

Preface

Mangrove ecology – applications in forestry and costal zone management

“In Persia in the Carmanian district, where the tide is felt, there are trees [*Rhizophora mucronata*] . . . [that] are all eaten away up to the middle by the sea and are held up by their roots, so that they look like a cuttle-fish”

Theophrastus (370–285 B.C.E.), *Enquiry into Plants* IV. vii. 5
(Translated by Sir Arthur Holt, 1916)

Mangrove forests have entranced and intrigued naturalists, botanists, zoologists, and ecologists for millennia. Over two thousand years ago, Theophrastus published perhaps the first explanation of why the roots of these trees grow aboveground and how they grow in brackish and salty water, and he also observed that their viviparous seeds sprouted while they are still within the fruits attached to the branches. Straddling the land and sea, mangroves provide natural resources of both; wood for lumber and fuel, and fish and prawns for protein. They are home to resident and migratory birds, snakes, and mammals, and simultaneously support incredible diversity and biomass of crabs, sponges, tunicates, and other benthic marine invertebrates. Mangroves absorb nutrients and sediments flowing down rivers from uplands through estuaries, and they offer protection to these uplands and estuaries from battering waves and cyclonic storms. In this new millennium, we must ask if the diversity of mangroves and the many ecosystem functions they provide can be retained and sustained when mangrove forests continue to be cut to provide logs for charcoal kilns and wood chips for rayon mills, drained to construct commercial aquaculture operations, filled with garbage, and “reclaimed” for coastal developments.

The twelve papers in this special issue of *Aquatic Botany* on the ecology of mangrove forests provide comprehensive reviews of the fundamental knowledge that literally thousands of scientists have accumulated over hundreds of years that can be used to answer these pressing questions. The papers range widely and represent many scientific disciplines:

paleontology, population biology, ecosystem ecology, economics, and sociology, to name just a few. By providing summaries and syntheses of existing data, the 54 authors and co-authors of these papers set the benchmarks and foundations on which future studies will build. Perhaps more importantly, these reviews illustrate clearly that for addressing many issues that are central to the conservation, management, and preservation of mangrove ecosystems, there is more than enough data to make informed decisions and to guide sensible actions.

Between one and two percent of the world’s mangrove forests are being lost to chainsaws, prawn and crab ponds, and new settlements, condominiums, and waterfront resorts each year. This rate of destruction is comparable to the annual rate at which upland tropical forests are being cut, burned, and converted to pastures, farms, towns, and cities. Declarations from regular conferences organized by academics, individual governments, regional interest groups, non-governmental organizations, and the United Nations routinely decry the loss of mangroves, but often encourage more research before the needed actions can be reliably implemented. Although the dozen papers in this issue identify gaps in our knowledge, these papers clearly show that those gaps are small relative to the vast amounts of information available to policy analysts, decision makers, and managers. The data are here, well organized and clearly presented. Use these data wisely: the time for action is now.

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