

ABSTRACT

An attempt was made to investigate the taxonomy of the flora and to elucidate the phytosociology and ecology of trees over 30 cm girth at breast height in the Forest Reserve at Kekanadura, situated about 1km north-east of Matara, in the wet-zone lowland of Sri Lanka.

A total of 145 taxa was recorded with some emphasis on their general taxonomic features, habitat-preferences, autecology and distribution in Sri Lanka; of these taxa six were non-vascular and 139 vascular with 15 Pteridophytes and 124 Angiosperms belonging to 49 Families and 110 Genera; Only 17 of the Angiosperms were endemic to Sri Lanka but none to Kekanadura; the leading Family was Euphorbiaceae.

The floristic and edaphic data were collected from three transects each of sixteen 25x25 m contiguous plots located on three hill-sides selected to represent some of the major habitats. The basic vegetational enumerations were the density and basal area of the trees. The floristic data were statistically computed by Reciprocal Averaging Ordination and Indicator Species Analysis Classification. On the basis of the multivariate analyses, the between-hill-side vegetational and ecological heterogeneity was correlated with differential degree of exposure to coastal conditions, the seaward and leeward hill-sides exhibiting a marked distinctiveness both vegetationally and environmentally. The within-hill-side vegetational variation was a reflection of edaphic gradients resulting from differential surface erosion causing redistribution of soluble minerals and fine soil particles.

The within-community distribution (the so-called pattern) of some of the major tree species was examined in relation to subtle variations in the status of several major nutrients by using the well-known nested-block analysis of variance, covariance and correlation coefficient. The results revealed the occurrence of non-random contagious distribution of the species and edaphic variables with two scales of pattern: The small-scale of pattern of 12.5-- 25 m linear dimension was the result of restricted dissemination of propagules; the large-scale pattern of 50 - 100 m linear dimension was related either to subtle variations in soil nutrient-regimes or to interactions between species. Thus, there was evidence of reproductive, environmental and phytosociological patterns of the species examined in the Kekanadura Forest Reserve.

Climatic, floristic, phytosociological and ecological comparisons revealed closer affinities and similarities of the Kekanadura Forest with intermediate forests than with wet-zone lowland forests.

Practical implications and limitations of the findings are briefly discussed.