

A CHECKLIST OF HEPATICAE AND ANTHOCEROTAE OF MALAYSIA

MIN S. CHUAH-PETIOT

Abstract. The checklist gives 764 species and infra-specific taxa, 127 genera and 39 families reported for Malaysia, comprising 38 families, 122 genera and 758 taxa for Hepaticae, and also 6 taxa belonging to 5 genera and 1 family for Anthocerotae. The families with the largest number of species are Lejeuneaceae (282 taxa), Lepidoziaceae (110), Frullaniaceae (67), Plagiochilaceae (52), Geocalycaceae (36), Lophoziaceae and Radulaceae (35 taxa each). The genera with large numbers of species include *Cololejeunea* (84 taxa), *Frullania* (67), *Bazzania* (53), *Plagiochila* (47) and *Radula* (35). Brief information on the distribution of known Hepaticae and Anthocerotae in Malaysia is provided.

Key words: Bryophyta, hornworts, liverworts, checklist, distribution, Malaysia

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INTRODUCTION

The Federation of Malaysia comprises 13 states (11 states in Peninsular Malaysia) and 2 states in Malaysian Borneo (Sabah and Sarawak) on the island of Borneo. Peninsula Malaysia covers an area of 131,588 sq. km, while East Malaysia covers 198,170 sq. km.

Malaysia has a tropical climate. Average temperature ranges from 21°C to 32°C, and annual rainfall from 2000 mm to 3500 mm (Bintulu, Sarawak).

The vegetation is diverse, consisting of swampy mangroves, extensive river floodplains, dipterocarp forests and montane forests, and even altimontane communities on Mt. Kinabalu in Sabah above 3300 m a.s.l., with average temperature from 6°C to 10°C.

METHODOLOGY

A checklist was compiled for mosses and published by Mohamed and Tan (1988); it covered Peninsular Malaya and Singapore. A revised catalogue of mosses reported for Borneo was published by Suleiman *et al.* (2006). For the liverworts and hornworts of Borneo an annotated catalogue was published by Menzel (1988). A lot of bryological work in the region has been done, mainly by local muscologists and visiting bryologists, and ad-

ditional data are now available. The present checklist covers the Hepaticae and Anthocerotae of political Malaysia, that is, Peninsular Malaysia (including the islands of Langkawi, Penang, Pangkor and Tioman) and the two states of Sarawak and Sabah in East Malaysia. This checklist aims to bring together the recent data available for Peninsular and East Malaysia. It is based on the publications for liverworts and hornworts, and is compiled for the first time. The taxa are arranged in alphabetical order. For each taxon, brief information on its distribution in Malaysia is provided. The list of publications used in producing the present checklist is given in the references.

RESULTS AND DISCUSSION

Generally, the mosses of Malaysia are well collected and studied owing to the work of several local muscologists and their collaborators. Liverworts and hornworts are generally under-collected and insufficiently studied in Malaysia.

So far, 764 species and infraspecific taxa, 127 genera and 39 families of Anthocerotae and Hepaticae are reported for Malaysia, comprising 6 taxa belonging to 1 family and 5 genera for hornworts, and 38 families, 122 genera and 758 taxa for liverworts. The families with the largest

Table 1. Number of recorded species of Hepaticae per state.

State	Species number
1. Perlis	0*
2. Kedah	49*
3. Penang	59*
4. Perak	32*
5. Kelantan	2*
6. Trengganu	2*
7. Pahang	196
8. Selangor	22*
9. Negri Sembilan	42*
10. Malacca	51
11. Johore	28*
12. Sabah	516
13. Sarawak	170

number of species are Lejeuneaceae (282), Lepidoziaceae (110), Frullaniaceae (67), Plagiochilaceae (52), Geocalycaceae (36), Lophoziaceae and Radulaceae (35 taxa each), Jungermanniaceae (20), Aneuraceae (17) and Cephaloziaceae (14). The genera with large numbers of species include *Cololejeunea* (84), *Frullania* (67), *Bazzania* (53), *Plagiochila* (47), *Radula* (35), *Drepanolejeunea* (31), *Lejeunea* (27), *Lepidozia* and *Cheilolejeunea* (21 taxa each), and *Acromastigum* (18). A complete synopsis of families and genera for Anthocerotae and Hepaticae is provided in the APPENDIX.

Three states, Pahang, Sarawak and Sabah, stand out as bryologically well explored owing to the presence of the Cameron Highlands (a popular hill resort) and Mt. Kinabalu (the highest mountain in Southeast Asia). Further fieldwork is needed in the remaining states (asterisked in Table 1) in order to produce a complete picture of the flora and bryodiversity of liverworts and hornworts for Malaysia.

ANTHOCEROTOPHYTA

Anthocerotaceae

Anthoceros formosae Steph.

DISTRIBUTION IN MALAYSIA: Kedah, Langkawi (Tixier 1971; Zhu & So 1997).

Anthoceros glandulosus Lehm. & Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971), Sarawak (Meijer 1957).

Dendroceros cavernosus Hasegawa

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Folioceros glandulosus (Lehm. & Lindenb.) Bhardwaj

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Piippo *et al.* 2002), Sarawak (Menzel 1988).

Megaceros flagellaris (Mitt.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Phaeoceros carolinianus (Michx.) Prosk.

DISTRIBUTION IN MALAYSIA: Perak (Johnson 1958).

MARCHANTIOPHYTA

Haplomitriaceae

Haplomitrium blumei (Nees) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Grolle 1993).

Treubiaceae

Treubia insignis Goebel subsp. *insignis*

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Lepicoleaceae

Lepicolea loriana Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b; Kitagawa 1978).

Lepicolea yakusimensis (Hatt.) Hatt.

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a; Hattori 1968; Kitagawa 1978; Akiyama *et al.* 2001).

Mastigophora diclados (Brid. ex Web.) Nees var. *diclados*

DISTRIBUTION IN MALAYSIA: Kedah, Pahang,

Penang (Hattori 1942b; Johnson 1958; Inoue & Miller 1965; Inoue 1967a, 1968b; Tixier 1971), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Mastigophora diclados var. *borneensis* (De Not.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Mastigophora diclados var. *ramentifissa* Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Mastigophora diclados var. *villosa* Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Herbertaceae

Herbertus armitanus (Bosch & Sande Lac.) He

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Herbertus circinatus (Steph.) H. A. Miller

DISTRIBUTION IN MALAYSIA: Sabah (Frahm *et al.* 1990).

Herberus dicranus (Tayl.) Trevis

DISTRIBUTION IN MALAYSIA: Sabah (Frahm *et al.* 1990).

Herbertus longifissus Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Frahm *et al.* 1990).

Herbertus pilifer Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Frahm *et al.* 1990).

Pseudolepicoleaceae

Blepharostoma trichophyllum (L.) Dumort.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Pseudolepicolea trollii (Herz.) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Temnoma setigerum (Lindenb.) R. M. Schust.
var. *setigerum*

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Trichocoleaceae

Trichocolea merillana Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Trichocolea obconica Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b; Inoue & Miller 1968).

Trichocolea tomentella Huds.

DISTRIBUTION IN MALAYSIA: Pahang (Johnson 1967), Kedah, Penang, Sabah (Inoue 1965; Inoue & Miller 1965; Kitagawa 1971, 1973; Tixier 1974; Akiyama *et al.* 2001), Sarawak (Menzel 1988).

Lepidoziaceae

Acromastigum aurescens A. Evans

DISTRIBUTION IN MALAYSIA: Johore (Evans 1934; Grolle 1978).

Acromastigum bancanum (Lac.) A. Evans

DISTRIBUTION IN MALAYSIA: Malacca (Grolle 1978), Johore, Sarawak, Sabah (Evans 1934; Menzel 1988).

Acromastigum bidenticulatum A. Evans

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Sarawak (Menzel 1988).

Acromastigum bifidum (Steph.) A. Evans

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Acromastigum brotheri (Steph.) A. Evans

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Evans 1934; Menzel 1988).

Acromastigum curtilobum (Schiffn.) A. Evans

DISTRIBUTION IN MALAYSIA: Sabah (Evans 1934; Menzel 1988; Frahm *et al.* 1990).

Acromastigum divaricatum (Gottsche, Lindenb. & Nees) A. Evans

DISTRIBUTION IN MALAYSIA: Johore, Malacca (Evans 1934; Hattori 1942c; Grolle 1978; Mizutani & Chang 1986), Sabah (Menzel 1988).

Acromastigum denticulatum A. Evans

DISTRIBUTION IN MALAYSIA: Sarawak (Evans 1934).

Acromastigum echinatiforme (De Not.) A. Evans

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Acromastigum echinatum (Gottsche) A. Evans

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974; Grolle 1978; Enroth 1991), Johore (Evans 1934).

Acromastigum fimbriatum (Steph.) A. Evans

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988; Frahm *et al.* 1990).

Acromastigum herzogii Grolle

DISTRIBUTION IN MALAYSIA: Sarawak (Grolle 1964).

Acromastigum inaequilaterum (Lehm. & Lindenb.) A. Evans

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Penang (Kitagawa 1969c; Wolseley *et al.* 1996; Piippo *et al.* 2002), Perak, Johore, Sarawak (Evans 1934), Sabah (Evans 1934; Menzel 1988; Frahm *et al.* 1990).

Acromastigum laevigatum Mitt. *ex* A. Evans

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Sarawak (Evans 1934), Sabah (Menzel 1988; Frahm *et al.* 1990).

Acromastigum leptophyllum Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Acromastigum linganum (De Not.) A. Evans

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988; Frahm *et al.* 1990).

Acromastigum lobuliferum A. Evans

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Acromastigum obliquatum (Mitt. *ex* Steph.) A. Evans

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania borneensis N. Kitag.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania calcarata (Sande Lac) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971; Kitagawa 1979a).

Bazzania caudata (Steph.) Herz.

DISTRIBUTION IN MALAYSIA: Pahang, Penang (Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania cincinnata (De Not.) Trevis.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania commutata (Lindenb. & Gottsche) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Bazzania confertifolia (Steph.) Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania conophylla (Sande Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania coreana (Steph.) Hatt.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania densa (Sande Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Kitagawa 1973), Penang (Kitagawa 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania diminuta Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania distans (Nees) Trevis.

