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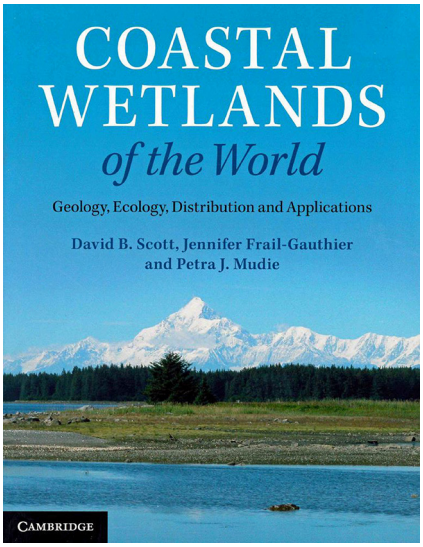
Book reviews

Coastal wetlands of the world: geology, ecology, distribution and applications, by David B. Scott, Jennifer Frail-Gauthier and Petra J. Mudie (eds), 2014. Cambridge University Press, Cambridge, UK. 351 pages. Paperback: price $65.00, ISBN: 9781107628250; Hardback: price $120.00, ISBN 9781107056015.



The present tome ranks amongst the few to describe salt marshes and mangroves – interesting ecosystems from both geological and ecological points of view. The authors, from the Department of Earth Science at Dalhousie University (Canada), provide information in an accessible and straightforward way in discussing the status of mangroves and salt marshes across the globe, although many examples are drawn from North America.

There are eighteen chapters, each of them being divided into subchapters and with key points presented at the start of each. This layout allows data of interest to be found rapidly. In addition, a large number of high-quality illustrations (over 200) and tables (20) support the study and help in the reader's understanding of the issues discussed in this book. The sequential arrangement of chapters provides easy access to the 'ins and outs' of these rare ecosystems and will certainly make readers aware of the complexity of our planet's marshes.

Chapter 1 is an introduction to the subjects covered, while the second is devoted to the physical characteristics of coastal wetlands, and especially to fundamental issues such as 'what are coastal wetlands', 'where are they found', 'how are they formed', and 'what kind of physical conditions shape such wetlands'? Chapters 3 and 4 discuss plants and animals that are found in salt marshes and mangroves. Issues such as floral and faunal diversity (including macrofauna and meiofauna) and adaptation to such areas of high salinity and wetland archives (with particular emphasis on pollen analysis) and their development in a biological and geological perspective, are dealt with. The next chapter deals with anthropopressure, a source of many coastal problems. The authors outline how the very rapid growth of human populations leads to environment pollution, land reclamation and accelerated global warming; these are the main problems that threaten such sensitive ecosystems. Chapter 6 introduces biogeographical variation, climatic zonation and ecosystems of coastal wetlands across the globe. The following five chapters (7–11) present selected examples of salt marshes, mangrove areas and coastal wetlands in North America, South America, Africa, Eurasia and Australasia. All of these have a large number of high-quality illustrations of these biological treasures. The authors skilfully compare and contrast examples of the largest and least altered salt marshes and coastal wetlands in North America, with the natural landscapes of central and South America, the pristine, yet disappearing marshes of Africa, the coastal wetlands of Europe (barely surviving and heavily modified by human populations) and the geographically long isolated coastal marshes of Australia and New Zealand. In each of these chapters, the authors refer to the relationship between humans and the environment which, if misunderstood, is likely to lead to catastrophic outcomes. Chapters 12 and 13 take on a more applied approach, using geological multiproxy data (microfossils, macrofossils and lithological characteristics of peat layers) for the monitoring of earthquakes, tsunamis and (palaeo)climate changes, as well as the conservation of plant biodiversity and agriculture. Chapter 14 takes the reader

on a journey into wetland mesocosms in order to provide answers to research questions, especially regarding the impact of various environmental threats and predicted problems. The answers given may contribute to salt marsh restoration, but may also be useful for studying biological and physical parameters in shaping and controlling marsh and mangrove growth and inproving their resilience to change. The last chapter sums up all data and suggests a few immediate issues in the future protection of coastal wetlands.

The interdisciplinary nature of research into coastal wetlands presented in the present book improves the reader's understanding of specific environmental conditions that have determined the direction of change in tidal salt marshes and mangrove swamp biota on time scales of tens to thousands of years. The authors have managed to present scientific issues in a lucid and accessible manner, and there is no need to revert to dictionaries, encyclopedias and specialist literature. This is certainly a great advantage to the present tome.

There is no doubt that this book occupies an important position in the sientific literature, and can serve as a compendium of knowledge of coastal wetlands to numerous geoscientists, ecologists and biologists. Although it is aimed at university-level readers, it could be also consulted by those who have had limited contact (or none at all) with coastal wetlands. It can thus also be recommended to a wider circle of readers, as it presents issues of this particular ecosystem, both in the past and present, in a very accessible way. I would also recommend it to all lovers of coastal wetlands who wish to broaden or consolidate their knowledge of these environments. It should also prove of use to teachers of geography, biology and natural sciences; they will find in it excellent material to enrich their lessons, a plethora of interesting facts for school activities and, additionally, a guide to supplementary literature items which concludes this book.

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