

Soil fertility and plant diversity in Sabal forest reserve, Borneo.

ABSTRACT

This study highlights soil fertility status as well as plant structural and compositional makeup in two different forest types after being exposed to different levels of anthropogenic disturbances. The mineral soil chemical analysis (pH, conductance, percentage of carbon and nitrogen, Cation Exchange Capacity (CEC), potassium, sodium, magnesium, calcium, and total and available phosphorus) showed that the concentrations of the chemical elements were lower than the values of published results from other studies in Borneo, suggesting a serious habitat degradation due to prior land-use in the forest reserve. In terms of plant abundance and richness, the logged-over forest fragments were dominated by small trees, whereas the understorey of tree plantations was composed of dense ferns and sedges with very low tree abundance and species richness. This study therefore provides important information on the management of soils and plant diversity in the tropics.

Keyword: Soil fertility; Weed suppression; Soil degradation; Soil erosion, Planting process; Mixed dipterocarp forests; Timber species, Plantation species, Mineral soil nitrogen; Cation exchange capacity; Plantation plots.