DISTRIBUTION IN MALAYSIA: Pahang (Johnson 1967).

Bazzania drepanophylla Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania dulitensis Herz.

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania erosa (Reinw. *et al.*) Trevis.

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania fallax (Sande Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania fleischeri (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania friabilis N. Kitag. & Kodama

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania grandiretis (Steph.) Herz.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania harpago (De Not.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania herzogiana Meijer

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania horridula Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania indica (Gottsche & Lindenb.) Trevis.

DISTRIBUTION IN MALAYSIA: Sabah (Frahm *et al.* 1990).

Bazzania inaequitexta Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania insignis (De Not.) Trevis.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Frahm *et al.* 1990).

Bazzania intermedia (Gottsche & Lindenb.) Trevis.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1969c), Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania intermedia var. *sarawakiana* (De Not.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania involutiformis (De Not.) Trevis.

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania kokawana N. Kitag. & Kodama

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania linearis Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania longicaulis (Sande Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Johnson 1967; Kitagawa 1977), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania loricata (Reinw., Blume & Nees) Trevis.

DISTRIBUTION IN MALAYSIA: Pahang, Malacca (Inoue 1967a, 1968b; Kitagawa 1967a, 1978, 1980), Sarawak (Menzel 1988).

Bazzania lowii (Sande Lac. *ex* Steph.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania malaccensis (Steph.) Tixier

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Perak (Tixier 1971, 1974).

Bazzania manillana (Gottsche) Hatt.

DISTRIBUTION IN MALAYSIA: Penang (Mizutani 1967).

Bazzania marginella (Herz.) N. Kitag. & Kodama

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Bazzania paradoxa (Sande Lac.) Steph.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Kitagawa 1967a; Piippo *et al.* 2002).

Bazzania parvixta Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania patentistipa (Sande Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania pectinata (Lindenb. & Gottsche) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania praerupta (Reinw. *et al.*) Trevis.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania pseudovittata N. Kitag. & Kodama

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania recurva (Mont.) Trevis.

DISTRIBUTION IN MALAYSIA: Pahang, Penang (Inoue 1968b; Kitagawa 1978; Piippo *et al.* 2002), Sarawak (Menzel 1988).

Bazzania serpentina (Reinw. *et al.*) Trevis.

DISTRIBUTION IN MALAYSIA: Sabah (Frahm *et al.* 1990).

Bazzania serrulata (Mitt.) Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania spiralis (Reinw., Blume & Nees) Meijer

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Kitagawa 1967a, 1978; Tixier 1971, 1974), Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania stonii Inoue

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1968b).

Bazzania subhyalina Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania subtilis (Sande Lac.) Trey.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996), Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania tridens (Reinw., Blume & Nees) Trevis.

DISTRIBUTION IN MALAYSIA: Pahang, Penang, Peninsular Malaysia (Kitagawa 1969c, 1972; Tixier 1971; Inoue 1981; Juslén *et al.* 2001; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania uncigera (Reinw. *et al.*) Trevis.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania undulata Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Bazzania vittata (Gottsche) Trevis.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Bazzania zollingeri (Lindenb. *in* Meissn.) Trevis.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Hygrolembidium boschianum (Sande Lac.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Malacca (Grolle 1967).

Kurzia abbreviata Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Kurzia abietinella (Herz.) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Kurzia borneensis Mitt.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Kurzia geniculata Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Kurzia gonyotricha (Sande Lac.) Grolle

DISTRIBUTION IN MALAYSIA: Penang, Malacca, Sabah (Kitagawa 1969c, 1978; Mizutani 1974a, b, 1976b; Mizutani & Chang 1986; Piippo 1986a; Akiyama *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988).

Kurzia lineariloba Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia ambigua De Not.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Lepidozia borneensis Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia cladorhiza (Reinw. *et al.*) Gottsche *et al.*

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Lepidozia everettii Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Lepidozia fauriana Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia ferdinandi-muelleri Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia haskarliana (Lindenb.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia holoriza Nees

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1968b; Kitagawa 1978), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia kinabaluensis Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia lacerifolia Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Lepidozia mamillosa Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia miqueliana Sande Lac.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Lepidozia ophiria Gottsche *ex* Steph.

DISTRIBUTION IN MALAYSIA: Malacca (Mizutani 1974b, 1976b), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia papulosa Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia reptans (L.) Dumort.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia richardsii Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Lepidozia squamifolia Steph.

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988).

Lepidozia subintegra Lindenb. *in* Gottsche *et al.*

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidozia supradecomposita Lindenb.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Lepidozia variifolia Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Lepidozia trichodes (Reinw. *ex* Blume & Nees) Gottsche

DISTRIBUTION IN MALAYSIA: Pahang, Penang (Inoue 1967a; Mizutani 1968, 1974b), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Mastigopelma pulvinatum (De Not.) Grolle

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Psiloclada clandestina Mitt.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Akiyama *et al.* 2001).

Telaranea longitudinalis (Herz.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988; Engel & Merrill 2004).

Telaranea major Herz.

DISTRIBUTION IN MALAYSIA: Malacca, Pahang (Johnson 1967; Tixier 1980b; Piippo 1985c; Piippo *et al.* 2002).

Telaranea monocera Mitt. *ex* R. M. Schust.

DISTRIBUTION IN MALAYSIA: Johore (Piippo 1985c; Enroth 1991; Engel & Merrill 2004).

Telaranea neesii (Lindenb.) Fulf.

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a, 1968b; Kitagawa 1978; Akiyama *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988).

Telaranea semperiana (Steph.) Del Ros.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; Engel & Merrill 2004).

Telaranea trichocoleoides (Herz.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; Engel & Merrill 2004).

Telaranea wallichiana (Gottsche) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Penang (Kitagawa 1969c; Wolseley *et al.* 1996; Juslén *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Zoopsis liukiensis Horik.

DISTRIBUTION IN MALAYSIA: Pahang (Johnson 1967; Tixier 1980b; Grolle & Piippo 1984; Mizutani & Chang 1986).

Zoopsis setigera K. I. Goebel

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Calypogeiaceae***Calypogeia apiculata*** (Steph.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Calypogeia arguta Nees & Mont. *ex* Nees

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Hattori 1952a; Kitagawa 1960, 1973, 1978; Wolseley *et al.* 1996; Juslén *et al.* 2001; Piippo *et al.* 2002).

Metacalypogeia alternifolia (Nees) Grolle

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Mnioloma fusca (Lehm.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Adelanthaceae***Adelanthus borneensis*** Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Wettsteinia inversa (Sande Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Cephaloziaceae***Cephalozia hamatiloba*** Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1993).

Iwatsukia exigua N. Kitag.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Vaña 1993).

Metahygrobiella acuminata (Herz.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah, Sarawak (Vaña 1993).

Metahygrobiella acutiloba Inoue

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, b).

Metahygrobiella mollusca (De Not.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1993).

Metahygrobiella stolonacea (Herz.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah, Sarawak (Enroth 1991; Vaña 1993).

Nowellia borneensis Grolle

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Vaña 1993; Akiyama *et al.* 2001).

Nowellia curvifolia (Dicks.) Mitt.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1993).

Nowellia langii Pears.

DISTRIBUTION IN MALAYSIA: Perak, Sabah (Vaña 1993).

Odontoschisma denudatum (Nees) Dumort.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; Vaña 1993).

Odontoschisma naviculare (Steph.) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1993).

Odontoschisma purpuratum Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Vaña 1993).

Odontoschisma sphagni (Dicks.) Dumort.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Schiffneria hyalina Steph.

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Grolle & Piippo 1984; Vaña 1993).

Cephaloziellaceae***Cephaloziella capillaris*** (Steph.) Douin

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a; Inoue & Miller 1967).

Cephaloziella kiaeri (Aust.) Dumort.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Vaña & Piippo 1989b; Vaña 1992).

Cephaloziella tagawae N. Kitag.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971).

Cephaloziella microphylla (Steph.) N. Kitag.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Kitagawa 1969b, 1979b).

Kymatocalyx rhizomatica (Herzog) Gradst. & Vaña

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Vaña 1991c).

Jackiellaceae***Jackiella angustifolia*** Herz.

DISTRIBUTION IN MALAYSIA: Sabah, Sarawak (Vaña 1992).

Jackiella javanica Schiffn.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971), Pahang, Malacca, Sabah (Grolle 1967; Inoue 1967a; Piippo 1985a; Vaña 1992).

Jackiella singaporensis Schiffn.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1969c, 1979b, 1981; Juslén *et al.* 2001).

Jungermanniaceae***Anomacaulis flaccidus*** (R. M. Schust.) R. M. Schust. & Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; Vaña 1991c).

***Jungermannia appressifolia* Mitt.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia ariadne* Tayl.**

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a; Vaňa 1991b).

***Jungermannia boreneensis* Amakawa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia comata* Nees**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue 1967a; Vaňa & Piippo 1989a; Vaňa *et al.* 2005).

***Jungermannia grollei* Amakawa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia hasskarliana* (Nees) Mitt.**

DISTRIBUTION IN MALAYSIA: Perak, Sabah (Grolle 1966; Vaňa 1991b).

***Jungermannia herzogiana* Váňa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia obliquifolia* (Schiffn.) Váňa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia polyrhiza* Hook. *ex* Lehm. & Lindenb.**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Hattori 1968).

***Jungermannia sphaerocarpa* Hook.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia stephanii* (Schiffn.) Amakawa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia stricta* (Schiffn.) Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia tetragona* Lindenb.**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Vaňa 1991b; Vaňa *et al.* 2005).

***Jungermannia truncata* Nees**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Ohashi 1975; Vaňa 1991b; Juslén *et al.* 2001; Vaňa *et al.* 2005).

***Jungermannia tuberculifera* (Herz.) Váňa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Jungermannia virgata* (Mitt.) Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Nardia assamica* (Mitt.) Amakawa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991b).

***Notoscyphus lutescens* (Lehm.) Mitt.**

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a; Vaňa 1991b).

***Notoscyphus paroicus* Schiffn.**

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1969c, 1978), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lophoziaceae***Anastrophyllum assimile* (Mitt.) Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c).

