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Habitat and Regeneration Analysis of two Indigenous Tree Species to Combat Deforestation on Leyte Island, Philippines

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Abstract

The Philippines are a contrasting hotspot of biodiversity and deforestation. On Leyte Island, reforestation farming is propagated as an agroforestry system integrating local indigenous tree species. Seeds and saplings are collected from forests and are directly bed out at trial farms. In general, primary rainforests are not only essential for seedling collection, but also serve as important reserve for the faunal seed regeneration vectors. Inadequate ecological knowledge of habitat and regeneration patterns of many tree species constrains their application and thus conservation in reforestation farming systems. For an integration of species in reforestation farming, planting schemes need to consider ecological requirements of species.

Two endemic tree species, *Cinnamomum mercadoi* (Cm) and *Dillenia megalantha* (Dm) were selected for field monitoring within natural and disturbed forests on Leyte Island. Fourteen mother tree locations were investigated per species to derive recommendations how to propagate and transplant the species. Regeneration patterns were analysed in four transects of 25m length and 5m width in a grid of 90 for each mother tree.

Cm mother trees were found scattered as individuals in contrast to Dm which grew in clustered stands. Dm was found in altitudes above 500 m asl., with river creek locations in lower altitudes as exception. Cm was found in elevations of 100-800 m asl. A hypothesized topographic habitat indicator of Cm was only found in primary forests while Dm grew scattered at higher elevation ranges.

During the monitoring period from March to July 2003, flowering of Cm coincided with a local seasonal dry period whereas Dm continuously flowered on solitary branches. Cm seed dispersal is endozoochorous, mainly by larger birds, i.e. Hornbills (*Bucerotidae*). Cm seedlings were not found close to the mother tree, but in high densities around perching trees. In contrast, Dm seedlings occurred in high numbers in the investigated transects around the mother tree. The seed dispersal vector of Dm can be small mammals, fruit bats, water and gravitational move. Overall, Cm is a late successional and climax tree species, whereas Dm show pioneer characteristics, requiring forest canopy gaps to grow into maturity.

Keywords: Habitat requirements, native trees, reforestation