

Microlepia ravenii (Dennstaedtiaceae, Pteridophyta) a new species from Vietnam

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Microlepia ravenii S.-J. Moore (Dennstaedtiaceae, Pteridophyta), a new species from northern Vietnam, is described and illustrated. It is morphologically similar to *M. marginata* and *M. hookeriana* but differs in having cuneate and not auriculate bases of lower pinnae, cartilaginous and alternatively crenate and denticulate margins of pinnae, and a glabrous undersurface of pinnae.

The genus *Microlepia*, belonging in Dennstaedtiaceae (Smith *et al.* 2006), consists of approximately 45 species with pantropical and somewhat extratropical distributions; however, its center of distribution, and the majority of its taxa, are found in tropical to warm-temperate Asia (Kramer 1990). This genus is generally thought to be a close relative of *Dennstaedtia* (Holtum 1966, Pichi Sermolli 1977, Tryon & Tryon 1982) but differs from the latter in having pouch-like indusia and echinate spores. While preparing a monographic treatment of *Microlepia* at the herbarium of Missouri Botanical Garden in 2003, we found a peculiar specimen collected in northern Vietnam. After examining the types and all the specimens of similar taxa in B, BM, BR, E, G, GH, HAST, K, KYO, KUN, L, MICH, MO, NY, P, PE, TAIF, TI, TNS, UC, US, W and WU, and comparing all related references (e.g. Tardieu-Blot & Christensen 1939, Ching 1959, Holtum 1966, Tagawa & Iwatsuki 1979, Biswas 1988, 1991, Shieh 1994, Iwatsuki 1995, Fraser-Jenkins 1997), we came to the conclusion that the specimen represents a hitherto undescribed species.

Microlepia ravenii S.-J. Moore, *sp. nova* (Fig. 1)

M. marginatae et M. hookerianae affinis sed basibus pinnarum inferiorum cuneatis et non auriculatis, marginibus pinnarum cartilagineis alternatim crenatis et serrulatis, paginis pinnarum inferioribus glabris.

TYPE: Vietnam. Cao Bang, Nguyen Binh, municipality Ca Thanh, vicinity of Ca Lu village, about 7–8 km to SE from Yen Lac village, about 38 km to NWW from Cao Bang town, 22°44'N, 105°50'E, 1350–1450 m, *L. Averyanov et al.* CBL 523 (holotype MO).

ETYMOLOGY: The epithet honours Dr. Peter Raven, the President of Missouri Botanical Garden (MO), to thank for his encouragement during the first author's short period research at MO.

Rhizome unknown (long-creeping?). Stipe 56 cm long, glabrous except for the very upper part, slightly sulcate on upper surface, chestnut-brown at base, brown-stramineous on upper part. Lamina pinnate, 37 cm long, 20 cm wide, acute at apex, obtuse at base, thickly papyraceous.

