

Crab community structure as ecological indicator of Matang mangrove forest in Malaysia

Martinez Espinosa Columba¹, Otero Fadul Viviana¹, Vande Velde Katherine¹, Hugé Jean¹, Satyanarayana Behara², Dahdouh-Guebas Farid¹

¹ Unité de Recherche Écologie des Systèmes et Gestion des Ressources, Département de Biologie des Organismes, Faculté des Sciences Université Libre de Bruxelles – ULB, Campus de la Plaine, Avenue F.D. Roosevelt 50, CPI 264/1, 1050 Bruxelles, Belgium
E-mail: columba.martinez.espinosa@vub.be

² Institute of Oceanography and Environment (INOS), Higher Institution Centre of Excellence (HICoE) in Marine Sciences, Universiti Malaysia Terengganu - UMT, 21030, Kuala Terengganu, Malaysia

Matang Mangrove Forest Reserve represents the largest contiguous mangrove area in peninsular Malaysia, and has been managed for silvicultural purposes for over a century. The management focuses on charcoal and poles production has ensured the continuous presence of a mangrove ecosystem over an area of 40,000 ha.

This ongoing research aims at investigating mangrove functionality. To accomplish this objective, crab community composition is assessed as an ecological indicator. The crab community is the most abundant macrofauna group in mangrove forests, it plays an important role in the nutrients cycle transfer between the mangrove plants and the soil at the time they are part of the trophic chain. Visual census methodologies for mangrove crabs were applied taking into account differing spatial behaviour of the species. The census and vegetation structure record was carried out in five different functional forest types (i) cleared area, (ii) young plantation (5-7 years), (iii) mid-age plantation (15 years), (iv) mature plantation (30 years) and (v) unmanaged forest (> than 90 years).

A positive correlation between vegetation age and crab community structure is expected. The findings of this ecological study will be fed into a transdisciplinary assessment, including stakeholder perception, to improve conservation and sustainable management of this ecosystem.

Keywords: mangroves; management assessment; crab communities; bioindicator; biodiversity; ecological functionality