Teaching Environmental Literacy: Across Campus and Across the Curriculum

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offer a balanced and thorough wealth of knowledge about a broad array of animals. One criticism is warranted, however. When I wanted to use the index to refer to what I had previously read, remembering a particular *Callosobruchus* seed beetle or a banana slug, to my surprise, no species were listed, by neither common nor scientific name.

Primary Sexual Characters fashionably coincides with the present era of sexual conflict studies and postcopulatory sexual selection research. It offers thorough evolutionary thinking, presents careful definitions of concepts, and provides fresh perspectives that bring science forward. The book will serve either as an in-depth tour for the curious or as a helpful and detailed descriptive reference guide for those already in pursuit of further study in the fields of reproductive and evolutionary biology. I now envision teaching my marine biology students during their field course to look into the genital world of gastropods, nudibranchs, and other invertebrates, but I also see two broader conclusions emanating from reading this book: Sexual selection acts on primary as well as secondary sexual characters, and beneficial research is gained by the study, in equal measure, of genital evolution in both sexes.

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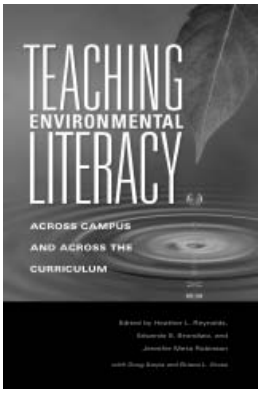
CRITICAL COMPETENCE

Teaching Environmental Literacy: Across Campus and across the Curriculum. Heather L. Reynolds, Eduardo S. Brondizio, and Jennifer Meta Robinson, eds. Indiana University Press. 2009. 240 pp., illus. $21.95 (ISBN 9780253221506 paper).

Teaching Environmental Literacy: Across Campus and across the Curriculum has been long overdue. Its central tenet is a simple yet powerful idea: People from all disciplines share their unique perspectives to create a holistic approach to the teaching and learning of environmental literacy. Written primarily by faculty (the majority from Indiana University) for faculty, the book is well written, engaging, thought provoking, and refreshingly free of errors. A particularly detailed and effective index is provided, as is an appendix. The volume is both inspirational and functional.



Comprising a collection of essays organized into four sections, the work stems from grassroots faculty conversations on teaching environmental literacy at Indiana University. The contributors hail from an impressive and laudably disparate array of disciplines—biology, anthropology, public and environmental affairs, physics, law, geography, economics, philosophy, chemistry, political science, English, religious studies—all united by the overarching goal of crafting arguably the most important competency of our time—that of environmental literacy.

The rationale for such an initiative is compelling: "Some 30 years after the first Earth Day, only a third of Americans can pass basic tests of environmental knowledge with a grade of C or better" (p. xiv) and "no student should graduate from college or university without a basic understanding of the ecological infrastructure that underpins human society" (p. 20). However, in the final chapter, Eduardo Brondizio, playing devil's advocate, poses the question of whether environmental literacy is a worthy or even appropriate goal for institutes of higher learning. I contend that far from being a questionable pursuit, environmental literacy is the single most pressing issue facing humanity today. In *Teaching Environmental Literacy*, passionate advocacy springs from every page, but the book is also full of insights and pragmatic strategies to help engage an entire community of scholars and practitioners from both the top down and the bottom up. In effect, its thesis is to restore the university to its role as a truly synthetic place of learning, and it goes a long way toward reinstating the original medieval concept of a meaningful *universitas scholarium*.

Part 1 presents a well-considered and detailed model for a grassroots, multidisciplinary faculty inquiry, the genesis of which was the Environmental Literacy and Sustainability Initiative, which successfully engaged faculty, administrators, students, and operational groups in a two-year conversation at Indiana University. A four-part model is presented for cultivating and sustaining a campus conversation about environmental literacy, from which three broad themes emerge: ecosystem services, ecological footprint, and sustainability.

Part 2 is a collection of eight short essays, opening with Keith M. Vogelsang and Eric J. Baack's "At the forest's edge," a poignant piece wrought with the perspective and clarity perhaps only biologists can provide. They look at the historical and contemporary effects of deforestation using Indiana's southern forests as an example to engage students at a personal and local level. In "Population, energy, and sustainability," Bennet Brabson presents an unsettling scenario of current and future energy production and consumption and shows conclusively that the only variable over which we have any control is the per capita energy use of Americans. He sees the working

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campus as a microcosm of the world and the perfect place to teach students the true role, costs, and responsibilities of understanding energy. Christian Glaser explains that "the human economy is nested within nature's economy, and economic activity must therefore ultimately be constrained within the biosphere's finite capacity to regenerate resources and assimilate wastes" (p. 61). He poses thorny philosophical questions that force us to reconsider some fundamental truths and provides a useful list of concrete economics-based examples that clearly need to be part of any environmental education.

