ABSTRACT

The preliminary study of the forest community of Halmandiya in the Sinharaja MAB reserve, indicated that the plant community exhibited many features characteristic of the Wet Evergreen forests. The majority of the plants were woody and were of the dimension of trees. The total biomass of vegetation was found to be high.

Among the vegetation analysed a high species richness was observed. In a total area of 0.56 hectares there were 98 species of woody forms, ten centimeters or more, girth at breast height. They belonged to 64 genera. These included trees, shrubs, lianas and the young trees. Within a total area of 0.03 hectares 53 genera of plants were recorded. These were the perennial herbs of the ground layer and the seedlings and saplings of the woody forms above the herb layer. The perennial herbs included the ferns, herbaceous plants, and the non woody lianas.

The Halmandiya plant community also exhibited the high endemicity characteristic of virgin forests. Fifty one percent of the woody forms, 10 centimeters or more gbH, were endemic to Sri Lanka. Of the six species of ferns (Pteridophytes) three were endemic.

Although there was a high species richness the Shanon - Weiner indices of diversity indicated low values. The highest value (1.48) was found in plot three on the ridge top.

The forest stands sampled at Halmandiya varied in many
features that characterize a plant community, namely, the species
richness, the species abundance or density, the forest structure and
the dominance.

As regards the woody forms 10 centimeters or more gbH the
forest stand of the ridge top had the highest number of species. The
total number of woody life forms 10 centimeters or more gbH was also
highest in area three. But of the soil nutrients, only the total
nitrogen was highest in area three. The others the organic carbon and
the potassium content, were high in the soil samples of the slope. In
contrast the streamside forest stand although, closest to water was the
poorest in woody species 10 cm. or more gbH and also in numbers of
individuals.

Structurally the shrub layer and the herb layer varied among
the three areas. The shrub layer of the ridge top included shrubs like
Urophyllum ellipticum, Schumacheria castaneifolia and Psycotria glandulifera
not found abundantly in the other areas. In contrast, Agrostistachys
hookeri was common in the shrub layer in the streamside and the slope.

The herb layer of the streamside was the most varied. There
was a abundance of non woody forms especially ferns. The endemic Cyathea
sinuata was the most prominent among them. The herb layer of the slope
was composed of many seedlings and saplings and that of area three, the
ridge top, was scanty compared to the others. There was an abundant
growth of epiphytes in the streamside plot and is indicative of the
moist environmental conditions near the stream.

Percentage relative density values calculated for the woody forms 10 centimeters or more gbH indicated <u>Mesua ferrea</u>, <u>Mesua nagassarium</u> and <u>Aporosa lanceolata</u> to have the highest values in area one, two and three respectively. Percentage relative dominance values, indicated the dominance of <u>Mesua nagassarium</u>, <u>Mesua nagassarium</u> and <u>Shorea trapezifolia</u> in areas one, two and three respectively. Only in area two was the same species <u>Mesua nagassarium</u> high for both measures of importance - percentage relative density and percentage relative dominance.