

## Species diversity in Mangrove forests of Puttalam lagoon in Sri Lanka

R.H.M.R.S. Rajasinghe, P.N.Yapa and S. Wickramasingha  
 Dept. of Biological sciences, Faculty of Applied Sciences,  
 Rajarata University of Sri Lanka, Sri Lanka

Mangroves, the climax formation of hydrohalophytes belonging to several plant families, inhabit tropical and subtropical estuarine or marine salt marshes. Mangrove forests are considered as open 'interface' ecosystems connecting upland terrestrial and coastal estuarine ecosystems. Contributors to the geo-aquatic food chain, mangrove forests are important for biomass production and coastline protection. Mangrove vegetation in Sri Lanka covers about 12,189 ha along the coastline. The species richness of mangroves in many geographical areas is decreasing with time as a result of the destruction of mangrove forests and exposure to various anthropogenic stresses. The area and floristic composition of mangrove forests in Sri Lanka has also decreased at a rapid rate during the last few decades. Mangrove biodiversity and conservation has received greater attention in the recent past due to understanding of values, functions and attributes of mangrove ecosystems. This study was focused on identifying the diversity of mangrove species in Puttalam lagoon for implementing the conservation of these mangrove ecosystems.

The mangrove communities of Puttalam lagoon were distinguished into mainly four categories; riverine forest, fringe forest, degraded forest and over-washed forest. Six sites of mangrove forest - i.e. Kalaoya, Mee oya (Anaikutti), Palavi, Vanathavillu, Udayirputi and Pullupiddi, in Puttalam lagoon were selected representing all four mangrove forest types for sampling based on forty 10×5 m<sup>2</sup> plots. Within each plot, the mangrove species were counted including seedlings. To quantify the diversity of mangroves Shannon's diversity index, Shannon's evenness index, to quantify the species richness Margalef's diversity index and to quantify abundance of the commonest species in each habitat the Simpson's index was used.

Ten true mangrove species and five mangrove associates were identified. *Avicennia marina*, *Lumnitzera racemosa* and *Rhizophora mucronata* were the dominant species. Other true mangrove species were *Sonneratia alba*, *Excoecaria agallocha*, *Aegiceras corniculatum*, *Rhizophora apiculata*, *Brugiera cylindrica*, *Scyphiphora hydrophyllacea* and *Ceriops tagal*. Mangrove associates were *Cerbera manghas*, *Acrostichum aureum*, *Acanthus illicifolius*, *Hibiscus tiliaceus* and *Clerodendron inerme*.

According to Margalef's Diversity Index, riverine forest showed higher species richness 1.61 while fringe forest, degraded forest and over-washed forest showed indices 1.32, 0.97 and 0.00 respectively. The abundance of most dominant species was higher in over-washed forest according to Simpson Index (I) while, degraded forest, riverine forest and fringe forest showed 0.42, 0.32 and 0.20 respectively. The Shannon evenness index varied between 0.00-0.74. The results indicate that all the mangrove species are not equally abundant in four mangrove forest types in Puttalam lagoon and management strategies should be taken separately.