***Anastrophyllum auritum* (Lehm.) Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c).

***Anastrophyllum bidens* (Reinw., Blume & Nees) Steph.**

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a, 1968b; Kitagawa 1970; Ohashi 1975; Vaňa & Piippo 1989b; Vaňa 1991c).

***Anastrophyllum bidens* var. *aristatum* Herz. *ex* N. Kitag.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c).

Anastrophyllum borneense Herz.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Kitagawa 1970; Vaña 1991c).

Anastrophyllum divergens Herz.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Anastrophyllum malayense Inoue

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, b, 1968b).

Anastrophyllum minutum (Schreb. *in* Cranz) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Anastrophyllum obtusum Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Vaña 1991c).

Anastrophyllum piligerum (Reinw., Blume & Nees) Steph.

DISTRIBUTION IN MALAYSIA: Pahang, Penang, Sabah. (Vaña 1991c; Inoue 1967a; Kitagawa 1969c), Sarawak (Menzel 1988).

Anastrophyllum prionophyllum Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Anastrophyllum revolutum Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Anastrophyllum squarrosom Herz.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Andrewsianthus chinbuensis R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Andrewsianthus kinabaluensis N. Kitag.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Andrewsianthus mizutanii N. Kitag.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Andrewsianthus papillosus N. Kitag.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Andrewsianthus puniceus (Nees) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Andrewsianthus recurvifolius (Nees) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Chandonanthus filiformis Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cryptochila grandiflora (Lindenb. & Gottsche) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Denotarisia linguifolia (De Not.) Grolle

DISTRIBUTION IN MALAYSIA: Pahang, Malacca, Sabah (Inoue 1968b; Grolle 1971; Vaña & Piippo 1989b; Vaña 1991c; Akiyama *et al.* 2001).

Gottschelia schizopleura (Spruce) Grolle

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Menzel 1988; Vaña & Piippo 1989b; Frahm *et al.* 1990; Vaña 1991c).

Jamesoniella contracta (Reinw., Blume & Nees) N. Kitag.

DISTRIBUTION IN MALAYSIA: Sabah (Vaña 1991c).

Jamesoniella autumnalis (DC.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Jamesoniella flexicaulis (Nees) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang, Malacca, Sabah (Inoue 1967a; Inoue & Miller 1968; Grolle 1971; Vaña & Piippo 1989b; Vaña 1991c).

Jamesoniella microphylla (Nees) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

***Jamesoniella nipponica* Hatt.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c).

***Plicanthus hirtellus* (F. Weber) Mitt.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c; Akiyama *et al.* 2001).

***Sphenobopsis pearsonii* (Spruce)**

R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c).

***Syzygiella securifolia* (Nees) Inoue**

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Vaňa 1991c).

***Syzygiella subintegerrima* (Reinw. *et al.*) Spruce**

DISTRIBUTION IN MALAYSIA: Pahang, Malacca, Sabah (Inoue 1966, 1967a, 1968a, b; Grolle 1967; Vaňa & Piippo 1989b; Enroth 1991; Vaňa 1991c).

***Syzygiella variegata* (Lindenb.) Schiffn.**

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b).

***Tetralophozia filiformis* (Steph.) Urmí**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c).

***Tritomaria exsecta* (Schrad.) Schiffn. *ex* Loeske**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991c).

Gymnomitriaceae***Apomarsupella revoluta* (Nees) R. M. Schust.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991a; Akiyama *et al.* 2001; Vaňa *et al.* 2010).

***Gymnomitrium incomplectum* (Gottsche) R. M. Schust. *ex* Vaňa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991a; Vaňa *et al.* 2010).

***Gymnomitrium subintegrum* (S. W. Arnell) Vaňa**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa *et al.* 2010).

***Marsupella emarginata* (Ehrh.) Dumort.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991a; Vaňa *et al.* 2010).

***Marsupella stoloniformis* N. Kitag.**

DISTRIBUTION IN MALAYSIA: Sabah (Vaňa 1991a; Vaňa *et al.* 2010).

Scapaniaceae***Scapania lepida* Mitt.**

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

***Scapania ornithopodioides* (With.) Waddel.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Geocalycaceae***Chiloscyphus acutangulus* Schiffn.**

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1968b).

***Chiloscyphus argutus* (Reinw. Nees & Blume) Nees**

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

***Chiloscyphus ceylanicus* Steph. *ex* Tixier**

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974).

***Chiloscyphus ciliolatus* (Nees) J. J. Engel & R. M. Schust.**

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

***Chiloscyphus communis* Steph.**

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b; Tixier 1971).

***Chiloscyphus costatus* (Nees) J. J. Engel & R. M. Schust.**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Piippo 1989a).

***Chiloscyphus flaccidens* Steph.**

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974).

Chiloscyphus iwatsukii (Hatt.) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Chiloscyphus kurzii (Lac) J. J. Engel & R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Chiloscyphus latifolius (Nees) J. J. Engel & R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Chiloscyphus muricatus (Lehm.) J. J. Engel & R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Chiloscyphus paroicus J. J. Engel & R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Chiloscyphus sikkimensis (Steph.) J. J. Engel & R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Chiloscyphus steetziae (De Not.) J. J. Engel & R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Chiloscyphus succulentus Gottsche

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1973).

Conoscyphus trapezoides (Sande Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang, Malacca, Sabah (Grolle 1965; Inoue 1967a; Kitagawa 1979b; Piippo 1985b, 1989a).

Heteroscyphus argutus (Reinw. *et al.*) Schiffn.

DISTRIBUTION IN MALAYSIA: Penang, Negeri Sembilan, Sabah (Kitagawa 1969c; Inoue 1981; Piippo 1985b, 1989a; Wolseley *et al.* 1996; Juslén *et al.* 2001; Piippo *et al.* 2002).

Heteroscyphus aselliformis (Reinw. *et al.*) Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Piippo 1985b), Pahang (Inoue 1967a; Kitagawa 1979b), Sabah (Menzel 1988; Piippo 1989a; Frahm *et al.* 1990).

Heteroscyphus balnetii (Herz.) Grolle & Piippo

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Piippo 1985b, 1989a; Enroth 1991).

Heteroscyphus communis (Steph.) Schiffn.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971).

Heteroscyphus coalitus (Hook.) Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Piippo 1989a).

Heteroscyphus diestianus (Sande Lac.) Piippo

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a; Akiyama *et al.* 2001).

Heteroscyphus iwatsukii (Hatt.) Piippo

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Heteroscyphus parvulus (Schiffn.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Heteroscyphus splendens (Lehm. & Lindenb.) Grolle

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Penang, Sabah (Inoue 1967a, 1968b; Kitagawa 1969c, 1979b; Tixier 1974; Piippo 1989a; Akiyama *et al.* 2001).

Heteroscyphus succulentus (Gottsche) Schiffn.

DISTRIBUTION IN MALAYSIA: Malacca, Sabah (Piippo 1985b, 1989a).

Heteroscyphus wettsteinii (Schiffn.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1989a).

Heteroscyphus zollingeri (Gottsche) Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Hattori 1952a; Piippo 1985b, 1989a; Juslén *et al.* 2001).

Lophocolea ciliolata (Nees) Gottsche

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b; Kitagawa 1979b).

Lophocolea costata (Nees) Gottsche

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a; Kitagawa 1973; Piippo 1985b; Akiyama *et al.* 2001).

Lophocolea mollis (Nees) Gotts., Lindenb. & Nees

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Saccogynidium goebelii (Herz.) Grolle

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b; Piippo 1986a).

Saccogynidium iwatsukii Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Hattori 1964).

Saccogynidium jugatum (Mitt.) Grolle

DISTRIBUTION IN MALAYSIA: Malacca (Grolle 1965).

Saccogynidium muricellum (De Not.) Grolle

DISTRIBUTION IN MALAYSIA: Malacca, Sabah (Piippo 1985b, 1989a; Enroth 1991).

Saccogynidium rigidulum (Nees) Grolle

DISTRIBUTION IN MALAYSIA: Perak, Pahang, Malacca, Sabah (Grolle 1960, 1965; Inoue 1967a; Piippo 1985b, 1989a; Enroth 1991), Sarawak (Menzel 1988).

Arnelliaceae***Southbya grollei*** N. Kitag.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Plagiochilaceae***Chiastocaulon dendroides*** (Nees) Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a, 1968b, 1984, 1989; Piippo 1989b; Akiyama *et al.* 2001).

Plagiochila abietina (Nees) Mont.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochila accedens Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochila arbuscula (Brid. *ex* Lehm. & Lindenb.) Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang, Trengganu, Sabah (Inoue 1982, 1984, 1989; Menzel 1988; Frahm *et al.* 1990).

Plagiochila bantamensis (Reinw., Blume & Nees) Dumort.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Pahang, Sabah (Inoue 1984, 1989; Wolseley *et al.* 1996; Juslén *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988).

Plagiochila blepharophora (Nees) Lindenb.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Inoue 1989).

Plagiochila borneensis Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Plagiochila cameronensis Inoue

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1968b, 1969a, 1984).

Plagiochila clavato-saccata Steph.

DISTRIBUTION IN MALAYSIA: Perak (Inoue 1984), Sabah (Menzel 1988).

Plagiochila denigrata Inoue

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila dendroides (Nees) Lindenb.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochila densifolia Sande Lac.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Plagiochila estipulata Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Plagiochila frondescens (Nees) Lindenb.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Pahang, Sabah (Inoue 1967a, 1984, 1989).

Plagiochila gymnoclada Sande Lac.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Inoue 1979, 1982, 1989).

Plagiochila hampeana Gottsche

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochiola hottae Inoue

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochila infirma Sande Lac.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila integrilobula Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila javanica (Swartz) Dumort.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila junghuhniana Sande Lac.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochila korthalsiana Molk.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila kuhliana Sande Lac.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Plagiochila kurzii Steph.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996). Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochila laxissima Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Inoue 1989).

Plagiochila lobulata Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a; Hattori 1968).

Plagiochila massalongoana Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1984), Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochila microdonta Mitt.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue 1982).

Plagiochila mutabilis De Not.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Plagiochila neutiana Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1974).

Plagiochila nitens Inoue

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila nobilis Gottsche

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila obtusa Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1968b).

Plagiochila opposita (Reinwart, Blume & Nees) Lindenb.

DISTRIBUTION IN MALAYSIA: Perak (Hattori 1942a).