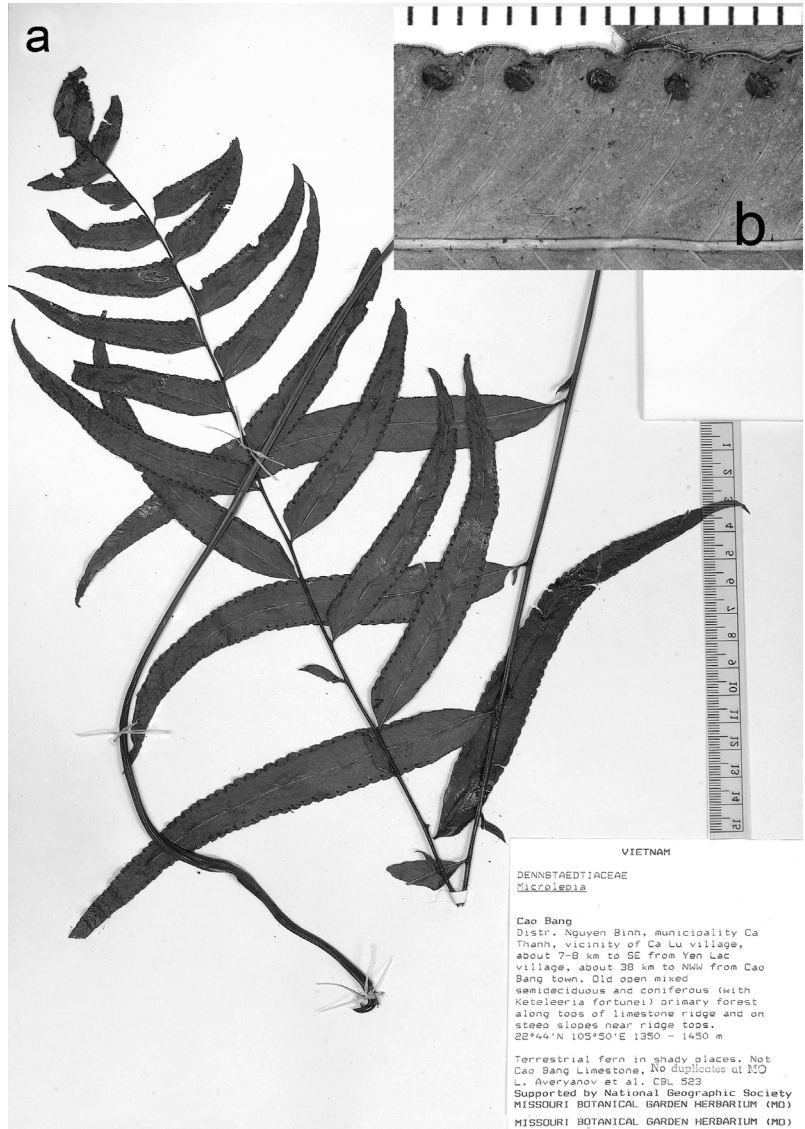


Fig. 1. Photograph of the holotype specimen of *Microlepia ravenii*. — **a:** Habit. — **b:** Portion enlargement of pinna showing margin, venation, and sori. Scale bars in mm.

Pinnae ca. 12–13 pairs, glabrous on both surfaces except on upper surface of costa, free, longest at base; basal pinnae 18 cm long, 1.8 cm wide, slightly falcate, cuneate at base, acuminate at apex, stalk ca. 2.5–3 mm long and with some dark and dirty hairs on undersurface; middle pinnae ca. 9–12 cm long, 1.4–1.6 cm wide, slightly falcate, obliquely and broadly cuneate at base; upper pinnae with very obscure auricle at acroscopic base; margins crenate, but with one or seldom two tiny teeth between rounded teeth, cartilaginous. Rachis grooved and glabrous on upper surface, moderately to densely hairy on

lower surface; hairs 0.22–0.38 mm long, slightly to moderately curved, dark and dirty-brown, multicellular, usually 4–7 cells, up to 8 cells, septate. Costa raised and glabrous on lower surface, slightly grooved and moderately to sparsely hairy on upper surface; hairs similar to those on rachis, but shorter, 0.15–0.28 mm long. Venation free, evident; vein-groups 2–4 times forked; veinlets usually ending at a distance ca. 0.2–0.5 mm to margin, slightly raised on both sides. Sori at tip of veinlets submarginal, at a distance ca. 0.8–1.2 mm to margin. Indusia pocket-like, glabrous.

Microlepia ravenii is similar to *M. marginata*, differing in having cuneate bases on both sides of the lower pinnae (vs. obtuse to acute bases acroscopically and cuneate bases basiscopically), lower pinnae without an auriculate lobe (vs. with a distinct enlarged auriculate lobe on acroscopic bases), pinna margins cartilaginous and alternatively crenate and denticulate (vs. non-cartilaginous and lobate to pinnately incised), pinna undersurfaces glabrous (vs. sparsely to very densely hairy), and indusia glabrous (vs. usually hairy). It is also similar to *M. hookeriana*, but differs in having an acute frond apex (vs. caudate), bases on both sides of lower pinnae cuneate (vs. truncate to obtuse, or acroscopic sides truncate and basiscopic sides obtuse, sometimes a little cordate), lower pinnae without auriculate lobe (vs. with a distinct triangular auriculate lobe on acroscopic bases, sometimes also on basiscopic bases), pinna margins cartilaginous and alternatively crenate and denticulate (vs. non-cartilaginous and dentate), upper surface of rachis glabrous (vs. hairy), and sori loosely arranged (vs. more closely arranged).

Microlepia ravenii is known only from the type locality in an old open mixed semideciduous and coniferous (with *Keteleeria fortunei*) primary forest. It grows along tops of a limestone ridge and on steep slopes near the ridge tops at an altitude of ca. 1350–1450 m.

SELECTED SPECIMENS EXAMINED. — *Microlepia hookeriana*.

