

## Effect of drainage and land clearing on selected peat soil physical properties of secondary peat swamp forest.

### ABSTRACT

A study was carried out to determine the effect of drainage and land clearing on selected peat soil physical properties of secondary peat swamp forest. This study was conducted in a drained secondary peat swamp forest and a cleared site of drained secondary peat swamp forest at Sibu, Sarawak, Malaysia. A 300 m<sup>2</sup> experimental plot was prepared at both sites. Saturated hydraulic conductivity, bearing capacity and surface soil temperature were determined in-situ, while fiber content, soil bulk density, gravimetric water content, volumetric water content, loss on ignition, ash content and soil total porosity were determined using standard laboratory procedures. Unpaired t-test was used to compare the variables for the two sites using statistical analysis system software. The percentage of fibre content, volumetric water content and saturated hydraulic conductivity were not significantly different between the two sites. Gravimetric water content, loss on ignition and total porosity were significantly higher in the drained secondary peat swamp forest, while ash content, bulk density, surface soil temperature and bearing capacity were significantly higher in the cleared site of drained secondary peat swamp forest. After clearing the drained secondary peat swamp forest, gravimetric water content, loss on ignition and total porosity continuously decreased while surface soil temperature increased as well as ash content, bulk density and soil bearing capacity. The changes of peat soil physical properties in the drained secondary peat swamp forest after the land clearing are the important indicators that indicate some continuous processes of peat soil degradation after the draining. However, fiber content, volumetric water content and saturated hydraulic conductivity of the drained secondary peat swamp forest were not affected by the land clearing.

**Keyword:** Secondary peat swamp forest; Drainage; Land clearing; Peat soil physical properties.