Assessment of plant species diversity at Pasir Tengkorak Forest Reserve, Langkawi Island, Malaysia

ABSTRACT

Plant species diversity of a logged-over coastal forest with in the Pasir Tengkorak Forest Reserve, Langkawi Island, Malaysia was assessed by establishing a 1-ha plot. All plants above 1.0 cm dbh (diameter of a tree at breast height), or 4.5 feet above ground level, the accepted point of diameter measurement for most trees were enumerated. Species diversity was defined as a combination of species richness and evenness. The jackknife estimate and species- area curve were applied to estimate the species richness. It was estimated using Simpson's index of diversity, Shannon-Weiner function and Brillouin index. Simpson's measure of evenness, Camargo's index of evenness and Smith and Wilson's index of evenness were also used to estimate species evenness. A total of 3414 individual trees representing 120 species, 81 genera and 31 families were recorded. Species with highest relative abundance were Swintonia sp1(0.12), Garcinia eugnifolia(0.09) and Syzygium sp1(0.05). The jackknife estimate of species richness was 132.9 and the regress ion equation to estimate species richness was $LnS\hat{} = 2.53 + 0.24 \ln (A)$ with $r2 = 96.0$ %. Species diversity was high with Simpson's index of diversity with a value of 0.96, while Shannon-Weiner index was 5.42 and Brillouin's Index was 5.14. However, Simpson's measure of evenness, Camargo's index of evenness and Smith and Wilson's index of evenness were 0.264, 0.378, and 0.41 9, respectively. Results indicated that species richness and species diversity were high, but evenness was low in this logged-over coastal forest.

Keyword: Coastal forest; Species richness; Diversity; Evenness