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Book review

Wetlands, 5th ed., William J. Mitsch, James G. Gosselink, 2015. Wiley, New York, 736 pp., ISBN978-1-118-67682-0, US \$102.53 (hard cover)

Mitsch and Gosselink did it again. The 5th edition of *Wetlands* is finally here. The authors had updated the book every seven years from 1993 to 2007, but it took just one more year this time around, making all of us working in the field of wetland science and management more anxious.

The new *Wetlands* is bigger with more chapters. The cover image of this new edition now features mangrove ecosystem, one of the most fragile and unique wetland ecosystems, which might have something to do with one of the authors' relatively new location (Naples, Florida). The authors have added wetland ecosystem chapters back into this version, which had been separated into another book titled *Wetland Ecosystems* (2009). It feels like they have brought it all back home with this new edition as every element is in its place, and it has been updated with current references and many new photos. The book is quite encyclopedic in terms of wetland science and management.

I have been teaching Wetland Ecology and Management for 12 years as a college professor using the Mitsch and Gosselink's book. In 1993, I was a graduate student majoring in environmental science at Seoul National University in Korea, and was working on my thesis project titled "Effects of watercress, loach and sediment on water quality (N and P removal) in wetland microcosms". That was when I was first introduced to the second edition of *Wetlands*. I decided to pursue my further training in wetland ecology and ended up starting my Ph.D. work under Dr. Mitsch at the Olentangy River Wetland Research Park (ORWRP) in 1996 at the Ohio State University. It has been almost 20 years since that time. So much progress in the field of wetland science and management has been made during the time period that I was establishing myself as a wetland ecologist and ecological engineer. *Wetlands* has been greatly instrumental in the progress.

Part I mostly provides a good introduction to historical perspectives and cultural backgrounds of wetlands and human use of the ecosystem with definitions of wetlands and their development. Especially chapter 3, Wetlands of the World, in the Part I serves as a nice global overview of a variety of wetland types, including regions in North America, Central and South America, Europe, Africa, Middle East, Australia/New Zealand, and Asia. If one wants to learn and study more of a particular type of wetland across the different regions, one can visit Part III to pick a particular wetland ecosystem type of interest.

There is significant improvement in Part II: The Wetland Environment (chapters 4 through 7) in the 5th edition. The part is specifically designed to provide a primer for wetland ecology, including chapters on hydrology, soils, biogeochemistry, and vegetation. Especially the chapters for Wetland Soils (chapter 5),

and Vegetation and Succession (chapter 7) are newly added. The majority of the content in Wetland Soils was part of Wetland Biogeochemistry chapter in the previous editions. In this edition it is now a separate chapter with updated information. The Biogeochemistry chapter has been greatly updated with more recent findings in carbon and nitrogen cycles. Chapter 7, newly titled "Wetland vegetation and succession", replacing two previous chapters of "Biological adaptations to the wetland environment" and "Wetland ecosystem development" in all previous editions, offers more consistent but updated information, especially with updates from the research conducted at the famous kidney-shaped wetlands in Ohio. The chapters in Part II have been a must-have section in my wetland ecology course every year as they have been in many other universities to teach students the basics and fundamentals of wetland ecology as a multidisciplinary course, especially for upper-level undergraduate and graduate students.

Chapters in the newly added "Wetland Ecosystems" of Part III (chapters 8 through 12) can be selectively used for teaching and research depending on the type of local wetland ecosystem of interest. The chapters in Part III can also serve as a guide book to a particular wetland ecosystem and be used in conjunction with field trips or expeditions to that system. The references for those chapters provide a great deal of information for those who are motivated for further learning. The chapters are relatively an easy read with a reasonable length (i.e., 30–50 pages per chapter).

Another big change for the 5th edition is "Ecosystem Services"—Part V. The old part titled "Wetland Management" is now separated into two parts, "Traditional Wetland Management" and "Ecosystem Services", respectively. The former part is relatively the same as some of the chapters about wetland management in the previous edition, but the latter part provides more contemporary texts and information on the application of the knowledge in wetland science and management, addressing ecosystem service and its valuation, climate change, and creation and restoration of *wetlands*.

Boxes and sidebars along with many footnotes in each chapter throughout the book provide useful information summary and/or cases relevant to the corresponding chapter of the book to help readers and students understand and study. Generally, *Wetlands* has been the most frequently used textbook for college courses for wetland ecology and management, however one might find it lacking in information on wetland animals and bacterial communities that have been more extensively studied in recent years. Nevertheless, the book is still solid as a textbook for fundamentals of wetland ecology and management for both students and practitioners. The price of the book has increased a bit due to the added chapters on world wetland ecosystems. To be honest, it is pricey for students for a semester-long course, but if you pursue your career in wetland ecology, wetland restoration, and water resource management in general, this is surely one of the must-

<http://dx.doi.org/10.1016/j.ecoleng.2015.06.038>
0925-8574/

have books. I was nicely surprised to find *Wetlands* even in the bookcases of eco-artists that I recently had the pleasure working with for a speaker series.

This new edition of *Wetlands* has been dedicated to one of the authors, Dr. James Gosselink. While we celebrate the release of this edition, we are deeply saddened by his passing away only a few months before the book's publication. I was fortunate enough to meet him in person once when I was in graduate school during his visit at ORWRP, where a great deal of research on wetland ecology and management was directed by the other author, Dr. Bill Mitsch, over two decades. Gosselink was a leader in wetland ecology for more than 40 years as a scientist and a scholar. Thank you, Jim and

Bill, for *Wetlands*, which has been at the center of my wetland ecology education, as well as that of my generation of wetland ecologists and many more generations to come.

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