

Canopy dominant tree seedlings performance in natural canopy gaps across topographic catena in lowland rain forests, southwest Sri Lanka

Growth and survival of tropical forest tree seedlings are dependent on the total daily photosynthetic photon flux density. Growth and survival of tree seedlings were monitored in different elevations (low, mid, high) of Sinharaja rain and Indikada forest reserve in southwest Sri Lanka. Sixteen canopy gaps and closed canopy sites were selected, four each on different elevation gradient (low, mid and high). Seedlings of nine canopy tree species were planted in all canopy gap and understory sites. Seedlings belong to four genera *Shorea*, *Dipterocarpus*, *Mesua* and *Syzygium* were planted for this experiment. Measurements of height, number of leaves and mortality were recorded over a two-year period. Hemispherical canopy photographs were taken to calculate Indirect Site Factor (ISF), Direct Site Factor (DSF). The highest DSF values were recorded for high elevation sites while smallest values were for low elevation sites. Over the two-years seedlings mortality was increased with elevation and more than fifty percent seedlings died at high elevation sites. The seedlings in the high elevation gaps did not exhibit the height growth and survival compared to the seedling of the gap on the other site. Performance of seedlings collectively showed decline in height and leaf number with increasing elevation. Height growth and leaf number were greatest in the gap sites. *Shorea trapezifolia* (Thw.) Ashton, and *Shorea disticha* (Thw.) Ashton, showed greatest height increment in canopy gaps in all sites. No relationship was found between DSF and leaf numbers in all seedlings except *Syzygium rubicundum* Wight and Arn, which increased leaf number with increasing DSF.