## Fern diversity in primary and secondary forests of Danum Valley and Ulu Segama Forest Complex, Lahad Datu, Sabah

## Abstract

Due to the depletion of primary forests, secondary forests are becoming important to sustain biodiversity. Ferns are good indicators for forest quality as many species have specific ecological preferences. The aim of this study is to compare the diversity and composition of fern species between lowland primary and secondary forests. Secondary forests caused by logging activities are classified into secondary forest of high biomass and low biomass. Eight plots of 20 m  $\times$  20 m (400 m2) were established in each forest type totaling to 24 plots. Twenty-six species of ferns belonging to 11 families were identified. Out of this, one species is new to Danum Valley which is Leptochilus cf. decurrens. Shannon-Wiener Index showed that secondary forest of high biomass (H'=2.49) have high species richness than primary forest (H'=2.03) and secondary forest of low biomass (H'= 2.07). Similarity Index was used to compare the diversity of three forest types and cluster analysis was used to show the grouping of the different forest types by using PAST (Paleontological Statistics) version 2.17. Secondary forest of high and low biomass showed high similarities. Higher species richness of ferns in the secondary forest of high biomass is due to the presence of many light demanding fern species. Thus, canopy opening may have influence the species diversity of ferns in secondary forests.