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# On *Lejeunea patriciae*, nom. nov. for *Lejeunea pilifera* Tixier

ALFONS SCHÄFER-VERWIMP

*In memoriam Patricia Geissler*

## ABSTRACT

SCHÄFER-VERWIMP, A. (2001). On *Lejeunea patriciae*, nom. nov. for *Lejeunea pilifera* Tixier. *Candollea* 56: 63-67. In English, English, French and German abstracts.

A new name, *Lejeunea patriciae*, is proposed for *Lejeunea pilifera* Tixier, nom. illeg. The perianth which is described and figured for the first time, confirms the placement of this species in *Lejeunea* s. str. Observations on asexual reproduction by fragmenting stems are given and notes on the ecology and sociology as well as new localities (including distribution map) are provided. One new combination, *Lejeunea evansiana* (R. M. Schust.) Schäf.-Verw., is proposed.

## RÉSUMÉ

SCHÄFER-VERWIMP, A. (2001). *Lejeunea patriciae*, nom. nov. pour *Lejeunea pilifera* Tixier. *Candollea* 56: 63-67. En anglais, résumés anglais, français et allemand.

*Lejeunea patriciae* est proposé comme *nomen novum* pour le nom illégitime *Lejeunea pilifera* Tixier. L'étude du périanthe, faite pour la première fois, confirme la position de ce taxon dans le genre *Lejeunea* s. str. Des observations sur sa reproduction asexuée par fragmentation de la tige, des notes sur son écologie et sa sociologie ainsi que des nouvelles localités, avec une carte, sont fournies. Une nouvelle combinaison, *Lejeunea evansiana* (R. M. Schust.) Schäf.-Verw. est validée.

## ZUSAMMENFASSUNG

SCHÄFER-VERWIMP, A. (2001). On *Lejeunea patriciae*, nom. nov. for *Lejeunea pilifera* Tixier. *Candollea* 56: 63-67. In English, englische, französische und deutsche Zusammenfassungen.

*Lejeunea patriciae* wird als neuer Name für *Lejeunea pilifera* Tixier, nom. illeg., vorgeschlagen. Das Perianth, das erstmals beschrieben und abgebildet wird, bestätigt die Zugehörigkeit zu *Lejeunea* s. str. Beobachtungen zur vegetativen Vermehrung, zur Ökologie und Vergesellschaftung sowie weitere Fundorte (einschließlich Verbreitungskarte) werden mitgeteilt. Eine Neukombination, *Lejeunea evansiana* (R. M. Schust.) Schäf.-Verw., wird durchgeführt.

**KEY-WORDS:** *Lejeunea pilifera* – *Lejeunea patriciae* – *Lejeunea evansiana* – *Heterolejeunea* – Asexual reproduction – *LEJEUNEACEAE* – Malaysia.

Working through some bryophyte collections from Malaysia I came across several specimens identical to *Lejeunea pilifera* Tixier. As this name is an illegitimate homonym, a new name is proposed to accommodate this well characterized species:

*Lejeunea patriciae* Schäf.-Verw., **nom. nov.**

- ≡ *Lejeunea pilifera* Tixier in Gard. Bull. Singapore 25: 344, 351. 1971 [non *Lejeunea* ("Harpa-*Lejeunea*") *pilifera* Spruce in Trans. & Proc. Bot. Soc. Edinburgh 15: 170. 1884].

Unfortunately no original Tixier specimen could be located at PC.

The species epithet is dedicated to Patricia Geissler, for her continuous kindness and generosity in helping me and many others, and for her great contribution to bryology.

Since its description by TIXIER (1971) this species was no more mentioned in the literature. It seems to be endemic to Malay Peninsula, hitherto known only from the type collection made on Fraser's Hill Station, state of Pahang, Malaysia. During our two week stay in May 1997 in Malaysia we could relocate and recollect this species several times on Frasers Hill as well as in the Cameron Highlands and on Bukit Larut (Maxwell's Hill) near Taiping, state of Perak (see Fig. 2). The type was collected "on trunks and twigs in sunny positions". According to the description the species is "corticolous or epiphyllous". Among our seven collections of this species only one was epiphytic, two are from humid slopes along trails where *L. patriciae* is growing in pure mats on leaf litter and rotting grasses, small branchlets etc. A single time we have found it on living leaves of an old *Araucaria* tree, and three times epiphyllous on broad leaved trees in primary rain forest.

