PRELIMINARY SURVEY ON THE LICHEN–HOST SPECIES DIVERSITY IN THE HORTON PLAINS NATIONAL PARK

R.G.U. JAYALAL[1], D.S.A. WIJESUNDARA[2] AND V. KARUNARATNE[1*]

[1]*Department of Chemistry, Faculty of Science and Postgraduate Institute of Science, University of Peradeniya.* [2]*Royal Botanic Gardens, Peradeniya.*

Horton Plains National Park (HPNP) comprises two dominant vegetation types; wet "Pathana" grassland and evergreen upper montane rain forest. The forest occupies about half the total area of the park. In appearance most trees are low branched, twisted and without buttresses. Other plants that predominate are the epiphytes growing on the tree trunks and branches, and epiphyllous forms growing on the leaf surfaces. Among these plants are orchids, ferns, lichens, mosses and liverworts. Lichens have been used successfully in other countries as monitors of forest health and ecological continuity. This study reveals the most common and rare flowering plant species utilized by lichens as host species in HPNP.

In this study 5 plots, each 20 x 10 m, were sampled and in them tress $\geq$ 5 cm girth at 1.5 m above the ground were enumerated by recording their density, height up to the top of the crown and diameter at breast height. In one third of the total number of trees enumerated, the lichen flora on their trunks, up to 2 m from the tree base was noted. Microclimatic conditions such as light intensity, relative humidity and bark pH of trees were also recorded.

During the study 104 host trees belonging to 11 families and 18 genera were sampled. The 100 lichen specimens collected represented 18 families and 27 genera. Bark pH of host plants ranged from 3.84 in *Cinnamomum ovalifolium* to 5.91 in a dead tree. Lauraceae was the dominant host plant family followed by Rubiaceae, Myrtaceae and Symplocaceae. At the species level, the five dominant host plants were *C. ovalifolium*, *Psychotria ceylanica*, *Eurya chinensis*, *Neolitsea cassia* and *Syzygium rotundifolium*. 50% of the host species recorded were endemic to Sri Lanka. Over 50% of the trees sampled were below 10 cm in diameter. The number of lichens recorded was highest in the 11–15 cm diameter class and least in the 21–25 cm diameter class. Mean density of host trees in the area studied was 520 individuals per hectare. The highest diversity of lichens was on *Ilex walkeri* with ten taxa and *S. rotundifolium* with nine taxa. *Symplocos obtusa* and *Microtropis ceylanica* were very specific to the lichens *Lecanora sp.* and *Trapelia sp.*, respectively. Also *P. ceylanica* and dead tree substrates with basic barks were the main hosts for macrolichen species, while microlichen species were mainly restricted to
C. ovalifolium and *S. rotundifolium* which had acidic bark. None of the host trees provided a substrate below 1.5 m of their trunk for common lichen species like *Usnea sp.* in HPNP. Further studies need to be conducted to understand the host specificity of lichens.

Financial assistance by the National Science Foundation and IFS, Sweden is acknowledged.