Plagiochila peculiaris Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sarawak (Menzel 1988), Sabah (Inoue 1972, 1989).

Plagiochila philippinensis Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila propinqua Sande Lac.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989), Sarawak (Menzel 1988).

Plagiochila renitens (Nees) Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a, 1989; Piippo 1989b).

Plagiochila sandei Dozy

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Inoue 1989).

Plagiochila sandei fo. *remotidens* Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Plagiochila sciophila Nees

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Inoue 1989).

Plagiochila singularis Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila spathulifolia Mitt.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila sumatrana Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila teysmannii Sande Lac.

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila trapezoidea Lindenb.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Inoue 1989; Piippo 1989b).

Plagiochila tsutomui Inoue

DISTRIBUTION IN MALAYSIA: Sabah (Inoue 1989).

Plagiochila ungaranga Sande Lac.

DISTRIBUTION IN MALAYSIA: Perak (Inoue 1984).

Plagiochilon braunianum (Nees) Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Plagiochilon oppositum (Reinw., Blume & Nees) S. Hatt.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Plagiochilon pachycephalum (De Not.) Inoue

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Plagiochilon theriotianum (Steph.) Inoue

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Acrobolbaceae***Acrobolbus ciliatus*** (Mitt.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Tylimanthus saccatus (Hook.) Mitt. *ex* Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Schistochilaceae***Schistochila acuminata*** Steph.

DISTRIBUTION IN MALAYSIA: Perak, Pahang, Sarawak, Sabah (Hattori 1964; Frahm *et al.* 1990; So 2003b).

Schistochila aligera (Nees & Blume) J. B. Jack & Steph.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue 1985), Johore, Pahang, Penang, Selangor, Sarawak (Menzel 1988), Sabah (Hattori 1964; Kitagawa 1969c, 1973; Inoue 1985; Menzel 1988; Frahm *et al.* 1990; So 2003b).

Schistochila beccariana (De Not.) Trevis.

DISTRIBUTION IN MALAYSIA: Malay Peninsula, Pahang, Sarawak, Sabah (Hattori 1964; Menzel 1988).

***Schistochila blumei* (Nees) Trevis.**

DISTRIBUTION IN MALAYSIA: Pahang, Malacca (Inoue 1967a; Kitagawa 1978; So 2003b), Sabah (Hattori 1964; Menzel 1988; Frahm *et al.* 1990).

***Schistochila doriae* (De Not) Trevis.**

DISTRIBUTION IN MALAYSIA: Pahang (So 2003b), Sarawak (Menzel 1988), Sabah (Hattori 1964).

***Schistochila reinwardtii* (Nees) Schiffn.**

DISTRIBUTION IN MALAYSIA: Sabah (Hattori 1964).

***Schistochila sciurea* (Nees) Schiff.**

DISTRIBUTION IN MALAYSIA: Perak, Pahang (Inoue 1967a, 1968b; Hattori 1968; Kitagawa 1978; So 2003b), Selangor, Sarawak, Sabah (Hattori 1964; Menzel 1988; Frahm *et al.* 1990).

Balantiopsaceae***Balantiopsis ciliaris* Hatt.**

DISTRIBUTION IN MALAYSIA: Sabah (Hattori 1966; Menzel 1988; Frahm *et al.* 1990).

***Isotachis japonica* Steph.**

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b).

Pleuroziaceae***Eopleurozia simplicissima* (Herz.) R. M. Schust.**

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988; Frahm *et al.* 1990).

***Pleurozia acinosa* (Mitt.) Trevis.**

DISTRIBUTION IN MALAYSIA: Pahang, Selangor (Inoue 1967a, 1969b; Kitagawa 1979b; Thiers 1993), Sarawak (Menzel 1988).

***Pleurozia conchifolia* (Hook. & Arn.) Lindb.**

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

***Pleurozia gigantea* (Web.) Lindb.**

DISTRIBUTION IN MALAYSIA: Kedah, Malacca, Pahang, Selangor, Sabah (Grolle 1965; Inoue

1967a, 1968b; Tixier 1974; Thiers 1993; Akiyama *et al.* 2001).

***Pleurozia gigantea* var. *borneensis* (De Not.) Schiffn.**

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

***Pleurozia johannis-winkleri* Herz.**

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Radulaceae***Radula acuminata* Steph.**

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Selangor, Sabah (Yamada 1979, 1989; Yamada & Piippo 1989; Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Radula amentulosa* Mitt.**

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

***Radula amoena* Herz.**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Menzel 1988; Yamada & Piippo 1989).

***Radula anceps* Sande Lac.**

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Sabah (Inoue & Miller 1965; Yamada 1979, 1989; Yamada & Piippo 1989; Wolseley *et al.* 1996; Piippo *et al.* 2002).

***Radula apiculata* Sande Lac.**

DISTRIBUTION IN MALAYSIA: Sabah (Zhu *et al.* 2002).

***Radula borneensis* Steph.**

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue 1967a; Yamada 1989; Piippo *et al.* 2002).

***Radula campanigera* Mont.**

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Inoue & Miller 1965; Kitagawa 1979b; Yamada 1979, 1984, 1989).

Radula cavifolia Hampe

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Yamada 1979, 1989).

Radula ceylanica Yamada

DISTRIBUTION IN MALAYSIA: Pahang (Yamada 1979).

Radula densifolia Castle

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula formosa (Meissn.) Nees

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Sabah (Tixier 1974; Yamada 1979, 1989).

Radula gedena Gottsche *ex* Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula iwatsukii Yamada

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Yamada 1989; Yamada & Piippo 1989).

Radula javanica Gottsche

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Selangor, Sabah (Yamada 1979, 1989; Wolseley *et al.* 1996).

Radula kinabaluensis Yamada

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula lacerata Steph.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Sabah (Yamada 1989; Yamada & Piippo 1989; Wolseley *et al.* 1996).

Radula madagascariensis Gottsche

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula miqueliana Tayl.

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Inoue 1968b; Tixier 1974).

Radula mizutanii Yamada

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Yamada 1989; Yamada & Piippo 1989).

Radula multiflora Gottsche *ex* Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Yamada 1989; Yamada & Piippo 1989).

Radula novae-guineae Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Radula nymanii Steph.

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Tixier 1971, 1980a; Yamada 1989; Yamada & Piippo 1989).

Radula obscura Mitt.

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula philippinensis Yamada

DISTRIBUTION IN MALAYSIA: Selangor (Yamada 1979).

Radula protensa Lindenb.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Sabah (Yamada 1989; Wolseley *et al.* 1996).

Radula reflexa Nees & Mont.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Yamada & Piippo 1989; Piippo *et al.* 2002).

Radula retroflexa Tayl.

DISTRIBUTION IN MALAYSIA: Trengganu, Sabah (Yamada 1979, 1989; Yamada & Piippo 1989).

Radula retroflexa var. ***fauciloba*** (Steph.) Yamada

DISTRIBUTION IN MALAYSIA: Selangor (Yamada 1979; Yamada & Piippo 1989).

Radula subpallens Steph.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Sabah (Yamada 1989; Yamada & Piippo 1989).

Radula sumatrana Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula tabularis Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula tjibodensis Goeb. ex Schifffn.

DISTRIBUTION IN MALAYSIA: Pahang, Penang, Sabah (Kitagawa 1969c; Yamada 1979, 1989; Yamada & Piippo 1989).

Radula ventricosa Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Yamada 1989).

Radula vrieseana Sande Lac.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Sabah (Yamada 1979, 1989; Yamada & Piippo 1989; Wolseley *et al.* 1996).

Radula yangii Yamada

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Yamada 1979, 1989).

Porellaceae***Porella acutifolia*** subsp. *latior* Hatt.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1969, 1978a).

Porella javanica (Gottsche ex Steph.) Inoue

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a; Hattori 1978a).

Frullaniaceae***Frullania alstonii*** Verd.

DISTRIBUTION IN MALAYSIA: Johore (Hattori 1972, 1974a, 1976; Hattori *et al.* 1977), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania apiculata (Reinw., Blume & Nees) Dumort.

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Selangor (Inoue 1967a, 1968b; Kachroo 1970; Tixier 1974, 1980a; Hattori 1975c; Piippo *et al.* 2002).

Frullania apiculata var. *apiculata*

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania apiculata var. *goebelii* Schifffn.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania armatifolia Verd.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania benjaminiana Inoue

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, b; Hattori 1975a).

Frullania berthoumieui Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania brotheri Steph.

DISTRIBUTION IN MALAYSIA: Pahang, Selangor (Hattori 1975a, c, 1976, 1980, 1982; Hattori *et al.* 1977; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania claviloba Steph.

DISTRIBUTION IN MALAYSIA: Selangor (Hattori 1975b, c, 1976, 1982; Hattori *et al.* 1977), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania concava Horik.

DISTRIBUTION IN MALAYSIA: Malacca (Hattori 1973).

Frullania clemensiana Verd.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania ericoides (Nees ex Mart.) Mont.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania ericoides var. *planescens* (Verd.) Hatt.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Hattori & Lin 1985).

Frullania fallax Hatt.

DISTRIBUTION IN MALAYSIA: Malacca (Hattori 1975c, 1980).

Frullania gaudichaudii (Nees & Mont.) Nees & Mont.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania gracilis (Reinw., Blume & Nees) Dumort.

DISTRIBUTION IN MALAYSIA: Pahang, Malacca (Inoue 1965; Hattori 1974a, 1975a, c, 1976; Hattori *et al.* 1977; Juslén *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania grandistipula Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971; Hattori 1982, 1986b; Hattori & Piippo 1986), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania hasskarliana Lindenb.
var. *hasskarliana*

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a, 1982, 1986a; Hattori & Piippo 1986), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania hasskarliana
var. *integribracteata* (Verd.) Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania hottana Hatt.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Frullania hypoleuca Nees

DISTRIBUTION IN MALAYSIA: Malacca (Hattori 1975c, 1976, 1981, 1982; Hattori & Piippo 1986; Piippo *et al.* 2002), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania integristipula (Nees) Nees

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Johore (Tixier 1974, 1980a; Hattori 1976, 1980), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania integristipula var. *emarginata* Verd.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Hattori 1982).

