

REVIEWS

WETLANDS, FOURTH EDITION

Mitsch, W. J. and J. G. Gosselink. 2007. *Wetlands, Fourth Edition*. John Wiley & Sons, Inc., New York, NY, USA. 582 pp. US\$90.00 (hardcover), ISBN 0471699675.

I started using the second edition of the Mitsch and Gosselink text *Wetlands* ten years ago when I began teaching Wetland Ecology as a graduate course at the University of Michigan. I assigned 11 of the 18 chapters for reading, but I relied on supplementary material to cover many of the topics that I thought to be important. I did not assign the seven chapters on specific wetland types. When the third edition came out in 2000, I found it much improved in content – adding considerable updated material within the chapters I had been using, improving many of the graphics, taking a more worldly view, and doing more with material on wetland values, human impacts, management, protection, and restoration/creation. I even began to assign the seven relatively unchanged chapters on wetland types as background reading, although I did not include that material in graded exams. Imagine my surprise in the summer of 2007 when the bookstore at University of Michigan-Dearborn (where I have also been teaching the course for four years) called to tell me that the fourth edition of *Wetlands* was now available, and it seemed to be somewhat reduced in size.

I was able to obtain a copy relatively quickly—in time to revise the course syllabus before classes started. The new version was reduced from 21 chapters and 920 pages to 14 chapters and 582 pages. The chapter on Wetlands of North America is gone; however, most of the subject is now covered (and even expanded upon) in the revamped chapter on Wetlands of the World. In an effort to “internationalize” the book further, the revised chapter covers more of the important wetland complexes on the globe, and a later chapter ties some of them to recent events, such as Hurricane Katrina, the Indian Ocean tsunami, and restoration of the Mesopotamian Marshland. The chapters on wetland management remain intact and are improved, although the order has changed a bit, and the chapter on Wetland Classification has moved to a different section of the book. Other chapters have been updated also, with inclusion of more than 200

new citations and deletion of many old, hard-to-locate citations. A new chapter on Climate Change and Wetlands has been added; however, the seven chapters on wetlands types (tidal salt marshes, tidal freshwater marshes, mangrove swamps, freshwater marshes, peatlands, freshwater swamps, and riparian ecosystems) were removed.

In the preface, the authors provide a sound rationale for deleting the wetland-type chapters and note that they preserved some important points by placing them in other sections. I cannot disagree with them in making this change – it is impossible to try to cover all wetland types without leaving many of them out. Still, I will miss those chapters as a means of exploring with my classes the diversity of those places we call wetlands.

The new chapter on climate change provides a brief, less-than-AlGoreian description of recorded temperature changes, consequences, and causes. Much of the chapter is then devoted to the biogeochemistry of carbon sequestration and emission from peat. The effects of climate change on wetland ecosystems are mostly described in terms of sea-level rise, but inland wetlands and management approaches are discussed briefly.

The Mitsch and Gosselink text will continue to be used in many wetland courses because it covers the physical sciences better than most alternative texts and also delves into wetland development, management, and protection. Hydrology is arguably the most important function to understand when learning about wetlands, and the text continues to do a good job laying out the general principles of hydroperiods and water budgets. However, I don't think it covers ground-water hydrology in enough detail for students to understand how to conduct or interpret ground-water studies. Therefore, I use figures from Winter et al. (1998) (see <http://pubs.usgs.gov/circ/circ1139/>) when teaching that topic. Wetland biogeochemistry is the most difficult topic for me to teach, despite having two degrees in biochemistry, because many or most students do not have a background in chemistry that is adequate for dealing with complex cycles and chemical reactions. The text does a yeoman's job in laying them out, but I must find other ways to simplify that material in lectures. As in the third edition, most other material in the book is covered well. However, one major problem remains.