradable pharmaceuticals.

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## BOOK REVIEW (CONTINUED)

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(Review continued from page 706)

In section two, Benjamin Sovacool and Marilyn Brown discuss energy security and the vulnerability of industrialized nations as they adjust to the challenges of climate change. The authors argue that a nation's resilience to these changes is dependent upon four components: "availability, affordability, efficiency, and environmental stewardship." They use these components to develop an "Energy Security Index" and test it on 22 OECD member countries with the results indicating a great disparity between the highest performers and those with weak or deteriorating energy security. Author, Karl Zimmerer, offers a discussion of how "land use, climate change, and social-environmental shifts" affect the vulnerability, resilience, and adaptation of biological diversity in agriculture. He develops a framework using "four conceptual nodes" to achieve a greater understanding of biological diversity in agriculture across local, national, and international levels. Karen Seto and colleagues examine the relationship between urbanization and the environment offering insight on the historic adaptations and contemporary rescaling of urban environments to meet the needs of changing demographics and economic development worldwide. The authors maintain that rapid urbanization can lead to sustainability due to the forces of "agglomeration, increased innovation, and increased wealth" and conclude by laying out the challenge of changing the "scale, form, and rate" of urban growth to foster opportunities for sustainability.

In section three, Liliana Andonova and Ronald Mitchell address issues of rescaling environmental politics. They argue that in our increasingly connected world, environmental politics and governance are being rescaled vertically—downwards to local and provincial governments and upwards to "supranational" entities such as international NGOs and multi/transnationals. They are also being rescaled horizontally across regional and sectoral organizations as well as across disciplines such as trade and security. These shifts reflect changes in the "magnitude, complexity, and interconnectedness" of global environmental problems. Author, J.R. McNeill, concludes the *Review* with a retrospective piece on the field of environmental history. His article offers environmental history lessons from around the world that provide glimpses into the vulnerability and resilience of natural systems and the adaptability of both human and natural ecosystems. His piece offers food for thought on opportunities to revise and rescale our approach to our relationship with the natural world.

Each author offers an excellent abstract of their article to orient readers as well as summary points and the identification of future research needs at the end. The *Review*, however, is not a book to be kept on one's nightstand as it takes focus and concentration, even for someone with a scientific background. Ultimately, I found the *Review* to be extremely informative. Many of the articles offer intriguing insights on exciting fields of research for exploring the interconnectedness of human behavior and environmental degradation.—Gwen Michele Thomas, Texas Master Naturalist & BRIT Volunteer, Botanical Research Institute of Texas, 1700 University Drive, Fort Worth, Texas 76107-3400, U.S.A.