Syntaxonomy of trunk-epiphytic bryophyte communities of tropical rain forests
A first pantropical approach

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with 38 figures and 9 tables

Abstract. The study deals with the syntaxonomy of trunk-epiphytic bryophyte communities from different types of tropical rain forests, sampled in all chief regions of the world with an Equatorial climate. A pantropical synthesis is provided, including a first tropic-wide syntaxonomic classification. The account follows the conventions of the Braun-Blanquet approach and is mainly based on the results of the phytosociological analysis of three transects (lowland to timberline) in Southeast Asia (Borneo); Africa (Zaire/Rwanda) and South America (Peru), and on additional vegetation studies. The bryophyte vegetation of each continent is differentiated at class level: The communities of the Neotropis are classified within the Taxilejeuneo-Prionodontetea fusco-lutescentis; for the Old World, the Frullanio depressae-Lejeuneetalia flavae (Africa) and Thysanantho-Bazzanie­tea tridentis (Southeast Asia) classes are described for the first time. The concept of a “Palaeotropis”, displaying only one major epiphytic syntaxon, is not supported. The Taxilejeuneo-Prionodontetea comprise the Bryopterido-Neckeropsietalia undulatae (alliances: Symbiezi dio-Ceratolejeunion cubensis, Pilotrichellion all. prov.) in the lowland and the montane Prionodontetalia fusco-lutescentis (alliances: Omphalantho filiformis-Plagiochilion apicidentis, montane; Herberto divergentis-Plagiochilion compressulae, oreal). The Frullanio-Lejeuneetalia include the Lejeuneo flavae-Plagiochilion salvadoricae (submontane), and the montane Plagiochilo squamulosae-Porotrichetalia mollicilli ord. nov. (alliances: Plagio­chilion divergentis, montane; Plagiochilion colorantis, oreal; Syntrichion cavalli all. nov., subalpine). The Thysanantho-Bazzanie­tea consists of the lowland Thysanantho-Cheilolejeuneetalia ord. nov. (alliance: Lepidolejeunion bidentulae) and the Bazzanie­talia uncigerae (alliances: Bazzanie uncigerae, montane; Her­berto-Plagiochilion renitentis all. nov., oreal). The three classes are united in the new pantropical Lejeuneo flavae-Frullanetalia sciurodis class group. It stands against the Holarctic Frullanio dilatatae-Leucodontetalia sciurodis, which is consequently raised in rank and classified as Frullanio-Leucodontetalia class group. The distribution patterns of the trunk-epiphytic vegetation can be generalized pantropically. Three alliances, which fall into two orders. Their distribution is correlated to the most important structural parameters of the phorophyte stands and to isothermic intervals (27–20 °C mean annual temperature: tropical lowland and submontane alliances; 20–12 °C: subtropical and montane alliances of the montane rain and cloud forests; 12–8 (5) °C: temperate, oreal to subalpine alliances of elfin forests and ericaceous woodlands. A fourth unit (< 8 °C) includes the Afro-subalpine Syntrichion cavalli, hitherto only known outside the moist tropics and typical of the subpáramo vegetation. These altitudinal distribution patterns of the major syntaxa generally reflect the zonation of the forest biomes. The ranges of the syntaxa are tentatively based on a series of selected distribution maps of important character species.

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