



Preface

- *Do you know what mangroves are?*
- *Of course. You are talking about the trees that look like an octopus, right?*

Nowadays, the term ‘mangrove,’ which indicates ecosystems observed only in tropical-subtropical coastal areas, has become a widely known word. ‘Mangrove’ is often used in environment-related reports, and the spreading recognition of the word ‘mangrove’ is likely related to the recent serious decrease and degradation of this type of ecosystem. Actually, the area of mangrove ecosystems has decreased worldwide. In the Indo-Pacific region, where the most diverse mangrove species exist, the current mangrove area has disappeared at a rate of approximately one to two percent per year for the past 30 years. This indicates that mangrove ecosystems in this region are likely to disappear within a hundred years, bringing us awareness of the precious value of this fascinating environment.

When you make your way into a mangrove forest, you will surely be able to appreciate encounters with living things. On the ground at low tide, mudskippers hop, colorful crabs dance as they wave their claws, and waterfowl peck at them. If you are lucky, you may encounter a simultaneous spawning event of sea snails. At high tide, fish swim swiftly through intertwining tree roots in the submerged forest. When you look up, you might find the brilliant blue of a kingfisher as it flies from one branch to another. You might also find monkeys watching you. Large mammals such as deer and tigers are also inhabitants of mangrove forests. Human beings are no exception. Local people have been receiving blessings from mangroves for countless years. They have the knowledge and philosophy to coexist with mangroves, which have been handed down from generation to generation.

What is supplying energy to all these living things, including human beings, is the mangrove plants’ production of organic matter. Mangrove plants have accomplished adaptation to intertidal environments, where it is physically and chemically harsh for plants to grow. They needed to develop a system to grow in environments characterized by high salinity, anaerobiosis and tidal turbulence. Mangrove forests have another significant role to play as a place for absorbing carbon dioxide. This astonishing tree has continuously intrigued mangrove researchers. Disappearance of mangrove ecosystems means the disappearance of all living beings surrounding the mangroves. What would happen in a world without mangroves? Now is the time we should seriously think about the future of this unique and scarce ecosystem.

This special issue is compiled with reviews, one miscellaneous note and several original papers on the latest findings on mangrove ecosystems. Topics range from scientific issues to practical case studies on forest management and reforestation. Readers can get knowledge on mangrove forest distribution patterns, physical processes supporting mangrove environments, nitrogen cycling in mangrove ecosystems and functions of benthic animals in mangrove ecosystems from the review articles. The miscellaneous note introduces findings from long-term mangrove restoration activities. The original papers contain original data on functions of nitrogen-associated bacteria in mangrove soils, productive dynamics of mangrove forests, human studies associating mangrove ecosystems and buffering functions of mangrove forests against high waves. We hope this book deepens the readers’ understanding on mangroves from various viewpoints and stimulates further discussion on mangrove ecosystems.

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