A recurring theme in this volume is that of the deepening disconnect between the virtual and real worlds. Rachel Carson and her work constitute another common thread, no more so than in "Environmental literacy and the lifelong cultivation of wonder" by Lisa Sideris, who explores the role of wonder in fostering and sustaining environmental virtues and in creating a sense of love of particular places. She argues eloquently that wonder is the keystone virtue and cites the work of Liberty Hyde Bailey and Anna Comstock, both of Cornell University, who were instrumental in establishing "nature study" as a means of placing children in direct contact with nature and fostering a lifelong "sympathy with nature."

Part 3 is composed of six essays on pedagogy in which teaching strategies are investigated in and beyond the traditional classroom. James Capshaw discusses modeling the campus as an ecosystem and provides examples of the use of everyday items for both environmental exploration and for up- and downstream analyses. Nicole Schonemann, Andrew Libby, and Claire King describe a mode of learning that lends itself to achieving greater environmental literacy by empowering students through situated service learning. This essay comes with sage advice to faculty about the potential pitfalls and the significant commitment required to make this type of learning successful.

Matthew Auer espouses an unusual but convincing five-senses approach to environmental awareness and takes us on a guided journey of discovery, starting with a discarded candy wrapper in a college lot and ending with an ethical consideration of ethanol production. At the same time, Auer provides practical advice for leading field trips and for framing guiding questions. Other essays advocate the use of natural or protected areas as teaching environments in which effective learning and environmental education can take place. Another, perhaps counterintuitive, perspective builds a strong argument for using working landscapes—farms, dams, mines, and industrial areas—to confront students with the effects and implications of the choices we make as a global society. Craig Nelson advocates a holistic approach and brings his distinguished affiliation with the Scholarship of Teaching and Learning program to bear on the nontrivial task of engaging undergraduates in evidenced-based, theory-framed transformational learning, while providing thoughtful perspectives and strategies that faculty would be wise to embrace.

Part 4 focuses on the strategic and administrative issues of implementing environmental literacy. In three essays on integration, a common theme emerges: Complex problems demand multidisciplined approaches, and grassroots and top-down approaches are required to operate concurrently for success, but this can be very difficult to pull off. The approach is well illustrated, however, with the simple yet very effective idea of faculty, staff, and student partnerships. Catherine Larson outlines a number of possibilities for greening the curriculum (e.g., service-learning programs, a minor in environmental science, online courses, freshman seminars). Whitney Schlegel and colleagues describe the development and function of a campus-wide "inquiry commons," a learning community of students, faculty, and community partners based on the concept of food literacy. It is a powerful and effective model that uses "e-portfolios" to document and assess both teaching and learning.

This important and unique volume makes a significant contribution to the field of environmental education. It provides a conceptual framework rich with pedagogical strategies, offers a field-tested implementation model, and even outlines the infrastructure required to make an environmentally literate campus a reality. The short chapters, especially in part 2, would make excellent discussion readings for undergraduates or even high school students. The bottom line, however, is that environmental literacy cannot be compartmentalized. It does indeed take a village to raise environmental awareness sufficiently high to produce inspired, clear-thinking graduates for whom environmental stewardship is an integral part of everyday life.

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NEW TITLES

Chemical Biomarkers in Aquatic Ecosystems. Thomas S. Bianchi and Elizabeth A. Canuel. Princeton University Press, 2011. 396 pp., illus. $95.00 (ISBN 9780691134147 cloth).

Epigenetics: Linking Genotype and Phenotype in Development and Evolution. Benedikt Hallgrímsson and Brian K. Hall, eds. University of California Press, 2011. 472 pp., illus. $85.00 (ISBN 9780 520267091 cloth).

The Fate of Greenland: Lessons from Abrupt Climate Change. Philip Conkling, Richard Alley, Wallace Broecker, and George Denton. MIT Press, 2011. 232 pp., illus. $29.95 (ISBN 9780262015646 cloth).

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