

## SEEDLING SURVIVAL AND GROWTH OF *Mesua* AND *Dipterocarpus* SPECIES IN A SRI LANKAN RAIN FOREST

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Seedlings of *Dipterocarpus* (*D. hispidus* and *D. zeylanicus*) and *Mesua* (*M. ferrea* and *M. nagassarium*) were investigated for their survival and growth in different microenvironments in a lowland rain forest in south-west of Sri Lanka. These species occur together as canopy dominants of late-successional rain forest. Partitioning of the regeneration niche can be one explanation for the co-existence of ecologically similar canopy tree species within a forest. This study tested that differences in disturbances across the topography of lowland rain forest cause different survival and growth rates in closely related tree species among and within canopy openings of different size.

Seedlings were planted in plots located in five zones representing a range of forest groundstorey micro-environments found adjacent to and across canopy openings of three sites- valley, midslope and ridgetop. Plots were located from north to south across each gap (i) understorey 10 m to the south of the gap, (ii) southern gap edge, (iii) centre, (iv) northern edge and (v) understorey 10 m to the north of the gap. Experiments were designed to monitor survival and growth of planted seedlings for two years. At the end of two years survival was calculated, height increment recorded and destructive samples were taken to measure dry mass gain of root, stem and leaves.

Seedlings of *Mesua ferrea*, *M. nagassarium* and *D. zeylanicus* showed high survival on all sites and in all gap/ canopy conditions. *D. hispidus* showed the lowest survival in all sites. Growth measures attained maxima in the centre gap/ canopy condition in the three sites for all species. Results also demonstrated clear differences among species. *Dipterocarpus* exhibited greater growth responsiveness than *Mesua* species. These differences appeared to be related to availability of soil moisture and groundstorey radiation regimes. This study demonstrated that closely related species have specific growth characteristics that allow each to establish and grow better than its relatives in particular forest microenvironments.