*Specimens examined.* – **MALAYSIA. Pahang, Fraser's Hill**, Parklandschaft im Ort, epiphyll auf den Nadeln einer Araukarie, 1300 m, 20. Mai 1997, *Schäfer-Verwimp & Verwimp 18573/A*; epiphytisch an Nadelbaum am Rande des Golfplatzes, 1280 m, 20. Mai 1997, *Schäfer-Verwimp & Verwimp 18583* (G; JE; STU), conf. R. Grolle; epiphyll im Regenwald am Rande des Golfplatzes, 1300 m, 20. Mai 1997, *Schäfer-Verwimp & Verwimp 18600/A, 18618/B* (c. per.); Primär-Regenwald am Bishopstrail, epiphyll, 1280-1350 m, 21. Mai 1997, *Schäfer-Verwimp & Verwimp 18634/B*; **Pahang, Cameron Highlands**, Brinchang, an schattigem Hang mit Sekundärvegetation am Rande des Regenwaldes wenig oberhalb des Sam Poh Tempels, auf Laub und Ästchen am Boden liegend, 1540 m, 25. Mai 1997, *Schäfer-Verwimp & Verwimp 18969*. **Perak**, Taiping, Maxwells Hill (Bukit Larut), auf vermodernden Pflanzenresten an feuchtem Hang bei den Sendeanlagen, 1330 m, 27. Mai 1997, *Schäfer-Verwimp & Verwimp 19037* (EGR).

*Lejeunea patriciae* is well defined by the marginal rhizoids of the leaf lobes which are more or less abundant but always present (see Fig. 1A, B; also figure 4 in TIXIER, 1971). In the protologue Tixier put an interrogation mark after the generic name probably because of the marginal rhizoids which seemed unique to him in this genus. However, marginal rhizoids also occur in the subgenus *Heterolejeunea* which was recently removed by GROLLE (1995) from the genus *Rectolejeunea* and put in the genus *Lejeunea*. Species belonging here as *Lejeunea tapajosensis* Spruce (≡ *Rectolejeunea tapajosensis* (Spruce) R. M. Schust.), *Lejeunea brittoniae* (Evans) Grolle (≡ *Rectolejeunea (Heterolejeunea) brittoniae* Evans), or *Lejeunea (Heterolejeunea) evansiana* (R. M. Schust.) Schäf.-Verw., **comb. nov.** (≡ *Rectolejeunea (Heterolejeunea) evansiana* R. M. Schust., Hepatic. Anthocer. N. America 4: 1127. 1980) also develop marginal rhizoids, but only irregularly and much less abundant. In *Lejeunea* subgen. *Heterolejeunea* as well as in *Cheilolejeunea adnata* (Kunze) Grolle the rhizoids are developing more or less all around the leaf lobe whereas in *Lejeunea patriciae* these rhizoids are exclusively or at least predominantly borne at the leaf apex. Indeed, no single rhizoid was seen at least two thirds up the leaf margins on both ventral and dorsal side.

The rich material collected allows to add some observations lacking in the protologue. In general the plants are rather fragile especially in the non-epiphyllous collections when *L. patriciae* grew in rather dense patches: the stems are frequently, single leaves occasionally, breaking off in both dry and wet condition without developing special cladia. Dozens of fragmented stems could be found mainly in the non-epiphyllous samples, much less in the epiphyllous collections where the absolute number of individual plants is considerably lower compared to the number of plants collections from trunks and soil. In fragmenting stems no predetermined parts could be observed as such were described in detail by REINER-DREHWALD (1994) for *Microlejeunea globosa* (Spruce) Steph. In a few cases young plants regenerating from rhizoids at leaf apex were also seen. Asexual reproduction is a less common character in *Lejeunea* s. str., nevertheless well

