

SUCCESS OF FOREST RESTORATION: A CASE STUDY AT LOWER HANTANA, SRI LANKA

Jayamini Jayawardhane¹ and AMTA Gunaratne²

^{1,2} Department of Botany, University of Peradeniya, Sri Lanka.

¹ jayaminiJayawardhane1@gmail.com, ² thilankag@pdn.ac.lk

Assessing the recruitment of woody species in restoration trials is crucial to understand the increases in biodiversity due to restoration efforts. The aim of our study was to investigate the success of restoration in a *Pinus caribaea* Morelet plantation at lower Hantana, Sri Lanka, 11 years after the commencement of a restoration trial. A pine stand with enrichment planting (RP) and an unrestored pine stand (UP) were selected for the study. In both sites fifteen plots, each of size 5m x 5m, were established randomly. In order to determine the species richness and diversity of woody species, saplings (>50 - 300 cm in height) and trees (>3 m in height) in all the plots were tagged, identified and counted.

A total of 309 and 97 individuals were recorded in the RP and UP stands in 2015, respectively (RP; saplings= 235, trees= 74; UP; saplings= 12, trees= 85). Both sites were dominated by the invasive species *Alstonia macrophylla* Walla.ex G. Don (RP= 188; UP= 80). Six families, 8 genera, 8 species in the UP stand and 18 families, 22 genera, 22 species in the RP stand were recorded during the study. Species diversity was higher in RP than in the UP (Shannon Weiner Indices in RP= 1.53 and UP= 0.69). Native species were higher in RP (23.3%) than in the UP (15.46%). Zoochory was observed in both stands (RP= 36.89%; UP= 17.53%). Moreover, the stratification of plants was more in the RP than UP stand. Fires were not observed in the RP stand even during the dry seasons after restoration trail began.

Our study concludes that the species richness and diversity of woody species is greater in the RP than UP stand indicating the success of the restoration trail. Moreover the study stresses the importance of converting monoculture pine stands to mixed species stands using broad leaved species in mountainous region of Sri Lanka, in order to improve ecosystem services provided by them.