

Bryophyte flora of the Huon Peninsula, Papua New Guinea. LXXVII. Sematophyllaceae (Musci) 3. *Macrohymenium*, *Mastopoma*, *Rhaphidorrhynchium*, *Sematophyllum*, *Trismegistia* and *Warburgiella*, with a key to the genera and a checklist of the taxa

BENITO C. TAN¹, TIMO KOPONEN² & DANIEL H. NORRIS¹

¹*The University Herbarium, University of California at Berkeley, CA, USA 94720* (B.C. Tan deceased on 23 December 2016 in San Francisco, California)

²*Finnish-Chinese Botanical Foundation, Mailantie 109, FI-08800 Lohja, Finland; and: Finnish Museum of Natural History, Botany Unit (bryology), P.O. Box 7 (Unioninkatu 44), FI-00014 University of Helsinki, Finland.*

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In Papua New Guinea and Western Melanesia the genus *Macrohymenium* Müll.Hal. has one species with two varieties, the genus *Mastopoma* Cardot has three species and four varieties, the genus *Rhaphidorrhynchium* (Schimp.) M. Fleisch. has one species, *R. auneae* B.C. Tan, T.J. Kop. & D.H. Norris, *spec. nov.*, the genus *Sematophyllum* Mitt. has four species of which *S. subhumile* (Müll.Hal.) M. Fleisch. has two varieties, the genus *Trismegistia* (Müll.Hal.) Müll.Hal. has two species and four varieties, and the genus *Warburgiella* Broth. is with two species and two varieties. The genera are described and each species description includes discussions on taxonomy and classification, as well as nomenclatural notes and range descriptions. A total of 19 names are synonymized.

Aptychella perdecurrens (Dixon) T.J. Kop., *Macrohymenium mitratum* var. *muelleri* (Dozy & Molk.) B.C. Tan, T.J. Kop. & D.H. Norris, *M. mitratum* var. *strictum* (Bosch & Sande Lac.) B.C. Tan, T.J. Kop. & D.H. Norris, *Mastopoma armitii* var. *deningeri* (Herzog) B.C. Tan, T.J. Kop. & D.H. Norris, *M. armitii* var. *epiphyllum* (Broth.) B.C. Tan, T.J. Kop. & D.H. Norris, *M. armitii* var. *uncinifolium* (Broth.) B.C. Tan, T.J. Kop. & D.H. Norris, *M. delicatulum* (Broth.) B.C. Tan, T.J. Kop. & D.H. Norris, *Trismegistia complanatula* var. *spinosodontata* (Zanten) B.C. Tan,

T.J. Kop. & D.H. Norris and *Warburgiella leptocarpa* var. *cylindrica* (A. Jaeger) B.C. Tan, T.J. Kop. & D.H. Norris are new combinations. Lectotypes are designated for *Acanthocladium armitii* Broth. & Geh., *A. uncinifolium* Broth., *Hypnum subhumile* Müll.Hal., *H. phoeniceum* Müll.Hal. and *Warburgiella cupressinoides* Müll.Hal. ex. Broth. Some additions and corrections are presented for the treatment in previous parts 1 and 2 of the Huon Sematophyllaceae. A key to the 23 genera and a synopsis of 77 accepted species with one subspecies and 40 varieties in Western Melanesia are given. New country and island records are reported to Fiji, Indonesia, Papua New Guinea, Philippines, Solomon Islands and Vanuatu.

Key words: *Acroporium*, *Aptychella*, checklist, *Clastobryum*, Indonesia, *Isocladiellopsis*, keys, *Macrohymenium*, *Mastopoma*, nomenclature, Papua New Guinea, *Radulina*, ranges, *Rhaphidorrhynchium*, Solomon Islands, Sematophyllaceae, *Sematophyllum*, synopsis of taxa, taxonomy, *Trismegistia*, *Warburgiella*

Abstract2

Bryophyte flora of the Hunan Province, China. 21. Makinoaceae, Pallaviciniaceae and Pelliaceae (Hepaticae, Jungermanniopsida)

SINIKKA PIIPPO

Sinikka Piippo, Varpustie 7, FI-00780 Helsinki, Finland

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In Hunan, the family Makinoaceae has one genus *Makinoa* Miyake with *M. crispata* (Steph.) Miyake, Pallaviciniaceae has the genus *Pallavicinia* S. Gray with three species, *P. levieri* Schiffn., *P. lyellii* (Hook.) Carruth., and *P. subciliata* (Austin) Steph., and Pelliaceae has in the genus *Apopellia* Schütz, Quandt & Nebel one species, *A. endiviifolia* (Dicks.) Schütz, Quandt & Nebel, *Pellia* Raddi two species, *P. epiphylla* (L.) Corda and *P. neesiana* (Gottsche) Limpr.. *P. epiphylla* is newly reported for Hunan. *Pallavicinia ambigua* (Mitt.) Steph. was synonymized with *P. subciliata* (Austin) Steph. The literature and illustrations of the taxa are referred. Habitats and substrates of the species are discussed, altitudinal range maps of the species in Hunan are provided and frequency in Hunan estimated. The ranges in Hunan and China and their total ranges are given.

