

**A NEW SPECIES OF *ECTROPOTHECIUM* SUBGENUS
TRACHYPHYLLARIA (HYPNACEAE) FROM SURINAME:
ANOTHER ASIAN-SOUTH AMERICAN DISJUNCT**

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Abstract. *Ectropothecium neotropicum* is described from Tafelberg in Suriname. It is the first known American representative of *Ectropothecium* subgenus *Trachyphyllaria*, characterized by prorulose laminal cells.

Key words: *Ectropothecium*, Hypnaceae, Suriname, Tafelberg

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Bryogeography has progressed considerably since Herzog's (1926) *Geographie der Moose*, but still little information is available on bryophyte disjunctions between tropical South America and tropical Asia. Only a handful of examples have been found and no reasonable, geology-based explanations are available (Buck 1987). Nevertheless, examples surface from time to time that document this unusual distribution pattern.

In 2001, Bruce Allen visited Tafelberg in Suriname in conjunction with a multi-year collecting program sponsored by The Missouri Botanical Garden. Tafelberg is the easternmost of the tepuis and one of the lowest, with its highest point reaching only 1026 m. It has been known for many years but the first botanical exploration did not take place until 1926 by Dutch botanist and agriculturalist, Gerold Stahel (Stahel *et al.* 1926, 1927). In 1944 Bassett Maguire of The New York Botanical Garden organized a major botanical expedition to the tepui (Maguire 1945a, b; Maguire & collaborators 1948a–f). The summit is inaccessible all around because of sheer cliffs except at one place where an igneous intrusion has formed a steep ramp. This ramp is the only

way to hike up Tafelberg, but to reach the tepui requires significant time and distance, either by boat up the Saramacca River or by airplane to an isolated airstrip. This ramp also means that Tafelberg is not as biologically isolated as the other, more western tepuis, and thus the summit has a much larger vertebrate (non-bird) fauna than that of the other tepuis.

While collecting bryophytes on this trip to Tafelberg, an odd pleurocarpous moss was found that could not be determined to genus. This moss had creeping stolons and branch leaves with short apical cells, distinctly prorate cells, and a single enlarged alar cell. Subsequently William Buck recognized it as the first representative of *Ectropothecium* subgenus *Trachyphyllaria* for the New World. This subgenus was first described by Fleischer (1923: 1383–1414) for a small group of southern Asian species differing from typical *Ectropothecium* by its prorulose laminal cells.

We take this opportunity to describe the new species and dedicate it to the memory of Marian Kuc, who, without institutional support, collected bryophytes in many remote areas of the globe.

Ectropothecium (subg. *Trachyphyllaria*) ***neotropicum***
W. R. Buck & B. H. Allen, *sp. nov.* Fig. 1

Plants slender in pale, yellow-green, thin mats. Stems creeping, to *ca* 2 cm long, irregularly pinnately branched; branches simple, to *ca* 7 mm long, slightly ascending; stem section with 2–4 rows of small, thick-walled, colored cells surrounding abruptly larger, thinner-walled cells, central strand small, of small, thin-walled cells; pseudoparaphyllia subfilamentous to narrowly foliose; axillary hairs with a single, short, brown, basal cell and 2–3 elongate, hyaline, apical cells; rhizoids reddish, smooth when young, becoming roughened with age, on stems at bases of branches and below leaf insertions. Branch and stem leaves somewhat differentiated, erect- to wide-spreading, little altered when dry; stem leaves oblong-ovate, \pm gradually acuminate, \pm falcate, $0.70\text{--}0.85 \times 0.22\text{--}0.34$ mm, broadest shortly above the insertion; margins often erect, especially above, subentire to serrulate above, entire to subentire below; costa absent or double and very short; laminal cells linear, thin- to firm-walled, $34\text{--}57 \times ca\ 3$ μm , smooth or sparsely prorulose, becoming shorter, broader and thicker-walled toward the insertion; alar cells with a single, \pm decurrent, inflated, hyaline cell and 2–4 quadrate, firm-walled supra-alar cells. Branch leaves lanceolate to oblong-lanceolate, narrowly acute to gradually short-acuminate, \pm crispate, not falcate, $0.7\text{--}1.0 \times 0.20\text{--}0.28$ mm; margins erect, serrate in upper 2/3, distantly serrulate below; costa short and double, often one fork extending to *ca* 1/5 the leaf length; cells linear, thin-walled, $70\text{--}100 \times 5.5\text{--}6.0$ μm , sparsely prorulose at upper cell ends in upper 1/3 of adaxial surface of leaf, but prorulae sometimes extending to near insertion, apical cells in narrowly acute leaves with upper cells distinctly shorter than median or upper cells, becoming shorter and narrower toward insertion; alar cells with a single, strongly decurrent, inflated, hyaline cell and 2–3, quadrate to subquadrate, firm-walled supra-alar cells. No