Frullania intermedia (Reinw., Blume & Nees) Dumort.

DISTRIBUTION IN MALAYSIA: Kelantan, Negeri Sembilan, Penang, Johore (Inoue & Miller 1965; Hattori 1980; Wolseley *et al.* 1996; Piippo *et al.* 2002), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania junghuhniana Gottsche *in* Gottsche *et al.*

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania junghuhniana var. *minutissima* Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a).

Frullania junghuhniana var. *bisexualis* Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania mejeri Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania meyeniana Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania minor Sande Lac.

DISTRIBUTION IN MALAYSIA: Selangor (Hattori 1975c), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania mizutanii Kamimura & Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania monocera (Tayl.) Tayl.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania nepalensis (Spreng.) Lehm. & Lindenb.

DISTRIBUTION IN MALAYSIA: Malacca (Inoue 1968a; Kachroo 1970; Hattori 1974a).

Frullania nigricalis (Reinw., Nees & Blume) Nees

DISTRIBUTION IN MALAYSIA: Pahang, Malacca (Hattori 1974b, 1975a; Hattori *et al.* 1977), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania nodulosa (Reinw., Nees & Blume) Nees

DISTRIBUTION IN MALAYSIA: Pahang, Selangor, Malacca (Hattori 1942c, 1980; Inoue 1968b; Piippo *et al.* 2002), Sarawak, Sabah (Menzel 1988).

Frullania notarisii Steph.

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Sabah (Menzel 1988).

Frullania ocellata Kamimura & Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania orientalis Sande Lac.

DISTRIBUTION IN MALAYSIA: Malacca (Hattori 1975c, 1976, 1982; Hattori & Piippo 1986), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania ornithocephala (Reinw., Blume & Nees) Nees

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania ornithocephala var. *magnilobula* Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania ornithocephala var. *retusa* Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania papillilobula Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania philippinensis Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a).

Frullania picta Steph.

DISTRIBUTION IN MALAYSIA: Kedah, Penang (Kitagawa 1969c; Tixier 1974).

Frullania polyptera Tayl.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a, 1978b; Hattori *et al.* 1977; Hattori & Lin 1985).

Frullania pullei Verd.

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974).

Frullania pulogensis Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania ramuligera (Nees) Mont.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania recurvistipula Hatt.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a, 1986b).

Frullania reflexistipula Sande Lac.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania repandistipula Sande Lac.

subsp. *spinibractea* Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania sabahana Hatt.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Frullania sarawakensis Hatt.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Frullania serrata Gottsche in Gottsche *et al.*

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania serrata var. *crispulo-dentata* Verd.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania sinuata Sande Lac.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a, c; Hattori & Piippo 1986).

Frullania sublignosa Steph.

DISTRIBUTION IN MALAYSIA: Malacca (Hattori 1942c, 1975c, 1976, 1982, 1986a; Hattori & Piippo 1986; Piippo *et al.* 2002), Sarawak (Menzel 1988).

Frullania subnigricaulis Hatt.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a, 1982, 1986a; Hattori & Piippo 1986; Hattori & Streimann 1985), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania tamarisci subsp. *obscura* (Verd.) Hatt.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue 1981).

Frullania tamarisci subsp. *obscura*
var. *breviramea* (Steph.) Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania ternatensis Gottsche

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Malacca (Tixier 1971, 1974; Hattori 1974a, 1982; Hattori & Streimann 1985; Hattori & Piippo 1986), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania ternatensis var. *non-appendiculata*
Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania togashiana Hatt.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a).

Frullania trichodes Mitt.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Frullania vaginata (Sw.) Dumort.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a).

Frullania venusta Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Frullania wallachiana Mitt.

DISTRIBUTION IN MALAYSIA: Pahang (Hattori 1975a).

Jubulaceae***Jubula hutchinsiae*** subsp. *javanica* (Steph.)
Verd.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Vaňa & Piippo 1989b), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Neohattoria perversa (Steph.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974).

Lejeuneaceae***Acrolejeunea arcuata*** (Nees) Grolle & Gradst.

DISTRIBUTION IN MALAYSIA: Sarawak, Sabah (Menzel 1988; Frahm *et al.* 1990).

Acrolejeunea aulacophora (Mont.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Acrolejeunea fertilis (Reinw., Blume & Nees)
Spruce *ex* Steph.

DISTRIBUTION IN MALAYSIA: Perak, Penang (Kachroo 1970; Gradstein 1975; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Acrolejeunea pycnoclada (Tayl.) Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Kachroo 1970; Gradstein 1975; Mizutani 1977; Piippo *et al.* 2002), Penang (Kitagawa 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Acrolejeunea tjibodensis (Verd.) Grolle & Gradst.

DISTRIBUTION IN MALAYSIA: Pahang (Gradstein 1975; Gradstein *et al.* 2002).

Aphanotropis saxicola Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Archilejeunea planiuscula (Mitt.) Steph.

DISTRIBUTION IN MALAYSIA: Malacca (Mizutani 1977), Penang (Hattori 1942c), Sarawak

(Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Caudalejeunea recurvistipula (Gottsche) Schiffn.

DISTRIBUTION IN MALAYSIA: Perak, Pahang, Selangor, Johore, Penang (Miller 1968; Kitagawa 1971; Mizutani 1977 1988; Tixier 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cephalolejeunea parvilobula Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Ceratolejeunea aliena Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Ceratolejeunea belangeriana (Gottsche) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Ceratolejeunea minor Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Frahm *et al.* 1990).

Ceratolejeunea moniliata Herz.

DISTRIBUTION IN MALAYSIA: Johore (Mizutani 1981b), Sarawak (Menzel 1988).

Ceratolejeunea oceanica (Mitt.) Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Mizutani 1981b).

Ceratolejeunea singapurensis (Lindenb.) Steph.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Ceratolejeunea tahitensis Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Cheilolejeunea ceylanica R. M. Schust. & Kachr.

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Negeri Sembilan, Malacca (Tixier 1971, 1974, 1980a; Mizutani 1978; Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea decursiva (Sande Lac.) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea exsicula (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Pahang (Mizutani 1977; Grolle & Piippo 1990), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea falsinervis (Sande Lac.) R. M. Schust. & Kachroo

DISTRIBUTION IN MALAYSIA: Kedah, Negeri Sembilan (Tixier 1974; Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea gigantea (Steph.) R. M. Schust. & Kachroo

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Cheilolejeunea inaequitexta Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Cheilolejeunea insignis Jovet-Ast & Tixier

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea intertexta (Lindenb.) Steph.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971), Peninsular Malaysia (Hattori 1968b; Mizutani 1972, 1975, 1977; Juslén *et al.* 2001; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea lindenbergii (Gottsche) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea longiloba (Steph.) Kachr. & R. M. Schust.

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Tixier 1974, 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea luerssenii (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Pahang, Penang (Inoue 1967a; Kitagawa 1969c).

Cheilolejeunea meyeniana (Gottsche, Lindenb. & Nees) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Tixier 1971, 1974, 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea mizutanii Grolle

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996).

Cheilolejeunea occlusa (Herz.) Kodama & N. Kitag.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea orientalis (Gottsche) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea trapezia (Nees) R. M. Schust. & Kachroo

DISTRIBUTION IN MALAYSIA: Pahang (Inoue & Miller 1965; Inoue 1967a; Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea ventricosa (Schiffn.) X.-L. He

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Zhu & So 1999a; Piippo *et al.* 2002; Zhu *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea verrucosa Steph.

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea viridula (Herz.) Mizut.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Cheilolejeunea vittata (Steph. *ex* Hoffm.) R. M. Schust. & Kachr.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cheilolejeunea xanthocarpa (Lehm. & Lindenb.) Malombe

DISTRIBUTION IN MALAYSIA: Pahang (Kitagawa 1960; Inoue 1967a; Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea abnormis Mizut.

DISTRIBUTION IN MALAYSIA: Penang, Sabah (Tixier 1985).

Cololejeunea acuminata Mizut.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea affinis (Schiffn.) Zwick.

DISTRIBUTION IN MALAYSIA: Malacca (Kachroo 1970).

Cololejeunea amoena Benedix

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Mizutani 1975), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea angulata (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Penang (Kitagawa 1969c; Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea angustiflora (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea appressa (A. Evans) Benedix

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea balansae (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Penang, Perak (Tixier 1985).

Cololejeunea chamlongiana Tixier

DISTRIBUTION IN MALAYSIA: Perak (Tixier 1985).

Cololejeunea ciliatilobula (Schiffn.) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Cololejeunea dilatata (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea decliviloba Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a).

Cololejeunea dozyana (Sande-Lac.) Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang, Penin-

sular Malaya (Tixier 1980a, 1985; Zhu & So 1998), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea falcata (Horik.) Benedix

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Tixier 1971, 1974; 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea filicaulis Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a).

Cololejeunea filidens Benedix

DISTRIBUTION IN MALAYSIA: Perak, Selangor (Tixier 1985).

Cololejeunea fisslobula Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Cololejeunea floccosa (Lehm. & Lindeb.) Steph.

DISTRIBUTION IN MALAYSIA: Kedah, Malacca, Negeri Sembilan, Pahang, Penang (Kodama 1955; Kitagawa 1969c; Tixier 1971, 1974; Mizutani 1975, 1978, 1984a; Wolseley *et al.* 1996), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea formosana Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea fructu-marginata Tixier

DISTRIBUTION IN MALAYSIA: Penang (Tixier 1985).

Cololejeunea georgiana Tixier

DISTRIBUTION IN MALAYSIA: Penang (Tixier 1985).

Cololejeunea gynophthalma Benedix

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea haskarliana (Lehm. Lindenb.) Steph.

DISTRIBUTION IN MALAYSIA: Penang, Perak, Malacca, Negeri Sembilan, Pahang (Kitagawa 1971; Mizutani 1975, 1977, 1978, 1986a; Tixier

1980a, 1985; Wolseley *et al.* 1996; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea hillebrandii (Aust.) Steph.

DISTRIBUTION IN MALAYSIA: Penang, Perak, Pahang (Tixier 1985).

Cololejeunea hirta (Steph.) Benedix

DISTRIBUTION IN MALAYSIA: Perak, Pahang (Tixier 1985).

