

Forest restoration technique of *Shorea balangeran* in degraded peatland of Central Kalimantan, Indonesia

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To development technique for forest restoration in drained and burnt peatland, we examined seedling planting and direct sowing methods for *Shorea balangeran* in Central Kalimantan, Indonesia. *S. balangeran* is native tree of peat swamp forest in Central Kalimantan. It was possible to collect seeds of *S. balangeran* from mother tree in the field every year from 2000 to 2008, and it was easy to make the seedlings on potted peat soil. Height growth of 1-year-old seedling was approximately 60 - 100 cm in shade condition in nursery. Planting experiment resulted in approximately 90% survival rate of the seedlings planted in an open site, Kapuas border where had been drained, developed for agriculture and burnt by wildfire. The light saturated net CO₂ assimilation rate (A_{sat}) of *S. balangeran* seedlings nursed under shade was $9.3 \pm 1.7 \mu\text{mol m}^{-2} \text{s}^{-1}$, which was the greatest among 6 native and 2 exotic tree seedlings (*Shorea balangeran*, *Palaquium leiocarpum*, *Combretocarpus rotundatus*, *Mezzettia sp.*, *Dyera lowii*, *Gonystylus bancanus*, *S. pinanga* and *S. selanica*), suggesting the *S. balangeran* seedlings prepared for planting was vigor. After 2 years from transplanting from shade in nursery to open site when the age of the seedling was one year old, the A_{sat} was $21.9 \pm 0.2 \mu\text{mol m}^{-2} \text{s}^{-1}$, indicating *S. balangeran* seedling could adapt to intensive light condition. To our knowledge, the value of A_{sat} was the second greatest in tropical forest tree seedlings following *Accaia mangium*, suggesting that *S. balangeran* is the light demanding and fast growing tree. Therefore *S. balangeran* is a useful tree for seedling-planting method in the degraded peatland. Furthermore, a direct sowing experiment for *S. balangeran* resulted in $11.4 \pm 2.5\%$ of survival for one year, suggesting that the direct sowing for *S. balangeran* is promising and cost-saving method. We conclude that the planting and direct sowing of *S. balangeran* are promising method for forest restoration in the degraded peatland in Central Kalimantan.