specialized asexual reproduction seen. Autoicous; perigonia bud-like, sessile on main stems, 2–3 mm away from perichaetia, 0.5–0.6 mm long; leaves ovate, short-acuminate, margins entire; antheridia numerous; paraphyses sparse. Perichaetial leaves convolute, oblong to long-oblong, outermost \pm abruptly acuminate, innermost gradually long-acuminate, concave, 2.1–3.0 mm long; margins distantly serrulate above, subentire below; costa none; cells linear, firm-walled, $(55\text{--})70\text{--}100 \times 5\text{--}6$ μm , smooth, becoming long-rectangular and broader toward insertion; alar cells not differentiated. Vaginula hairy. Calyptrae (only immature seen) cucullate, slightly roughened at apex, with a few hairs at base.

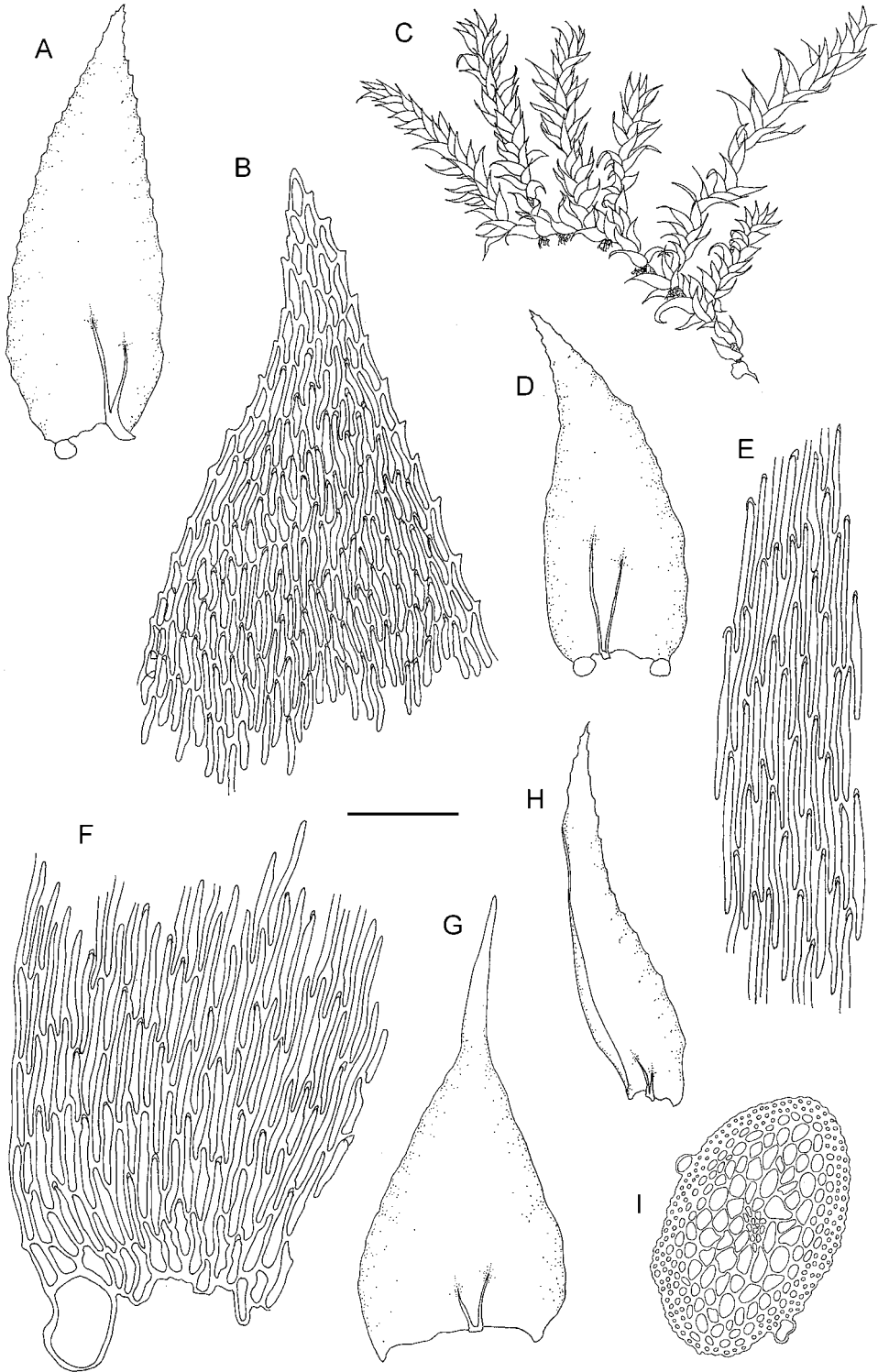
TYPE: SURINAME. SIPALIWINI: Tafelberg, trail from airplane crash site savanna to Caiman Camp, $3^{\circ}54'10''\text{N}$, $56^{\circ}10'46''\text{W}$, 700 m; on trunk of fallen tree; 24 Jun 2001; *B. Allen 23266* (HOLOTYPE MO; ISOTYPE NY).

