

## **A comparison of growth performance of trees species planted to restore the degraded area of former copper mining in Mamut, Ranau, Sabah**

### **Abstract**

This study was conducted to assess the growth performance of trees planted in the former copper mining area in Mamut, Ranau, Sabah. Three different species observed on an ongoing basis are *Paraserianthes falcataria* (Batai), *Eucalyptus deglupta* and *Pinus caribea*. The trees' growth and health were surveyed and recorded by using tree evaluation form. The measurement of tree growth was based on height and diameter at breast height (DBH); while tree crown, foliage colour and density, tree disease and tree regeneration were used to determine tree health. A total number of 105 trees of *P. falcataria*, 70 trees of *E. deglupta* and 123 of *P. caribea* were observed and measured in the area. The estimation of tree growth performance was based on the mean of height and DBH/year. The trees' ages were based on year of the tree planted, with *P. falcataria* in 1992, *E. deglupta* 1993 and *P. caribea* 1997. It was found that *P. caribea* recorded the highest value of mean DBH cm/year which was 2.20 cm/year, followed by *P. falcataria* (0.52 cm/year) and *E. deglupta* (0.41 cm/year). The highest value of mean height/year was also confined to *P. caribea* with 0.85 m/year followed by *E. deglupta* (0.48 m/year) and *P. falcataria* (0.27 m/year). The *P. caribea* planted in Mamut have the highest level of adaptation (86.73%) which was based on the comparison with the tree heights of the same species in more favourable areas. This was followed by *E. deglupta* (16.38%) and *P. falcataria* (10.34%) respectively. The highest mortality rate confined to *P. falcataria* (85.5%) followed by *E. deglupta* (78.3%) and the lowest was *P. caribea* (21.2%). The *P. caribea* was found to be adapted well to the degraded land of the upland area in the former copper mining in Mamut. The species is suggested to be considered in species selection for the restoration of degraded land in the nearby areas of the upper part of Mount Kinabalu area.