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Fundamentals of tropical freshwater wetlands: From ecology to conservation management



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Towards the conservation of wetlands in the tropics

All around the world, tropical wetlands provide many ecosystem services, as described by the Millennium Ecosystem Assessment in 2005.¹ The benefits include clean water, ensuring a stable water supply, and providing habitat to a wide variety of important species as wetlands are among the most biodiverse ecosystems on the planet. *Fundamentals of Tropical Freshwater Wetlands: From Ecology to Conservation Management*, edited by Tatenda Dalu and Ryan Wasserman, presents an informed and well-structured series of original studies around the topic of wetlands. The book comprehensively describes how wetlands are formed and their hydrology; climate and geomorphological factors; physiochemical dynamics; nutrient cycles and ecological theories; biotic components; and the management of wetlands. The two editors are well-established African research scientists in the field of aquatic ecology, and I applaud them for compiling this book and coordinating more than 70 esteemed and enthusiastic scientists from around the world who all did a great job in creating this solid output. The book is a pleasure to read; it is well paced, organised, and highly informative. The chapters are imaginatively named and framed in their main contexts. Overall, this book is a substantial contribution to wetland science and the contents will be of interest to students, resource managers, individuals and policymakers worldwide.

The book starts with an introductory chapter which gives a general overview of tropical wetlands as well as the chapters of the book. The introductory chapter shows how the rest of the chapters link to provide a smooth flow to the book. Although all the chapters are equally important, the chapter on the importance of policy in the conservation of wetlands (Chapter 22) is particularly noteworthy. This chapter provides examples of policies in different countries; for example, Zambia has a strict policy to manage wetlands which is backed by legislation, due to the value that wetlands in Zambia confer through providing mostly provisional services which are normally acknowledged in society (such as the provision of fish in the Barotse Floodplain). The chapter explains how discrepancies in policy between countries can affect the general protection of wetlands, especially for those that are shared between countries or that are linked to other regions. The editors have also included chapters on the value of wetlands in monetary terms (Chapters 19 and 22). Monetary value is important when advocating for the protection of wetlands, as environmental scientists and conservationists can quantify the economic benefits as well as losses to convince policymakers to provide legislation for their protection, especially in countries that have weak policies for the protection of wetlands. Several chapters highlight the threats to wetlands; these threats are global and include climate change, habitat destruction, and invasive species, among others – which are also amongst the major causes of global biodiversity losses.

A chapter on the recent technological advances in monitoring wetlands using Geographic Information Systems (GIS) is also included. GIS allows better remote viewing and understanding of wetland physical features and the relationships that influence a given critical environmental condition. The editors did well to include a chapter on the participation of indigenous people in the management of wetlands (Chapter 23). I view this chapter as one of the most important, as most indigenous people – especially in Africa – have lived around wetlands and have their own local management laws and beliefs that protect wetlands. Indigenous people are generally regarded as the custodians of natural systems. The authors emphasised the need for African governments to recognise these indigenous groups, as stated in Article 18 of the UN Declaration on the Rights of Indigenous Peoples.

The editors and authors also have done well to advertise the book on various social media platforms, which helps in disseminating information about wetlands. One drawback of the book, however, is its cost of USD150 (~ZAR2400) – a price which might be beyond the reach of many, especially those in tropical countries, many of which are still developing. The book, therefore, may be prohibitively costly to its most important audience. Affiliation with an institution which subscribes to Elsevier may help in accessing the book. The book's worth will be measured by the extent to which it is cited in the literature.

I encourage university libraries to buy the book and aquatic ecology lecturers and students to make use of it in their curricula/courses. If the editors and authors are able to engage environmental managers and policymakers and share summaries of the book with them (through workshops or presentations), it will go a long way in protecting wetlands and ensuring that the book is not merely an intellectual exercise.

Reference

1. Millennium Ecosystem Assessment. *Ecosystems and human well-being: Synthesis*. Washington DC: Island Press; 2005.