

DIVERSITY AND TAXONOMY OF LICHENS IN THE AREAS AFFECTED BY FOREST DIE BACK AT HORTON PLAINS NATIONAL PARK

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Lichens are symbiotic organisms composed of a fungal partner and one or more green alga or a cyanobacterium as photobiont. We have begun a major survey of lichens within the forest communities of the Horton Plains National Park (HPNP) with a view to biomonitor the forest areas; healthy and with die-back. Preliminary data obtained in a survey of lichens in the areas affected by forest die back is reported here.

The selected area represent about 30% of the total forest area and 13% of the total forest area is completely dead. Remote sensing map of HPNP was used to identify the die back areas and ten sites were randomly selected for sampling from the grid map. Plots, 50 X 20 m plots were demarcated and trees of >5 cm gbh were mapped. Tree data (height, canopy area, basal area, bark type, corrugation, tree age and canopy direction) and physical environmental data (light intensity, slope of the site, geographical position and altitude) were recorded. Lichens were collected from 1/3 of the total trees as it was found to be a representative sample size. Sampling was done up to 2.5 m from ground level by tracing the outline of each lichen thallus on transparency sheets. The lichens collected so far were morphologically and chemically identified using keys, colour atlases and type specimens deposited at the National Herbarium, Peradeniya.

Of the 42 lichens found, 22 belonged to foliose, 17 were crustose, and 3 fruticose. Only 32 out of the 42 lichens were identified up to generic level which belonged to 21 genera and 13 families (Coccocarpiaceae, Collamataceae, Cladoniaceae, Graphidaceae, Hypogemnaceae, Leconaraceae, Lobaraceae, Megalosporaceae, Pannaraceae, Parmeliaceae, Pertusariaceae, Pseudocyphellariaceae, Usneaceae). *Coccocarpia*, *Collema*, *Leptogium* and *Sticta* species were found in low light intensity areas especially closer to the ground (day light 1.8 - 2.1 $\mu\text{mol m}^{-2} \text{s}^{-1}$). *Cladonia* species were mainly found on dead and corrugated bark where humid debris accumulated. Many Graphidaceae and a few Pertusariaceae and Pannaraceae species were found on smooth barks. *Heterodermia* species were frequently found among mosses. *Usnea* species were found in open areas with high light intensity (day light 130 $\mu\text{mol m}^{-2} \text{s}^{-1}$). The possible pollutant indicator, *Megalospora* sp. were found on healthy young or mature tree bark having large canopies, less lichens were found compared to die back tree bark of *Callophyllum walkeri* (S: Keena, F. Clusiaceae), *Neolitzea fuscata* (Lauraceae) *Gaultheria leschsnaulii* (S: Wel kapuru, F. Ericaceae).

Our studies so far indicate that macroclimate, microclimate, bark type, corrugation, tree age and moisture retention have an effect on the distribution of epiphytic lichens.

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