Cololejeunea hispidissima (Steph.) Tixier

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea inflata Steph.

DISTRIBUTION IN MALAYSIA: Kedah, Pahang, Malacca (Mizutani 1961, 1975, 1978, 1984a; Tixier 1971, 1974, 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea infectens (Mitt.) Benedix

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea javanica (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Penang (Tixier 1985), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea jelinekii Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Cololejeunea karstenii (Steph.) Benedix

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Cololejeunea kulenensis Tixier

DISTRIBUTION IN MALAYSIA: Johore (Tixier 1985).

Cololejeunea lanciloba Steph.

DISTRIBUTION IN MALAYSIA: Johore, Pahang, Penang (Kitagawa 1971; Mizutani 1984b; Tixier 1985), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea lancinulata Benedix

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Cololejeunea leonidens Benedix

DISTRIBUTION IN MALAYSIA: Pahang, Malacca (Inoue 1967a; Tixier 1971, 1980a; Mizutani 1975, 1977).

Cololejeunea leonidens var. *saccata* Benedix

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea longifolia (Mitt.) Benedix

DISTRIBUTION IN MALAYSIA: Penang (Tixier 1985), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea macounii (Spruce *ex* Underw.)

A. Evans

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea malaccensis Tixier

DISTRIBUTION IN MALAYSIA: Johore (Tixier 1985).

Cololejeunea malayana Tixier

DISTRIBUTION IN MALAYSIA: Pahang, Perak (Tixier 1980a, 1985).

Cololejeunea maritima Tixier

DISTRIBUTION IN MALAYSIA: Perak, Johore (Tixier 1985).

Cololejeunea metzgeriopsis (Goebel) Gradst.

DISTRIBUTION IN MALAYSIA: Pahang, Sabah (Kitagawa 1969c; Tixier 1980a; Akiyama *et al.* 2001), Perak (Gradstein *et al.* 2006).

Cololejeunea minutissima (Sm.) Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Schuster 1955).

Cololejeunea mutabilis var. *borneensis* Benedix

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea ocelloides (Horik.) Mizut.

DISTRIBUTION IN MALAYSIA: Malacca (Mizutani 1984a; Zhu & Wang 1992), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea pahangiana Tixier

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Cololejeunea pakseana Tixier

DISTRIBUTION IN MALAYSIA: Selangor (Tixier 1985).

Cololejeunea papillosa (K. I. Goebel) Mizut.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea peculiaris (Herz.) Benedix

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974).

Cololejeunea peponiformis Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Tixier 1985; Menzel 1988; Frahm *et al.* 1990).

Cololejeunea peraffinis (Schiffn.) Schiffn.

DISTRIBUTION IN MALAYSIA: Malacca, Pahang, Penang (Kodama 1955; Mizutani 1961, 1966, 1975, 1984a; Kitagawa 1969c, 1978; Tixier 1980a), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea perakensis Tixier

DISTRIBUTION IN MALAYSIA: Perak (Tixier 1985).

Cololejeunea planifolia Benedix

DISTRIBUTION IN MALAYSIA: Penang (Tixier 1985).

Cololejeunea planissima (Mitt.) Abey.

DISTRIBUTION IN MALAYSIA: Penang, Perak, Johore (Kitagawa 1971; Tixier 1985), Sabah (Menzel 1988).

Cololejeunea platynura (Spruce) A. Evans

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea pseudofloccosa (Horik.) Benedix

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea pseudoschmidtii Tixier

DISTRIBUTION IN MALAYSIA: Penang (Tixier 1985).

Cololejeunea pseudostipulata Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Cololejeunea pusilla Tixier

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Cololejeunea raduliloba Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Cololejeunea reineckeana Steph.

DISTRIBUTION IN MALAYSIA: Perak (Tixier 1985).

Cololejeunea rosellata Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Tixier 1985).

Cololejeunea obliqua (Nees & Mont.) Schiffn.

DISTRIBUTION IN MALAYSIA: Perak, Penang, Pahang (Tixier 1980a, 1985), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea schmidtii Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea selangorensis Tixier

DISTRIBUTION IN MALAYSIA: Selangor (Tixier 1985).

Cololejeunea serrulata Steph.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971).

Cololejeunea setosa Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Cololejeunea shimizui N. Kitag.

DISTRIBUTION IN MALAYSIA: Kelantan (Kitagawa 1969c; Mizutani 1981a).

Cololejeunea siamensis (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996; Piippo *et al.* 2002), Sabah (Menzel 1988).

Cololejeunea sigmaidea Jovet-Ast & Tixier

DISTRIBUTION IN MALAYSIA: Pahang, Penang (Kitagawa 1969c; Tixier 1971, 1980a).

Cololejeunea sigmaidea var. ***dubia*** Tixier

DISTRIBUTION IN MALAYSIA: Perak (Tixier 1985), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea sphaerodonta Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea stephanii Schiffn. *ex* Benedix

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Tixier 1974, 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea stoniana Tixier

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Johore (Tixier 1985; Piippo *et al.* 2002).

Cololejeunea stylosa (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Penang (Tixier 1985; Zhu & Wang 1992).

Cololejeunea tenella Benedix

DISTRIBUTION IN MALAYSIA: Kedah, Penang, Negeri Sembilan, Johore (Tixier 1974, 1985; Wolseley *et al.* 1996).

Cololejeunea thailandensis Tixier

DISTRIBUTION IN MALAYSIA: Penang (Tixier 1985).

Cololejeunea triapiculata (Herz.) Tixier

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971, 1980a, 1985; Mizutani 1975).

Cololejeunea tridentata Tixier

DISTRIBUTION IN MALAYSIA: Johore (Tixier 1985).

Cololejeunea trichomanis (Gottsche) Steph.

DISTRIBUTION IN MALAYSIA: Penang, Kedah, Perak (Hattori 1952b; Kitagawa 1971; Tixier 1974, 1985; Zhu & Wang 1992; Juslén *et al.* 2001; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea trichomanis (Gottsche) Steph.

subsp. *cordiflora* (Steph.) Pócs

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Cololejeunea verrucosa Steph.

DISTRIBUTION IN MALAYSIA: Malacca (Mizutani 1976a), Sabah (Menzel 1988).

Cololejeunea wightii Steph.

DISTRIBUTION IN MALAYSIA: Pahang, Penang (Kachroo 1970; Kitagawa 1971, 1972; Tixier 1971, 1985; Zhu & So 1999b; Juslén *et al.* 2001; Piippo *et al.* 2002).

Cololejeunea yulensis (Steph.) Benedix

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Mizutani 1975), Sabah (Menzel 1988; Frahm *et al.* 1990).

Colura acroloba (Mont. *ex* Steph.) Jovet-Ast

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Pahang, Selangor (Kitagawa 1969a; Tixier 1971, 1980a; Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Colura acutifolia Jovet-Ast

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1969c).

Colura ari (Steph.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Colura bisvoluta Herz. & Jovet-Ast

DISTRIBUTION IN MALAYSIA: Malacca (Jovet-Ast 1954).

Colura conica Goebel

DISTRIBUTION IN MALAYSIA: Malacca, Negeri Sembilan (Mizutani 1975, 1977), Sabah (Menzel 1988).

Colura corynephora (Gottsche, Lindenb. & Nees) Trevis.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Johore, Penang (Inoue & Miller 1965; Kitagawa 1969c; Wolseley *et al.* 1996; Zhu & So 1999a), Sarawak, Sabah (Menzel 1988).

Colura crenulata Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Colura cymbalifera Herz.

DISTRIBUTION IN MALAYSIA: Malay Peninsula (Jovet-Ast 1954).

Colura imperfecta Steph.

DISTRIBUTION IN MALAYSIA: Malacca, Pahang (Jovet-Ast 1954; Grolle 1966).

Colura galata Jovet-Ast

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Colura karstenii (K. I. Goebel) Steph.

DISTRIBUTION IN MALAYSIA: Malacca, Johore (Jovet-Ast 1954).

Colura leratii (Steph.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Colura ornata K. I. Goebel

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Pahang, Penang (Jovet-Ast 1954; Mizutani 1975; Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

Colura pluridentata Jovet-Ast

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Colura superba (Mont.) Steph.

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Sabah (Menzel 1988; Frahm *et al.* 1990).

Colura tenuicornis (A. Evans) Steph.

DISTRIBUTION IN MALAYSIA: Pahang, Johore (Jovet-Ast 1954; Mizutani 1961; Ohashi 1975;

Tixier 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Colura verdoornii Herz. & Jovet-Ast

DISTRIBUTION IN MALAYSIA: Pahang, Johore (Jovet-Ast 1954; Tixier 1980a).

Cryptolejeunea inflectens (Mitt.) Mizut.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Mizutani 1975).

Dactylophorella muricata (Gottsche) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Diplasiolejeunea cavifolia Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971, 1980a).

Diplasiolejeunea incurvata Jovet-Ast

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Diplasiolejeunea jovet-astiae Grolle

DISTRIBUTION IN MALAYSIA: Pahang (Kitagawa 1969c; Tixier 1980a), Sabah (Menzel 1988).

Diplasiolejeunea neobrachyclada Hatt.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a).

Diplasiolejeunea longilobula Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Diplasiolejeunea patelligera Herz.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea angustifolia Grolle

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue 1981), Sarawak (Menzel 1988).

Drepanolejeunea blumei var. *angulistipa* Herz.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea brunnea Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea ciliata Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea cyclops (Sande Lac.) Grolle & Zhu

DISTRIBUTION IN MALAYSIA: Selangor (Grolle & Zhu 2000), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea dactylophora (Gottsche, Lindenb. & Nees) Schiffn.

DISTRIBUTION IN MALAYSIA: Malacca (Hattori 1952b; Mizutani 1961, 1975, 1977, 1978), Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea dentata Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea intermedia Zwickel

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea laevicornua Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Drepanolejeunea laevicornua var. *longicornua* Herz.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea malayana Grolle

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974).

Drepanolejeunea micholitzii Herz.

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Sabah (Menzel 1988; Frahm *et al.* 1990).

Drepanolejeunea micholitzii var. *brevifolia* Herz.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a).

***Drepanolejeunea micholitzii* var. *genuine* Herz.**

DISTRIBUTION IN MALAYSIA: Johore (Herzog 1934).

