STUDY OF SOME ECOLOGICAL IMPACTS OF CARDAMOM CULTIVATION IN THE KNUCKLES FOREST RANGE

BY

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ABSTRACT

Knuckles Forest Range is a unique ecosystem and extending to 160 km^2 in Matale and Kandy Districts of Central Province. Together with the landscape and the climate it has resulted a variety of natural vegetation types. Among these, sub montane forests are highly affected by commercial planting of cardamom by villagers and also by large scale companies.

This research was conducted in Riverston area of Knuckles Forest Range. Selective sampling was done in the natural forest, abandoned cardamom plantation and cardamom planted areas. Within the areas, 10 x 10 m plots were established in each area and following measurements were done; no. of species/area, no. of individuals/area and per species, vertical stratification in the two types of areas. Dbh was measured in trees with > 1m height.

The results depicts 53 plant species in natural forest, 36 species in abandoned cardamom plantation and 31 species in cardamom planted areas, with a high number of genera and families in natural forest. 29 species out of 53 species were confined to the natural forest areas. Height and diameter distribution patterns of trees were clearly different in natural forest and cardamom plantation. Species diversity (Shannon's diversity index) was *significantly ($p< 0.05$) different between natural forest (1.1300) and cardamom plantation (0.5678). It was 1.0216 in the abandoned cardamom plantation. Density of trees (number* of stems/ha) also showed such pattern and the values were 19300, 1611 and 7400 respectively. Dominant tree species according to the Importance Value Index (IVI) in each condition was also different. Comparison of endemicity in three conditions showed 43.39% in natural forest 36.11% in the abandoned cardamom plantation and 35.48% in cardamom plantation.

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