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A PROJECT FOR STUDYING THE BIODIVERSITY AND ECOLOGY OF LICHENS IN THE CANOPY OF A TROPICAL RAIN FOREST

Ein Projekt zur Untersuchung der Biodiversität und Ökologie von Flechten im Kronendach eines tropischen Regenwaldes

by

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Key words: Lichens, canopy, vertical distribution, biodiversity, rain forest, Venezuela.

Schlagwörter: Flechten, Kronendach, vertikale Verbreitung, Biodiversität, Regenwald, Venezuela.

Summary: Lichenological aspects will be included in an interdisciplinary canopy research project. The forest to be studied is a lowland rain forest in southern Venezuela. Very preliminary results concerning the vertical distribution confirm that different height zones are dominated by certain families of lichenized fungi.

Zusammenfassung: Im Rahmen eines interdisziplinären Projektes zur Kronendacherforschung werden verschiedene lichenologische Aspekte bearbeitet. Der zu untersuchende Wald ist ein Tiefland-Regenwald im Süden Venezuelas. Sehr vorläufige Ergebnisse bezüglich der Vertikalverbreitung von Flechten bestätigen, daß die verschiedenen Strata vom Waldboden bis ins Kronendach von charakteristischen Familien lichenisierter Pilze dominiert werden.

An interdisciplinary project for studying the canopy of a tropical lowland rain forest has been initiated. The study site is situated at the junction of Surumoni and Orinoco Rivers, ca. 10 km W of La Esmeralda in Amazonas State, Venezuela (see fig. 1). A tower crane has been built to provide easy access to the forest canopy.

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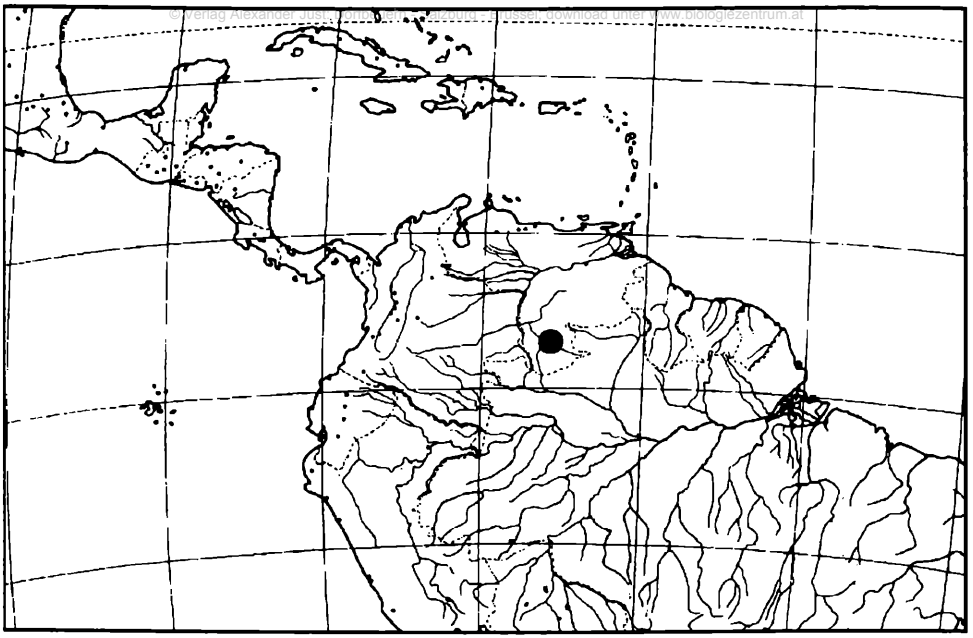


Fig. 1: The location of the study site.

The climate of the study site is tropical, with a mean annual rainfall of ca. 2600 mm/year. However, the period from December to March is rather dry with a high possibility of several consecutive dry days during this time. The vegetation is typically a palm rich forest growing over sandy terra firme soil (COOMES & GRUBB 1996).

