THE SARAWAK MUSEUM JOURNAL

https://museum.sarawak.gov.my

The Sarawak Museum Journal
Vol. LXV No. 86
December 2008

ISSN: 0375-3050
E-ISSN: 3036-0188

Citation: Shabdin Mohd. Long and Hidir Marzuki. (2008). Plant and Gastropods Zonation in Sungai Sejaie Mangrove, Sarawak. The Sarawak Museum Journal, LXV (86): 301-314

PLANT AND GASTROPODS ZONATION IN SUNGAI SEJAIE MANGROVE, SARAWAK

Shabdin Mohd. Long & Hidir Marzuki

ABSTRACT

Plant and gastropodswere studied in Sungai Sejaie mangrove forest Pendam, Sarawak to determine their zonations. The transect line was established from highto low tide levels. Plants and gastropods found in the transect were recorded. Similarly all gastropods found from sediment surface to up on the trees were also recorded. Plants within high tide to 150 metres transect consisted of several species, namely Derris elliptica, Nypa fruiticans, Sonneratia caseolaris, Brugueira gymnorrhiza, Acanthus ilkifolius, Rhizophora mucronata, Aegkeras comkulatum, Sonneratia alba. Avicennia marina and Exoecaria agallocha. However, Avicennta alba specieswas found to be dominant and exist .at zone within 180 to 280 metres lrom the high tide level. Sonneratia alba was found at 280 metres from the high tide level and formed the front zone in Sungai Sejaie mangrove forest. Plant zonation in the Sungai Sejaie mangrove forest is not clearly defined. Eleven species of gastropodswere identified from the Sungai Sejaie mangrove forest, namely, Thais aculeata, Cerithidea rhizophorarum, Nerita lineata, Littorina scabra, Nerita antiquata, Cerithidea obtusa, Cerithidea cingulata, Cassidula nukleus, Batillaria curningi, Littorina fasciata and Ellobium aurisjnddae. Five groups of gastropodswere found from high to low tide levels. Two groups of gastropodswere vertically zone from sediment surface up to two metres heighton the mangrove trees. The differences in horizontal and vertical zonation of gastropod in the Sungai Sejaie mangrove forest were possibly due to their different ability to withstand exposure above the water, microhabitat preferences and food availability.

© Sarawak Museum Department 2024

All rights reserved. No part of this journal may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the Director, Sarawak Museum Department

PLANT AND GASTROPODS ZONATION IN SUNGAI SEJAIE MANGROVE, SARAWAK

by
Shabdin Mohd. Long & Hidir Marzuki

Abstract

Plant and gastropods were studied in Sungai Sejaie mangrove forest Pendam, Sarawak to determine their zonations. The transect line was established from high to low tide levels. Plants and gastropods found in the transect were recorded. Similarly all gastropods found from sediment surface to up on the trees were also recorded. Plants within high tide to 150 metres transect consisted of several species, namely *Derris elliptica*, *Nypa fruiticans*, *Sonneratia caseolaris*, *Brugueira gymnorrhiza*, *Acanthus ilicifolius*, *Rhizophora mucronata*, *Aegiceras corniculatum*, *Sonneratia alba*, *Avicennia marina* and *Exoecaria agallocha*. However, *Avicennia alba* species was found to be dominant and exist at zone within 180 to 280 metres from the high tide level. *Sonneratia alba* was found at 280 metres from the high tide level and formed the front zone in Sungai Sejaie mangrove forest. Plant zonation in the Sungai Sejaie mangrove forest is not clearly defined. Eleven species of gastropods were identified from the Sungai Sejaie mangrove forest, namely, *Thais aculeata*, *Cerithidea rhizophorarum*, *Nerita lineata*, *Littorina scabra*, *Nerita antiquata*, *Cerithidea obtusa*, *Cerithidea cingulata*, *Cassidula nukleus*, *Batillaria cumingi*, *Littorina fasciata* and *Ellobium aurisjuddae*. Five groups of gastropods were found from high to low tide levels. Two groups of gastropods were vertically zone from sediment surface up to two metres height on the mangrove trees. The differences in horizontal and vertical zonation of gastropod in the Sungai Sejaie mangrove forest were possibly due to their different ability to withstand exposure above the water, microhabitat preferences and food availability.

INTRODUCTION

The mangrove is a unique ecosystem, rich and complex in fauna and flora. Mangrove forest occurs along the Sarawak coastline and within river estuaries where sediment (mostly silt and clay) brought down by the rivers is being deposited. This area is

prone to floods by saline water and the degree and frequency of deluge largely determine the plant species zonation. In the mangrove forest, different species occupy different areas or zones which are more or less delimited from the others. Usually the mangrove forests have been divided into various zones using the dominant tree as a means of zoning; and each subtype is named after the most dominant and most important species (Santisuk, 1983).

The mangrove tree affords shelter to a host of fauna such as molluscs, crustaceans, reptiles and birds (Santisuk, 1983). Among the marine fauna, gastropods live permanently in the mangroves and distributed throughout the area from the high tide down to the low tide marks. Similarly they are also distributed vertically from surface of the sediment to several metres height on the mangrove trees.

There are several reports on molluscs studies in Sarawak and Sabah (Schepman, 1895; Medway, 1960; Gore, 1964; Saul, 1967; Morris, 1978; Malley and Chye, 1979; Wood, 1985; Cosel, 1990; Shabdin *et al.*, 1997; Hill *et al.*, 1997; Shabdin, 1999, Ruhana, *et al.*, 2007; Ruhana and Khairunnisa, 2007; Shabdin and Agatha, 2007). Most of these studies dealt with the gastropod species list in both states. There is no published paper regarding gastropods zonation in the mangrove forest of Sarawak. Therefore, Sungai Sejaie mangrove forest has been chosen for this study due to its accessibility from land. It is expected that this study will provide some basic knowledge of gastropods zonation in the area.

METHODOLOGY

Study Area

Sungai Sejaie mangrove received silt and clay sediment brought down by the Batang Sadong River (Fig. 1). The mangrove area is located at the Batang Sadong River estuary. This area is subjected to tides twice a day. The mangrove forest starts at high tide mark and end at Mean Low Water Neap. The distance from high tide to the lowest tide marks is approximately 300 metres. Mangrove plants in this area are dominated by *Avicennia alba* and *Sonneratia alba.*