Abstract3

Bryophyte flora of the Hunan Province, China. 22. Families Lepidoziaceae and Pseudolepicoleaceae and additions to Cephaloziaceae and Cephaloziellaceae (Hepaticae, Jungermanniopsida)

SINIKKA PIIPPO

Sinikka Piippo, Varpustie 7, FI-00780 Helsinki

Piippo, S. 2017: Bryophyte flora of the Hunan Province, China. 22. Families Lepidoziaceae and Pseudolepicoleaceae and additions to Cephaloziaceae and Cephaloziellaceae (Hepaticae, Jungermanniopsida). – *Acta Bryolich. Asiatica* 7: 81–91. ISSN 1016-6181. ISBN 978-952-67464-4-9.

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The family Pseudolepicoleaceae has 2 species in Hunan, *Blepharostoma minus* Horik. and *B. trichophyllum* (L.) Dumort. (both new for Hunan), the family Lepidoziaceae has 5 species, *Kurzia abietinella* (Herzog) Grolle (new), *K. gonyotricha* (Sande Lac.) Grolle, *K. makinoana* (Steph.) Grolle (new), *Lepidozia fauriana* Steph., and *L. wallichiana* Gottsche (new). Additional records are given for *Cephaloziella spinicaulis* Douin (Cephaloziellaceae) and *Schiffneria hyalina* Steph. (Cephaloziaceae). The literature and illustrations of the taxa are referred. Habitats and substrates of the species are discussed, altitudinal range maps of the species in Hunan are provided and frequency in Hunan estimated. The ranges in Hunan and China and their total ranges are given.

Abstract4

Bryophyte flora of the Hunan Province, China. 23. Trichocoleaceae and Neotrichocoleaceae (Hepaticae, Jungermannioptida)

SINIKKA PIIPPO

Sinikka Piippo, Varpustie 7, 00580 Helsinki, Finland

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In Hunan, the family Trichocoleaceae has one genus, *Trichocolea* Dumort. which contains a single species, *T. tomentella* (Ehrh.) Dumort. Similarly, Neotrichocoleaceae has only one genus *Trichocoleopsis* S. Okamura with *T. sacculata* (Mitt.) S. Okamura. *Trichocolea pluma* (Reinw. et al.) Mont., *T. japonica* T. Katag. and *T. tomentella* are treated as conspecific. The presence of *T. tomentella* and *Trichocoleopsis sacculata* in Hunan is confirmed. Keys are provided for the Chinese species of *Trichocolea* and *Leiomitra* Lindb. (since *Trichocolea merrillana* Steph. has been transferred to *Leiomitra*) as well as for *Trichocoleopsis*. The taxonomy of the species and related genera are discussed. The literature and illustrations of the taxa are referred. Habitats and substrates of the species are described, altitudinal range maps of the species in Hunan are provided and frequency in Hunan estimated. The ranges in Hunan and China and their total ranges are given.

Abstract5

Bryophyte flora of Hunan Province, China. 24. Pottiaceae and Splachnobryaceae (Musci)

PHILIP SOLLMAN¹ & TIMO KOPONEN²

¹*Notarisappel 2, 9076LB, St. Annapar, The Netherlands.*

²*Finnish-Chinese Botanical Foundation, Mailantie 109, FI-08800 Lohja, Finland, and: Finnish Museum of Natural History, Botany Unit (Bryology), P.O. Box 7 (Unioninkatu 44), FI-00014 University of Helsinki, Finland*