***Drepanolejeunea obliqua* Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea obtriangulata* Kodama**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea ocellata* Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea pentadactyla* (Mont.) Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea pleiodictya* Herz.**

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a).

***Drepanolejeunea spicata* (Steph) Grolle
& R. L. Zhu**

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea spinoso-cornuta* Steph.**

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a).

***Drepanolejeunea tenera* K. I. Goebel**

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Tixier 1971, 1974, 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea tenera* K. I. Goebel fo. *goebelii* Herz.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea tenuis* (Reinw., Blume & Nees) Schiffn.**

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea ternatensis* (Gottsche) Steph.
var. *ternatensis***

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea ternatensis* var. *lancispina* Herz.**

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

***Drepanolejeunea teysmanii* Steph.**

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1968b), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea thwaitesiana* (Mitt.) Steph.**

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Tixier 1971, 1974, 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea tricornua* Herz.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea vesiculosa* (Mitt.) Steph.**

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b; Mizutani 1977, 1978; Zhu & So 1999a), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Drepanolejeunea vesiculosa* subsp. *propagulifera* Herz.**

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Pahang (Inoue 1967a; Wolseley *et al.* 1996), Sarawak (Menzel 1988).

***Harpalejeunea filicuspis* (Steph.) Mizut.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Harpalejeunea kinabalensis* Mizut.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Harpalejeunea spinosa* Mizut.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Hygrolejeunea crassicaulis (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Gradstein *et al.* 2002).

Lejeunea alata Gottsche

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea albescens (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea anisophylla Mont.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971), Negeri Sembilan (Wolseley *et al.* 1996), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea apiculata (Sande Lac.) R. M. Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea cocoes Mitt.

DISTRIBUTION IN MALAYSIA: Sarawak (Mizutani 1963).

Lejeunea contracta Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea dimorpha Kodama

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea discreta Lindenb. *in* Gottsche *et al.*

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea eifrigii Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea exilis (Reinw. *et al.*) Grolle

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Zhu & Grolle 2003), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea flava (Sw.) Nees

DISTRIBUTION IN MALAYSIA: Pahang (Inoue

1967a; Vaňa & Piippo 1989b; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea herzogii Mizut.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea kinabalensis Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea leratii (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea lumbricoides (Nees) Nees

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea luteola (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea micholitzii Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea microloba Tayl.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea mizutanii Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea pattersonii (Steph.) Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Lejeunea pectinella Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea pilifera Tixier

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Lejeunea sordida (Nees) Nees

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Lejeunea stephaniana Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea umbilicata (Nees) Spruce

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1980a), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea utriculata (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lejeunea wightii Lindenb.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lepidolejeunea bidentula (Jack & Steph.)

R. M. Schust.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996; Piippo *et al.* 2002), Penang (Kitagawa 1969c), Pahang (Inoue 1967a), Johore (Piippo 1986b), Sarawak (Piippo 1986b; Menzel 1988), Sabah (Piippo 1986b; Menzel 1988; Frahm *et al.* 1990).

Lepidolejeunea borneensis (Steph.)

R. M. Schust.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Juslén *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988).

Lepidolejeunea integristipula (Jack. & Steph.)

Schust.

DISTRIBUTION IN MALAYSIA: Sabah (Piippo 1986b; Menzel 1988; Frahm *et al.* 1990).

Leptolejeunea amphiothralma Zwickel

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Sabah (Menzel 1988; Frahm *et al.* 1990).

Leptolejeunea balansae Steph.

DISTRIBUTION IN MALAYSIA: Perak (Kitagawa 1960).

Leptolejeunea borneensis Herz.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Leptolejeunea elliptica (Lehm. & Lindenb.) Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Mizutani 1975; Piippo *et al.* 2002), Sabah (Menzel 1988; Frahm *et al.* 1990).

Leptolejeunea elliptica subsp. *subacuta*

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996).

Leptolejeunea epiphylla (Mitt.) Steph.

DISTRIBUTION IN MALAYSIA: Kedah, Malacca, Negeri Sembilan, Penang (Kitagawa 1969c; Tixier 1974; Mizutani 1975, 1978; Wolseley *et al.* 1996; Zhu & So 1999a), Sabah (Menzel 1988; Frahm *et al.* 1990).

Leptolejeunea foliicola Steph.

DISTRIBUTION IN MALAYSIA: Kedah, Malacca, Pahang (Amakawa 1961; Tixier 1971, 1974; Mizutani 1975).

Leptolejeunea maculata (Mitt.) Schiffn.

DISTRIBUTION IN MALAYSIA: Kedah, Perak, Pahang (Kitagawa 1960; Tixier 1974, 1980a), Negeri Sembilan (Mizutani 1975; Wolseley *et al.* 1996), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Leptolejeunea massartiana Herz. ex Schiffn.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Leptolejeunea serrulata Herz.

DISTRIBUTION IN MALAYSIA: Pahang, Penang (Inoue 1967a; Kitagawa 1969c).

Leptolejeunea spinistipula (Mizut.) X. L. He

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Leptolejeunea subacuta Steph.

DISTRIBUTION IN MALAYSIA: Malacca, Pahang (Mizutani 1961; Tixier 1971).

Leptolejeunea subdentata Schiffn. ex Herz.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Leptolejeunea vitrea* (Nees) Schiffn.**

DISTRIBUTION IN MALAYSIA: Kedah, Negeri Sembilan, Pahang, Penang, Perak (Kitagawa 1960, 1969c; Tixier 1971, 1974, 1980a; Wolseley *et al.* 1996), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Leucojeunea decurrens* (Steph.) Mizut.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Lopholejeunea applanata* (Reinw. *et al.*) Schiffn.**

DISTRIBUTION IN MALAYSIA: Perak, Sarawak (Zhu & Gradstein 2005), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Lopholejeunea borneensis* (Steph.) Verd.**

DISTRIBUTION IN MALAYSIA: Pahang, Sarawak (Zhu & Gradstein 2005), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Lopholejeunea ceylanica* Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Lopholejeunea eulopha* (Tayl.) Schiffn.**

DISTRIBUTION IN MALAYSIA: Penang (Hattori 1942c; Kitagawa 1969c; Kachroo 1970; Zhu & Gradstein 2005), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Lopholejeunea herzogiana* Steph.**

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974), Pahang, Selangor (Zhu & Gradstein 2005), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Lopholejeunea horticola* Schiffn.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

***Lopholejeunea magna* Mizut.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; Zhu & Gradstein 2005).

***Lopholejeunea nigricans* (Lindenb.) Schiffn.**

DISTRIBUTION IN MALAYSIA: Sarawak (Zhu & Gradstein 2005), Sabah (Menzel 1988; Frahm *et al.* 1990; Zhu & Gradstein 2005).

***Lopholejeunea recurvata* Mizut.**

DISTRIBUTION IN MALAYSIA: Pahang (Zhu & Gradstein 2005).

***Lopholejeunea subfusca* (Nees) Schiffn.**

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Pahang, Penang (Hattori 1942c, 1952b; Mizutani 1961, 1977; Grolle 1965; Inoue & Miller 1965; Kitagawa 1969c; Kachroo 1970; Tixier 1971, 1980a; Wolseley *et al.* 1996; Juslén *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988; Zhu & Gradstein 2005), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Lopholejeunea wiltensii* Steph.**

DISTRIBUTION IN MALAYSIA: Pahang, Selangor (Zhu & Gradstein 2005), Sabah (Akiyama *et al.* 2001).

***Lopholejeunea zollingeri* (Steph.) Schiffn.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

***Mastigolejeunea auriculata* (Wils.) Schiffn.**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Kachroo 1970; Mizutani 1977), Penang (Kitagawa 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

***Mastigolejeunea ligulata* (Lehm. & Lindenb.) Schiff.**

DISTRIBUTION IN MALAYSIA: Penang (Mizutani 1986b; Gradstein *et al.* 2002), Sabah (Menzel 1988).

***Mastigolejeunea recondita* (Steph.) Mizut.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

***Mastigolejeunea repleta* (Tayl.) Steph.**

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

***Mastigolejeunea truncata* Mizut.**

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Gradstein *et al.* 2002).

***Mastigolejeunea virens* (Aongstr.) Steph.**

DISTRIBUTION IN MALAYSIA: Penang (Mizutani 1986b).

Metalejeunea cucullata (Reinw. *et al.*) Grolle

DISTRIBUTION IN MALAYSIA: Kedah, Negeri Sembilan, Pahang (Tixier 1971, 1974, 1980a; Wolseley *et al.* 1996), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Microlejeunea constricta (Grolle) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Microlejeunea gracillima (Mitt.) Carr. & Pears.

DISTRIBUTION IN MALAYSIA: Malacca (Miller 1956; Bischler *et al.* 1961).

Microlejeunea mammillosa (Mizut.) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Microlejeunea minutissima (Mizut.) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Otolejeunea semperiana (Gottsche *ex* Steph.) Grolle

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Grolle 1985; Tixier 1980a, b; Zhu & So 1997).

Pictolejeunea mizutanii Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Ptychantus striatus (Lehm. & Lindenb.) Nees

DISTRIBUTION IN MALAYSIA: Pahang (Mizutani 1961; Kachroo 1970; Tixier 1971; Mizutani 1977), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Pycnolejeunea arietina Tixier

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974).

Pycnolejeunea cavistipula (Steph.) Mizut.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Pycnolejeunea contigua (Nees) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; He 1999).

Pycnolejeunea flavida (Mitt.) Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Pycnolejeunea grandiocellata Steph.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Wolseley *et al.* 1996), Sarawak (He 1999).

Pycnolejeunea sphaeroides (Sande Lac.)

J. B. Jack.

DISTRIBUTION IN MALAYSIA: Sabah (He 1999).

Schiffneriolejeunea cumingiana (Mont.) Gradst.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Miller 1968; Kachroo 1970), Sarawak (Menzel 1988).

Schiffneriolejeunea nymanii (Steph.) Gradst. & Terken.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Schiffneriolejeunea pulopenangensis (Gottsche) Gradst.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1969c), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Schiffneriolejeunea tumida (Nees) Gradst.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971; Gradstein *et al.* 2002; Piippo *et al.* 2002), Pahang (Inoue 1967a).