Initial field work has been performed during the late winter of 1996. Very preliminary lichenological observations agree in general with those outlined by HARRIS & SIPMAN (1989) and GRADSTEIN (1995). The corticolous lichen vegetation of the lower trunks is dominated by species in the Thelotremataceae, e.g., *Myriotrema glaucophaenum, Ocellularia comparabilis, O. latilabra, O. papillata,* and includes also *'Biatora' pyrrhomelaena, Eschatogonia prolifera, Crocynia gossypina, Cryptothecia rubrocincta* and many others. The species rich foliicolous synusiae, with e.g., *Segestria epiphylla, Lasioloma arachnoidea* and *Chroodiscus coccineus,* were observed in the shady undergrowth, with palms of the genera *Geonoma* and *Oenocarpus* being among the common phorophytes.

The corticolous lichen vegetation of the canopy is dominated by species in the Trypetheliaceae, with *Trypethelium aeneum* as the most conspicuous species. Surprisingly, foliose lichens are not important in the tree crowns, neither in the number of species observed, nor in their biomass. For species identified until now in the canopy zones 3 - 5 (acc. to CORNELISSEN & ter STEEGE 1989: 133) see following list resp. fig. 2.

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Zone 5: Lichens on thick branches of the middle canopy

Astrothelium cinnamomeum s.l.
Trypethelium nitidiusculum
Trypethelium eluteriae s.l.
Arthopyrenia c.f. *exasperata*
Graphina virginea
Coccocarpia filiformis
unidentified species within *Myriotrema* (1), *Trypethelium* (1).

Zone 4: Lichens on thick branches of the lower canopy

Astrothelium ochrothelium
Astrothelium versicolor
Trypethelium aeneum
Trypethelium ochroleucum
Trypethelium eluteriae s.l.
Graphina virginalis
Phaeographina caesiopruinosa s.l.
Bulbothrix goebelii
unidentified species within *Astrothelium* (1), *Pseudopyrenula* (1), *Arthopyrenia* coll. (1), *Graphina* (2), *Ocellularia* (1), *Myriotrema* (1), *Enterographa* (1).

Zone 3: Lichens on the upper trunk

Astrothelium spec.aff. *ochrothelium*
Graphis grammitis
Phaeographina caesiopruinosa s.l.
Porina mastoidea
Coccocarpia filiformis
unidentified species within *Graphis* (1), *Myriotrema* (1), *'Phaeotrema'* (2).

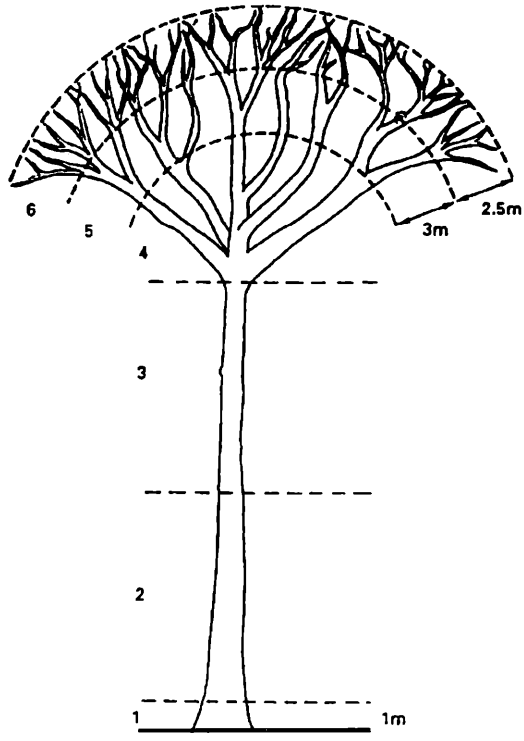


Fig. 2: Height zones on a rain forest canopy tree, after CORNELISSEN & TER STEEGE (1989).

Future work will be aimed at the lichen biodiversity and the elucidation of the vertical distribution of selected lichen species. These investigations are supported financially by the Austrian Science Foundation (FWF, project P11562-BIO).

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