Ectropothecium is a particularly difficult and speciose genus. However, the majority of species are from the Paleotropics and so it seldom presents many problems in tropical America. Worldwide the genus is characterized gametophytically by poorly developed alar cells, but with a single, enlarged and inflated, decurrent cell at each corner angle of the insertion. Sporophytically its most characteristic feature is its very small capsule that is strongly contracted below the mouth when dry and empty. Our new species has the typical gametophytic decurrent cells at the leaf insertion. However, our material only has immature sporophytes, essentially still in the spear-stage, and thus capsule features are not known. Having said that, though, the calyptra is sparsely hairy, just like the type species from Java, *Ectropothecium incubans* (Reinw. & Hornsch.) A. Jaeger, lending more support for its placement in subg. *Trachyphyllaria* M. Fleisch.

There are five other Neotropical genera in the Hypnaceae with prorulose leaf cells that can be confused with *E. neotropicum*: *Mittenothamnium*,



Fig. 1. *Ectropothecium neotropicum* W. R. Buck & B. H. Allen, *sp. nov.* A & D – stem leaves, B – leaf apex, C – habit, E – median leaf cells, F – basal and alar cells, G – stolon leaf, H – branch leaf, I – stem in cross section, showing two decurrent alar cells attached. Scale bar: 0.05 mm (B, E, F); 0.13 mm (I); 0.14 mm (G); 0.28 mm (A, D, H); 1.96 mm (C). All figures from *Allen 23266* (holotype).



Chryso-hypnum, *Ctenidium*, *Phyllocladon* and *Taxiphyllum*. All five genera differ from *E. neotropicum* in having leaves that lack a single, enlarged decurrent alar cell. *Mittenothamnium* further differs in having substipitate or stipitate stems and elongate apical leaf cells. *Chryso-hypnum* is similar to *E. neotropicum* in having creeping stolons; it differs in having elongate apical leaf cells and laminal cells prorulose at both ends. *Ctenidium* is characterized by decurrent stem leaves with well-developed alar regions. *Phyllocladon* has laminal cells that are papillose as well as prorulose, and the leaf apex is obtuse. *Taxiphyllum* is similar to *E. neotropicum* in having branch leaves with short apical leaf cells, but further differs in having less consistently prorulose leaf cells and foliose pseudoparaphyllia. *Ectropothecium neotropicum* is easily distinguished from the only common species of the genus in South America, *E. leptochaeton* (Schwägr.) W. R. Buck, by its prorulose laminal cells.

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