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Diversity and Abundance of Intertidal Crabs at the East Swamp – Managed Areas in Segara – Anakan Cilacap, Central Java, Indonesia

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Abstract

Mangrove forests possess a high diversity and abundance of crabs in Central Java. The conversion of mangrove forests into prawn ponds causes depletion of supply of river sediments and loss of property. The main objective of this study is to compare the diversity and abundance of intertidal crabs in undisturbed areas, crab hunting areas, logging areas and prawn pond areas that were different in percent mangrove canopy covers and percent sediment textures. In each area, two transect lines were installed to analyse the percent mangrove canopy cover and the percent sediment texture compared to a trilinear plot. Intertidal crab samples were taken at random and analysed by the program of “Estimate S” to get information on diversity indices. The research was carried out from October 2000 to January 2002.

In total, 16,353 intertidal crab individuals in 13 species were sampled. Differences in observed number and estimated number of species (ACE, Chao⁻¹), as well as number of individuals, diversity indices and evenness between the four studied mangrove areas were all highly significant. Monthly fluctuation the intertidal crab diversity was more constant in the undisturbed area with a high mangrove coverage (90 %) compared to the crab hunting area, the logging area and the prawn pond area with a coverage of 89 %, 33 % and 0 %, respectively. Intertidal crab abundance was equal in three areas, but significantly lower in the completely deforested prawn pond area.

These results underline the necessity for a combination of economic and natural resource management. Silvofishery leading to the complete clear-cutting of mangrove trees (as in the prawn pond areas) leads to a highly impoverished crab community both in terms of crab individuals and species. Furthermore, the maintenance of undisturbed areas should be a primary objective for the management, since it represents a more constant crab diversity and highest abundance, and sustains the protection of rare species such as *Neosermatium* sp..

Keywords: Abundance, Central Java, diversity, intertidal crabs, mangrove, sediment