

### **Chemical characterization of soil in four secondary vegetation types and adjacent natural forest in Hantana area**

Vegetation of Hantana hills consists of natural forest (NF) and *Paraserianthes* (PAW); *Alstonia* (ALW); *Pinus* (PIW) and mixed species woodland (MSW). Though information is available on floristic diversity of these woodlands, differences in soil properties have not been studied. Soil studies will help understand soil reclamation under different vegetation and facilitate their management.

Each vegetation was represented by 15 plots (25m x 20m). In each plot, topsoil was collected from ten locations and a composite sample was prepared. Ninety samples were analyzed for total nitrogen; available phosphorus; exchangeable potassium, calcium and magnesium; pH and CEC. Vegetation-specific differences among these parameters were compared by "Turkey" test after ANOVA.

The highest and the lowest values were shown by the NF and PIW respectively for the following [NF-N(0.83%), P(11.0mg/kg), K(101.5mg/kg), Ca (968.3mg/kg) and CEC (16.1 Cmol(+)/kg) and the PIW-N (0.16%), P(6.7mg/kg), K(49.62mg/kg), Ca(269.2mg/kg), Mg (24.8mg/kg) and CEC (4.3Cmol(+)/kg)]. Variations of nutrient levels among the three broad-leaved woodlands showed variable patterns. The mean pH was highest in MSW (6.4), followed by ALW; PAW; PIW and the NF. PIW was significantly different from the other woodlands. Most of the above parameters, did not show significant differences between ALW/PAW; ALW/MSW and MSW/PAW. Except for N, differences between MSW and NF were not significant. Total N and Ca of the NF were significantly different from both PAW and ALW. The highest and the lowest soil nutrient levels were found in the NF and PIW respectively. Mixed woodland showed higher nutrient levels than the other secondary woodlands. Therefore, use of mixed species seems to be more effective than mono-species plantations for soil rehabilitation.