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In Hunan province of China, the moss family Pottiaceae consist of 21 genera and 56 species. *Anoetangium* Schwägr. has 1 species, *Barbula* Hedw. (4 species), *Bellibarbula* P.C. Chen (1), *Bryoerythrophyllum* P.C. Chen (2), *Chionoloma* Dixon (1), *Didymodon* Hedw. (9), *Hydrogonium* (Müll.Hal.) A. Jaeger (5), *Hymenostylium* Brid. (2), *Hyophila* Brid. (4), *Leptodontium* (Müll.Hal.) Hampe (2), *Molendoa* Lindb. (1), *Reimersia* P.C. Chen (1), *Scopelophila* (Mitt.) Lindb. (1), *Streblotrichum* P. Beauv. (1), *Timmiella* (De Not.) Limpr. in Rabenh. (2), *Tortella* (Lindb.) Limpr. (2), *Tortula* Hedw. (2), *Trichostomum* Bruch (7), *Tuerckheimia* Broth. (1), *Weisiopsis* Broth. (2) and *Weissia* Hedw. (5). *Splachnobryaceae* has one species, *Splachnobryum obtusum* (Brid.) Müll.Hal. The presence of *Didymodon maschalogena* (Ren. & Cardot) Broth. in China is confirmed. Nineteen species are new to Hunan province. *Bryoerythrophyllum ferruginascens* (Stirt.) Giacom. (*Barbula ferruginascens* Stirt.) is a new synonym of *Bryoerythrophyllum brachystegium* (Besch.) K. Saito. The synonymization of *Leptodontium taiwanense* Nog. with *L. aggregatum* (Müll.Hal.) Kindb. is confirmed. *L. aggregatum* is a new record for China. *Streblotrichum propaguliferum* X.J. Li & M.X. Zhang is excluded from the Pottiaceae and tentatively placed in *Dichodontium* Schimp. (Dicranaceae). Lectotype is selected for *Barbula aquatica* Cardot & Thér., *Hydrogonium aquaticum* (Cardot & Thér.) P. Sollman & T.J. Kop. is a new combination. *Hyophila setschwanica* (Broth.) P.C. Chen is returned to its original classification as *Weisiopsis setschwanica* Broth. *Weissia semipallida* Müll.Hal. is not a synonym of *W. edentula* but is an independent species. For most of the species the habitats and substrates are described and the frequency in Hunan estimated. Most of the species are very rare or rare in Hunan. The ranges in Hunan and China and their total ranges are given. Altitudinal range maps are provided for 26 species. The altitudinal ranges of some Pottiaceae taxa in Hunan are compared with their ranges on the Huon Pensinsula of Papua New Guinea. The taxa are placed into floristic elements according

to the system of bioclimatic vegetation zones. Pottiaceae differs from some other families in having a large number of circumpolar temperate – meridional and pantropical – pansubtropical taxa.

Key words: China, distribution, floristic elements, genera, habitats, Hunan, mosses, new records, nomenclature, Papua New Guinea, Pottiaceae, ranges, Splachnobryaceae, taxonomy

Abstract6

Bryophyte flora of Hunan Province, China. 25. Neckera-ceae and Miyabeaceae (Musci)

JOHANNES ENROTH^{1,2,*} & TIMO KOPONEN^{2,3}

¹ Department of Biosciences, P.O. Box 65, FI-00014 University of Helsinki, Finland; ² Finnish Museum of Natural History, Botany Unit (Bryology), P.O. Box 7, FI-00014 University of Helsinki, Finland (*corresponding author, e-mail: johannes.enroth@helsinki.fi)

³Finnish-Chinese Botanical Foundation, Mailantie 109, FI-08800 Lohja, Finland

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In Hunan Province of China, the moss family Neckera-ceae has 24 species in eight genera, namely *Circulifolium* S. Olsson, Enroth & D. Quandt (with 1 species), *Forsstroemia* Lindb. (3), *Homalia* Brid. (1), *Homaliodendron* M. Fleisch. (7), *Neckera* Hedw. (5), *Neckeropsis* Reichardt (2), *Pinnatella* M. Fleisch. (2), *Taiwanobryum* Nog. (2) and *Thamnobryum* Nieuwl. (1). The family Miyabeaceae contains one genus, *Homaliadelphus* Dixon & P. de la Varde with one species. *Forsstroemia noguchii* L.R. Stark, *Neckera setschwanica* Broth., and *N. konoii* Broth. ex Cardot are new records for Hunan. The presence of *Taiwanobryum speciosum* Nog. in Hunan is confirmed and *Pinnatella taiwanensis* Nog. is new to mainland China. *Forsstroemia cryphaeoides* Cardot is excluded from the Hunan flora. *Neckera decurrens* Broth. is reported for the first time from Vietnam. A key to the species is provided and their habitats, substrates and taxonomy are discussed. The taxa are divided into floristic elements on the basis of their total range and range in Hunan. Altitudinal ranges of 11 taxa are mapped.