Burma. Sumprabum, *F. Kingdon-Ward 20581* (BM, GH). **China.** Kwangtung, *C. L. Tso 21042* (K). Fukien, *J. L. Gressitt 1699* (BM, G, GH, UC). Hainan, *F. A. McClure 8509* (BM, E, G, K, MICH, NY, P, UC). Hongkong, *W. T. Tang 29680* (G, MICH, NY, UC). Kwangsi, *R. C. Ching 6556* (NY). Kwangtung, *S. K. Lau 2396* (GH, MICH). Yunnan, *A. Henry 10399* (B, E, K, NY, P). **India.** Arunachal Pradesh, *C. R. Fraser-Jenkins FN66* (TAIF). Assam, *Wallich Cat. no 2684* (BM, K). Darjeeling, *C. B. Clarke 35072C* (NY). Khasia, *C. B. Clarke 45420A* (K). **Japan.** Ryukyu, *S. Kurata & T. Nakaike 1911* (A, K, KYO, RYU, TNS). **Malaysia.** Borneo, *J. & M. S. Clemens 27407* (BM, GH, L, NY). **Indonesia.** Java, *W. F. Winckel 1696B* (L). Sumatra, *W. J. J. O. de Wilde and B. E. E. de Wilde-Duyffjes 19192* (L). **Taiwan.** Banksing, *U. J. Faurie 295* (BM, L, P). Nantou Hsien, *Huang, Kou & Kao 893* (MICH, UC). Taipei Hsien, *U. J. Faurie exsicc. n. 031* (B, GH, MICH, UC). **Thailand.** Chiangrai, *K. Iwatsuki & N. Fukuoka T3693* (A, K, KYO, L). Loei, *T. Smitinand 5910* (K). Nakawan Sritamarat, *M. Tagawa, K. Iwatsuki & N. Fukuoka T4686* (A, K, KYO, L). Nakhon Si Thammarat, *C. F. van Beusekom & C. Phengkhilai 807* (B, BM, L, MICH). Phang Nga, *A. F. G. Kerr 17210* (BM, K). Prachinburi, *E. Hennip-*

man 3933 (L). Udawn, *E. Hennipman 3672* (L, MICH, NY). **Vietnam.** Bac-Giang, Lang Met, V.1925 *Colani s.n.* (GH, MICH, P). Indochine, *P. A. Eberhardt 5093* (P). Kon Plong District, *D. K. Harder et al. 4659* (UC). Tam Dao Hill Station, *H. Werff, B. Gray, N. K. Dao & C.-I. Peng 14132* (MO, UC). Tonkin, *B. Balansa 120* (BR, G, GH, P). — *Microlepia marginata*. **China.** Anhui, *Deng & Yao 79072* (NY). Chekiang, *E. D. Merrill 11290* (GH, NY). Fokien (Fukien), *S. T. Dunn 3829* (MICH, P). Guizhou, *Sino-American Guizhou Bot. Exped. 163* (BM, MICH, NY). Hainan, *F. A. McClure 8412* (BM, G). Hongkong, *S. Y. Hu 8817* (A, K). Hubei, *Sino-American Exped. 2052* (A). Hunan, *L.-B. Luo 175* (L, MICH, NY, PE, WU). Jiangxi, *C.-E. Tan 95543* (BM, PE). Kwangsi, *R. C. Ching 6797* (NY). Kwangtung, *Y. Tsiang 6125* (BM). Sichuan, *D. E. Boufford & B. Bartholomew 24011* (BM, BR, E, G, L, MICH, NY, PE). Yunnan, *M. Kato et al. 2718* (A, BM). **India.** Khasi Hills, *C. J. Simons s.n.* (BM). **Japan.** Hondo, *J. Ohwi & S. Okuyama NSM. no. 195* (A, BM, BR, G, K, L, MICH, NY, TI, W). Honshu, *M. Tagawa 7146* (BM, G, K, KYO, L, W). Kyushu, *M. Tagawa 7868* (KYO, US). Nagasaki, VIII.1887 *O. Warburg s.n.* (B). Shikoku, *U. J. Faurie 4608* (B, P). Yokohama, 1862 *C. Maximowicz s.n.* (B). **Laos.** Env. de Nape, 13.X.1928 *M. Delacour s.n.* (P). **Nepal.** Kathmandu Valley, *L. Fleming 1332* (MICH). **Taiwan.** Hsinchu County, *P.-F. Lu 7148* (TAIF). Nantou Hsien, *C. E. DeVol 8085* (BM). Taihoku, *M. Tagawa 282* (L, MICH, KYO). **Thailand.** Phang Nga, *A. F. G. Kerr 17207* (BM). Klang Dong, *K. Larsen 9348* (A). Udawn, *E. Hennipman 3530* (B, BM, L, MICH, NY). **Vietnam.** Tonkin, *B. Balansa 1790* (G, GH, P).

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