

BOOK REVIEWS

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HEMMINGA, M. A., AND C. M. DUARTE. 2000. **Seagrass ecology**. Cambridge University Press. xi+298 p. US\$80. ISBN 0-521-66184-6.

Continued losses of seagrass ecosystems worldwide have helped focus the attention of scientists, resource managers, and policy makers on seagrass-related issues. This has fueled research activity on the biology and ecology of seagrass beds—according to one recently published count, well over 100 papers per year are now appearing on seagrass ecology in ecology and marine science journals, compared with ~20 papers per year during the late 1980s. One wonders whether this increased research output has resulted in major advances in our understanding of the intricacies of the ecology of seagrass ecosystems in particular or ecosystems in general. Hemminga and Duarte's new book clearly shows that the answer to the first question—about seagrass ecosystems in particular—is an emphatic “Yes!”; unfortunately, the book does little to address the second question—the importance of seagrass research to the broader field of ecology.

This book is the first about seagrasses that has been written as a whole since the publication of den Hartog's *Seagrasses of the World* in 1970. That classic work, as well as three volumes produced in the 1970s and 1980s composed of contributions by many authors, are all out of print and hard to come by, so this new book is the only broad treatment of the field that is readily available. The authors strove for brevity and synthesis, and the result is a short, very readable, and reasonably priced book. It is an excellent introduction to the biology and ecology of seagrass ecosystems for students, managers, and other scientists new to seagrass ecosystems.

The first two chapters summarize the taxonomy, biogeography, and morphology of the seagrasses. By placing these chapters up front, the authors underscore the importance of understanding the basic biology of the organisms to be studied. The third chapter is an all-too-short discussion of the processes that lead to pattern in seagrass populations and seagrass-dominated communities. Chapters 4 and 5 discuss the autecology of seagrasses and the role that seagrass ecosystems play in elemental cycles in the coastal ocean. Fauna associated with seagrass beds are the subject of Chapter 6. The final chapter provides a discussion of the value of seagrass ecosystems to humans and the decline in seagrass beds caused by human influences. This layout makes this a useful textbook; I used it as the primary text in an introductory graduate course on ecology of seagrasses and found that it provided the background that the students needed to help put the more detailed information from lectures in perspective. The book also provides points of entry into the recent literature for the students, with a strong emphasis on “recent”—69% of the references were published after 1990. Although this is partly a consequence of the recent increase in publications, it also stems from heavy reliance on references to very recent review papers rather than the original works.

Although this book does a great job of summarizing what has recently been learned about the biology of seagrasses and the func-

tioning of seagrass ecosystems, it unfortunately also demonstrates how insulated seagrass ecology remains from the larger field of ecology. To be sure, seagrass beds are interesting and important ecosystems, but seagrasses are just plants and seagrass beds but one type of ecosystem. Many of the questions being addressed by seagrass biologists have been addressed for decades by ecologists working in other ecosystems but nonseagrass literature is only cited rarely in seagrass publications—only ~10% of the references cited in this text are to works that were not specific to seagrass ecosystems. Even fewer of those papers cite the terrestrial literature, despite the biological and ecological similarities between seagrasses and terrestrial grasslands. This self-imposed isolation leads to marginalization of the importance of biological and ecological studies in seagrass communities to ecology as a discipline.

In addition to this isolation from the literature of other ecosystems, there is a more troubling weakness in seagrass ecology today. Not only is it rare for seagrass research papers to be placed in broad theoretical context by their authors, it is also rare to read any advances in ecological theory that use data from seagrass ecosystems in the development or demonstration of those ecological principals, despite the fact that there are many reasons why seagrass beds should make ideal model ecosystems for theoretical ecologists. Seagrasses exist in a realm of very sharp gradients in resource availability, and the limited species richness leads to simplified community interactions among seagrasses. Furthermore, seagrasses structure the community in which they occur, so they play a dual role as both habitat and food for consumers. Seagrass breeding systems also lead to limited genetic neighborhoods—hence, seagrass beds provide fertile grounds for the study of population genetics and evolution.

The fault for this parochialism lies with us, the community of scientists working on seagrass ecology today. We need to seek a broader context for our work, and we also need to communicate our results to a broader audience. In order to have an impact on ecology as a field, seagrass ecology must appear more often in the pages of the premier general journals in the fields of ecology and evolution (including *Limnology and Oceanography*!) instead of specialty journals, where most of it now appears.

This book provides scientists new to seagrass research with a solid foundation. The authors have done an excellent job of summarizing what has been learned about seagrass ecosystems in the past decade. It is now up to all of us to advance the frontiers of ecological understanding, using examples from the seagrass beds that we study, while at the same time continuing to unravel the intricacies of seagrass ecosystems and provide the applied information necessary to ensure the continued existence of these threatened habitats.

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