Key words: China, floristic elements, habitats, Hunan, Miyabeaceae, Neckera-ceae, nomenclature, substrates, ranges, taxonomy

Abstract7

Bryophyte flora of Hunan Province, China. 26. Sematophyllaceae (Musci)

BENITO C. TAN¹ & TIMO KOPONEN^{2,3}

¹ *The University and Jepson Herbaria, University of California at Berkeley, CA USA 94720 (deceased on 23 December 2016 in San Francisco, California)*

² *Finnish-Chinese Botanical Foundation, Mailantie 109, FI-08800 Lohja, Finland;*

³ *Finnish Museum of Natural History, Botany Unit (bryology), P.O. Box 7, FI-00014 University of Helsinki, Finland*

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In Hunan Province of China, the moss family Sematophyllaceae, *sensu lato*, has 23 species in ten genera, namely, *Aptychella* (Broth.) Herzog (2 species), *Brotherella* M. Fleisch. (6), *Gammiella* Broth. (1), *Heterophyllum* Kindb. (1), *Isocladiella* Dixon (1), *Papillidiopsis* W.R. Buck & B.C. Tan (3), *Pylaisiadelpha* Cardot (2), *Sematophyllum* Mitt. (3), *Trichosteleum* Mitt. (2), and *Wijkia* H.A. Crum (2). *Aptychella*, *Gammiella*, *Isocladiella*, and *Papillidiopsis* are new generic records to the province. Twelve species and one variety are new to Hunan Province. Of these, *Wijkia concavifolia* (Cardot) H.A. Crum, known hitherto only from Japan, and *Papillidiopsis malayana* (Dixon) B.C. Tan, a widespread Malaysian species, are new to China. *P. ramulina* (Thwaites & Mitt.) B.C. Tan & Y. Jia is a new record for mainland China. Many of the species are very rare, rare or rather rare in Hunan, occurring in meridional zone of the country, and are mainly epiphytic. *Wijkia hornschuchii* (Dozy & Molk.) H.A. Crum is the exception and it grows mostly as a petrophyte or on rotten wood. The ranges of the species in Hunan Province, in China, and worldwide ranges are given. The taxonomy of the taxa is shortly discussed and useful sources of illustrations are cited for reference. The altitudinal range map is presented for 19 species and the taxa are grouped into floristic elements. Keys to the species in genera with more than one taxon represented in Hunan is provided.

Key words: *Aptychella*, *Brotherella*, China, *Gammiella*, habitats, *Heterophyllum*, Hunan, *Isocladiella*, key, new records, *Papillidiopsis*, *Pylaisiadelpha*, ranges, *Sematophyllum*, taxonomy, *Trichosteleum*, *Wijkia*

Abstract8

A synopsis of the Mniaceae (Bryophyta). X. Malesian taxa, with a world list of the taxa in Mniaceae

TIMO KOPONEN

Timo Koponen, Finnish–Chinese Botanical Foundation, Mailantie 109, FI-08800 Lohja, Finland, and: Finnish Museum of Natural History, Botany Unit (bryology), P.O. Box 7, FI-00014 University of Helsinki, Finland

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In the area of SE Asia covering Indonesia, Malaysia, Papua New Guinea, the Philippines and Singapore, three genera of the Mniaceae are known: *Mnium* Hedw. with *M. lycopodioides* Schwägr., and, hesitatingly, *M. marginatum* (Dicks.) P. Beauv., *Orthomnion* Wils. with *O. dilatatum* (Mitt.) P.C. Chen, *O. elimbatum* (Nog.) T.J. Kop. and *O. javense* (M. Fleisch.) T.J. Kop., and *Plagiomnium* T.J. Kop. with *P. cordatum* T.J. Kop. & D.H. Norris, *P. elimbatum* (M. Fleisch.) T.J. Kop., (= *Orthomnion tanii* T.J. Kop.), *nom. nov.*, *P. integrum* (Bosch & Sande Lac.) T.J. Kop., *P. rhynchophorum* (Hook.) T.J. Kop., *P. rostratum* (Schrad.) T.J. Kop. and *P. succulentum* (Mitt.) T.J. Kop. *P. subelimbatum* (Dixon) T.J. Kop. (= *Mnium subelimbatum*) is synonymized with *P. integrum*. The ranges are documented by mapping or by citing a number of voucher specimens and literature references. A key to the species is given, the taxonomy of the taxa discussed and a selection of illustrations useful for identification are cited. Range maps are presented for *Orthomnion javense*, *Plagiomnium integrum* and *P. succulentum*. The traditional family Mniaceae has 9 genera and 73 species with two varieties. A final list of the taxa in the Mniaceae is given, as well as the world ranges of the species.

Key words: Indonesia, Malaysia, Mniaceae, *Mnium*, nomenclature, *Orthomnion*, Papua New Guinea, the Philippines, *Plagiomnium*, ranges, Singapore, taxonomy, world list of Mniaceae