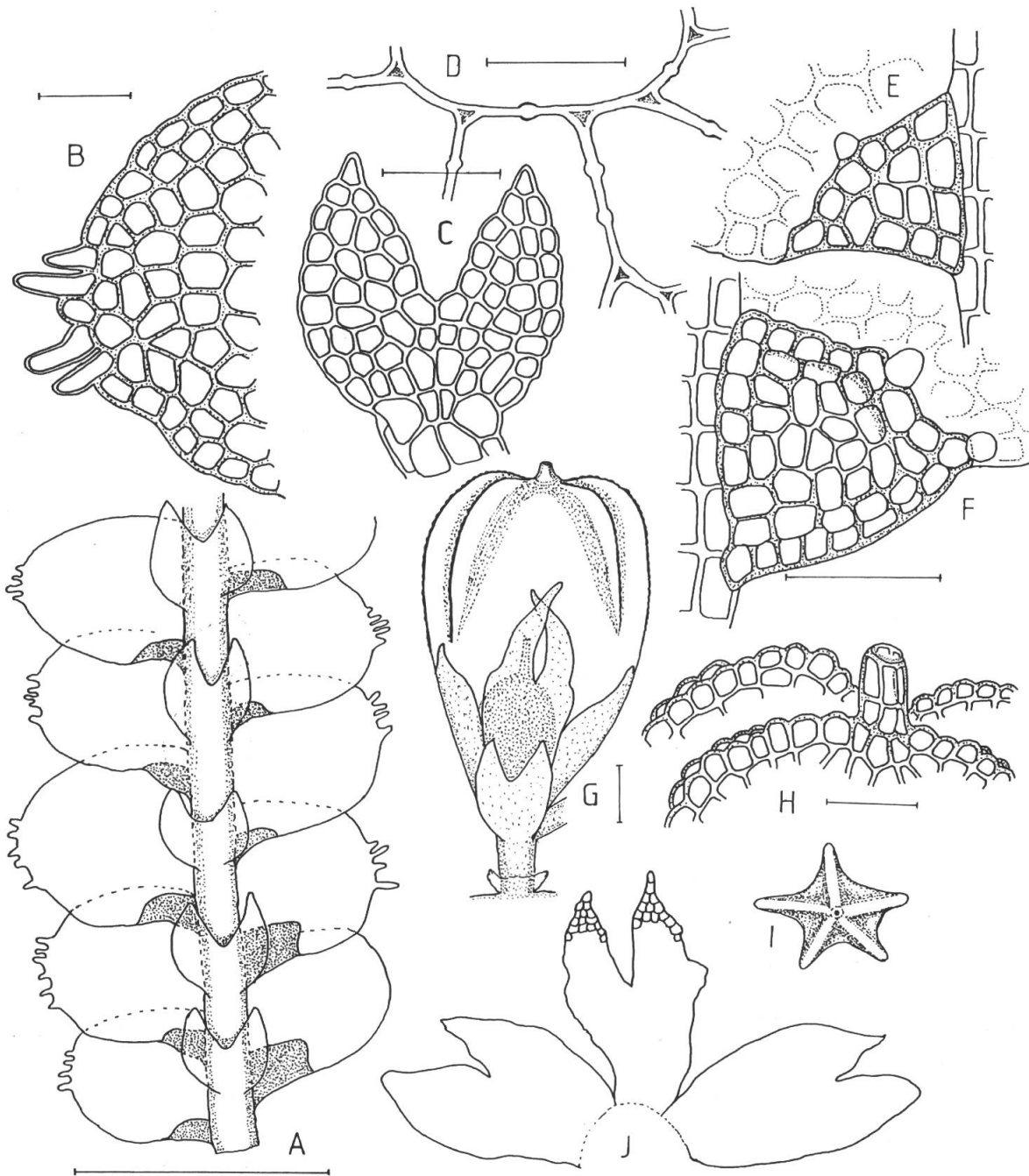


Fig. 1. – *Lejeunea patriciae* Schäf.-Verw. – A. Portion of plant, ventral view, scale = 500 µm. – B. Typical leaf apex, scale = 50 µm. – C. Underleaf, scale = 100 µm – D. Cell walls in midleaf, scale = 20 µm. – E-F. Two leaf lobules, scale = 100 µm. – G. Perianth with bracts and bracteole, scale = 100 µm. – H. Detail of perianth, upper part, scale = 50 µm. – I. Perianth seen from above, 400 µm wide. – J. Female bracts and bracteole, scale = 500 µm. – [A, C, E-F, Schäfer-Verwimp & Verwimp 18583; B, D, G-J, Schäfer-Verwimp & Verwimp 18618/B].



Fig. 2. – Distribution of *Lejeunea patriciae* Schäf.-Verw. – the three localities from South to North: Frasers Hill, Cameron Highlands, Maxwells Hill (Bukit Larut); further information see under “Specimens examined”.

developed in subgenus *Heterolejeunea* and also present in subgenus *Lejeunea*, for example in *Lejeunea cancellata* Nees & Mont. in Mont. [= *Lejeunea cladiophora* (R. M. Schust.) R. M. Schust.] and in subgenus *Nanolejeunea* as in *Lejeunea laetevirens* Nees & Mont. (compare also SCHUSTER, 1980).

The leaf cells of lobe, lobule, and underleaf as well as of the perianth have small but distinct trigones and often one, on longer cell walls two intermediate thickenings as shown in fig. 1D. In many plants the underleaves are often conspicuously spreading from the stem at an angle of (30°-60°-90°, at least in dry condition).

Only in one single specimen (18618/B) some perianths could be found (see Fig. 1G-J): *Perianth* half or more emergent, oblong, strongly inflated, not or only slightly compressed, ca. 400 µm broad and 800-900 µm long, apex ± truncate with a beak two cells high (40-50 µm), sharply 5-carinate for about half the perianth length, the carinae nearly equal, crenulate with bulging cells, sometimes with two rows of gibbous cells, not dilated into auricles. *Female bracts* bilobed, sinus sharp and acute, the lobes bluntly acute to subacute, the lobules slightly shorter, acute. *Bracteole* shortly connate, oblong, ca. 450 µm long, deeply bifid to ca. 0.4, the acute lobes often terminated by two superposed cells; margins of both bracts and bracteole slightly to distinctly crenulate with bulging cells.

The 5-keeled perianth, not or only slightly compressed, the unarmed carinae and the distinct beak confirms the placement of the species in *Lejeunea* s. str. *Lejeunea patriciae* seems to be dioicous. Male organs not seen.

*Observations on ecology and sociology.* – Apparently *L. patriciae* is not strongly selective in its substrate choice, although it appears to be limited to areas with high humidity in mountainous areas at altitudes of 1280-1540 m. The plant occurs either epiphytic in open situations, on relatively sunny slopes where it is creeping on leaf litter, fallen branchlets etc. or on more shaded living leaves in rain forest. According to these different habitats a rather large number of associated species could be identified.

In the epiphytic specimen No. 18583 could be found *Brachymenium nepalense* Hook. in Schwägr., *Lopholejeunea* sp., and *Metzgeria* sp. On leaf litter in No. 18969 some plants of *Rhynchostegium javanicum* (Bél.) Besch. and another sterile *Lejeunea* sp. were creeping between *L. patriciae*. No. 18600/A contains almost a pure mat of *Lejeunea patriciae*, only a few plants of *Metalejeunea cucullata* (Reinw. & al.) Grolle could be detected. On leaves of *Araucaria* (No. 18573/A) a few small plants of *Floribundaria sparsa* (Mitt.) Broth., *Drepanolejeunea thwaitesiana* (Mitt.) Steph., and *Leptolejeunea* sp. were observed. From small fallen branchlets on humid ground (No. 19037) *Diplasiolejeunea cavifolia* Steph. and *Cololejeunea peculiaris* (Herz.) Benedix, both normally epiphytic or epiphyllous, could be identified. Most abundant associates were seen on living leaves of broad leaved trees: in No. 18618/B, containing only a small part of leaf, *L. patriciae* is growing with *Cheilolejeunea longiloba* (Steph. ex G. Hoffm.) R. M. Schust. & Kachroo, *Lejeunea flava* agg., *Metalejeunea cucullata*, and *Microlejeunea* sp.. On a single leaf (size of ca. 15 cm<sup>2</sup>), separated as No. 18634/B from rich epiphyllous material, I could find *Drepanolejeunea thwaitesiana* (c. per.), *Drepanolejeunea tenera* Goebel, *Cololejeunea ocelloides* (Horik.) Hatt., *Cololejeunea malayana* Tixier, *Cheilolejeunea longiloba* (c. per.), *Colura acroloba* (Mont. ex Steph.) Jovet-Ast, *Metzgeriopsis pusilla* Goebel, *Metalejeunea cucullata*, *Harpalejeunea filicuspis* (Steph.) Mizut., *Radula tjibodensis* Goebel, *Aphanolejeunea* cf. *borneensis* (Herzog) Pócs, *Aphanolejeunea* sp., and *Leptolejeunea vitrea* (Nees) Steph.

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