Spruceanthus polymorphus (Sande Lac.) Verd.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Kachroo 1970; Mizutani 1977; Wolseley *et al.* 1996), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Spruceanthus semirepandus (Nees) Verd.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Vaña & Piippo 1989b), Sabah (Menzel 1988; Frahm *et al.* 1990).

Spruceanthus sulcatus (Nees) Gradst.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Stictolejeunea balfourii (Mitt.) E. W. Jones
var. *balfourii*

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Taxilejeunea albescens Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Taxilejeunea apiculata (Gottsche) Spruce

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Taxilejeunea compressiuscula Lindenb.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Taxilejeunea cuculliflora Steph.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a).

Taxilejeunea luteola (Steph.) Eifrig.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Thysananthus aculeatus Herz.

DISTRIBUTION IN MALAYSIA: Pahang (Inoue 1967a, 1968b; Mizutani 1969, 1977), Sabah (Menzel 1988; Frahm *et al.* 1990).

Thysananthus comosus Lindenb. *ex* Lehm.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue & Miller 1965; Mizutani 1977; Piippo *et al.* 2002).

Thysananthus convolutus Lind.

DISTRIBUTION IN MALAYSIA: Malacca (Grolle 1967; Mizutani 1977), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Thysananthus fruticosus (Lindenb. & Gottsche) Schiffn.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan (Hattori 1942c; Mizutani 1977; Wolseley *et al.* 1996), Sabah (Menzel 1988).

Thysananthus retusus (Reinw., Blume & Nees) B. Thiers & Gradst.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971).

Thysananthus spathulistipus (Reinw.) Lindenb.

DISTRIBUTION IN MALAYSIA: Kedah, Pahang (Inoue 1965, 1967a; Hattori 1968; Kachroo 1970; Mizutani 1977; Tixier 1971, 1974; Piippo *et al.* 2002), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Thysananthus spathulistipus fo. *borneensis* (Herz.) Herz.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Tuyamaella angulistipa (Steph.) R. M. Schust. & Kachr.

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971, 1988; Zhu & So 2000), Johore (Zhu & So 2000), Sabah (Menzel 1988; Frahm *et al.* 1990).

Tuyamaella borneensis Tixier

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; Zhu & So 2000).

Tuyamaella molischii (Schiffn.) Hatt.

DISTRIBUTION IN MALAYSIA: Kedah (Tixier 1974, 1988; Zhu & So 2000).

Tuyamaella serratistipa Hatt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990; Zhu & So 2000).

Pallaviciniaceae

Jensenia decipiens (Mitt.) Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Pallavicinia ambigua Mitt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Pallavicinia leveiri Schiffn. *emend.* Grolle

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1971), Pahang (Johnson 1967; Hattori 1968), Sabah (Menzel 1988; Frahm *et al.* 1990).

Pallavicinia lyellii (Hook.) Gray

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Hattori 1952b; Juslén *et al.* 2001; Piippo *et al.* 2002), Sarawak (Menzel 1988).

Podomitrium malaccense (Steph.) Campb.

DISTRIBUTION IN MALAYSIA: Negeri Sembilan, Malacca, Penang (Grolle 1966; Kitagawa 1969c; Wolseley *et al.* 1996; Piippo *et al.* 2002), Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Aneuraceae***Aneura maxima*** (Schiffn.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Lobatiriccardia coronopus (De Not.) Furuki

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Furuki 2006).

Riccardia crassa (Schwägr.) Carr. & Pears.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Furuki 2006).

Riccardia crassiretis Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Furuki 2006).

Riccardia coronopus (De Not. *ex* Steph.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Riccardia elata (Steph.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Riccardia graeffei (Steph.) Hewson

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Piippo *et al.* 2002; Furuki 2006).

Riccardia heteroclada Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Riccardia jackii Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue 1981), Perak (Johnson 1958).

Riccardia lobata Schiffn. var. *lobata*

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Riccardia nobilis (Steph.) Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Riccardia parvula Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Perak (Johnson 1958), Pahang (Johnson 1967; Furuki 2006).

Riccardia pinguis (L.) Gray

DISTRIBUTION IN MALAYSIA: Pahang (Johnson 1967).

Riccardia ridleyi Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988), Sabah (Menzel 1988; Frahm *et al.* 1990).

Riccardia scabra Schiffn.

DISTRIBUTION IN MALAYSIA: Perak (Johnson 1958), Sabah (Menzel 1988; Frahm *et al.* 1990).

Riccardia sumatrana Schiffn.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Ricciocarpos natans (L.) Corda *in* Opiz

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988).

Metzgeriaceae***Metzgeria albinea*** Spruce

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990). Invalid name according to So (2003a).

Metzgeria consanguinea Schiffn.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Inoue 1981).

Metzgeria furcata (L.) Corda

DISTRIBUTION IN MALAYSIA: Pahang (Tixier 1971), Sabah (Menzel 1988; Frahm *et al.* 1990).

Metzgeria leptoneura Spruce

DISTRIBUTION IN MALAYSIA: Pahang (Johnson 1967), Sabah (Menzel 1988; Frahm *et al.* 1990).

Metzgeria lindbergii Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Metzgeria pubescens var. *kinabaluensis* Kuwah.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Metzgeria saccata Mitt.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Metzgeria scobina Mitt.

DISTRIBUTION IN MALAYSIA: Penang (Kitagawa 1969c), Sarawak (So 2003a).

Mizutaniaceae***Mizutania riccardioides*** Furuki & Iwatsuki

DISTRIBUTION IN MALAYSIA: Johore, Pahang, Sarawak, Sabah (Furuki & Iwatsuki 1989).

Sandeothallaceae***Sandeothallus radiculosus*** (Schiffn.) Schust.

DISTRIBUTION IN MALAYSIA: Sarawak (Menzel 1988).

Aytoniaceae***Asterella limbata*** D. G. Long & Grolle

DISTRIBUTION IN MALAYSIA: Sabah (Long 2006).

Reboulia hemisphaerica var. *javanica* Schiffn.

DISTRIBUTION IN MALAYSIA: Sabah (Menzel 1988; Frahm *et al.* 1990).

Marchantiaceae***Marchantia acaulis*** Steph.

DISTRIBUTION IN MALAYSIA: Perak, Pahang (Tixier 1971; Bischler 1989, Piippo *et al.* 2002), Sarawak, Sabah (Bischler 1989).

Marchantia emarginata Reinw., Blume & Nees

DISTRIBUTION IN MALAYSIA: Selangor (Bischler & Piippo 1991), Sabah (Menzel 1988; Bischler 1989).

Marchantia geminata Reinw., Blume & Nees

DISTRIBUTION IN MALAYSIA: Perak, Pahang, Selangor (Johnson 1958; Bischler 1989).

Marchantia linearis Lehm. & Lindenb.

DISTRIBUTION IN MALAYSIA: Malacca (Ohashi 1975).

Marchantia polymorpha L.

DISTRIBUTION IN MALAYSIA: Perak (Johnson 1958), Sabah (Menzel 1988; Frahm *et al.* 1990).

Marchantia streimannii Bischl.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Bischler & Piippo 1991), Sabah (Menzel 1988).

Marchantia treubii Schiffn.

DISTRIBUTION IN MALAYSIA: Borneo (s. loc.) (Bischler 1989).

Dumortieraceae***Dumortiera hirsuta*** (Sw.) Reinw. *et al.*

DISTRIBUTION IN MALAYSIA: Pahang (Johnson 1958), Sabah (Akiyama *et al.* 2001).

Dumortiera hirsuta var. *nepalensis* (Taylor) Frye & L. Clark

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia, Perak (Evans 1919; Hattori 1942c; Ohashi 1975), Sabah (Menzel 1988; Frahm *et al.* 1990).

Wiesnerellaceae***Wiesnerella denudata*** (Mitt.) Steph.

DISTRIBUTION IN MALAYSIA: Sabah (Akiyama *et al.* 2001).

Ricciaceae***Riccia treubiana*** Steph.

DISTRIBUTION IN MALAYSIA: Peninsular Malaysia (Meijer 1958; Piippo *et al.* 2002).

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APPENDIX

Synopsis of families and genera for Anthocerotae and Hepaticae.

The number of taxa in each genus reported from Malaysia is given in brackets following the genus name.

Family **Anthocerotaceae**

- Anthoceros* (2)
- Folioceros* (1)
- Dendroceros* (1)
- Megaceros* (1)
- Phaeoceros* (1)

Family **Haplomitriaceae**

- Haplomitrium* (1)

Family **Treubiaceae**

- Treubia* (1)

Family **Lepicoleaceae**

- Lepicolea* (2)
- Mastigophora* (4)

Family **Herbertaceae**

- Herbertus* (5)

Family **Pseudolepicoleaceae**

- Blepharostoma* (1)
- Pseudolepicolea* (1)
- Temnoma* (1)

Family **Trichocoleaceae**

- Trichocolea* (3)

Family **Lepidoziaceae**

- Acromastigum* (18)
- Bazzania* (53)
- Hygrolembidum* (1)
- Kurzia* (6)
- Lepidozia* (21)
- Mastigopelma* (1)
- Psiloclada* (1)
- Telaranea* (7)
- Zoopsis* (2)

Family **Calypogeiaceae**

- Calypogeia* (2)
- Metacalypogeia* (1)
- Mnioloma* (1)

Family **Adelanthaceae**

- Adelanthus* (1)
- Wettsteinia* (1)

Family **Cephaloziaceae**

- Cephalozia* (1)

Iwatsukia (1)

Metahygrobiella (4)

Nowellia (3)

Odontoschisma (4)

Schiffneria (1)

Family **Cephaloziellaceae**

Cephaloziella (4)

Kymatocalyx (1)

Family **Jackiellaceae**

Jackiella (3)

Family **Jungermanniaceae**

Anomacaulis (1)

Jungermannia (16)

Nardia (1)

Notoscyphus (2)

Family **Lophoziaceae**

Anastrophyllum (13)

Andrewsianthus (6)

Chandonanthus (1)

Cryptochila (1)

Denotarisia (1)

Gottschelia (1)

Jamesoniella (5)

Plicanthus (1)

Sphenolobopsis (1)

Syzygiella (3)

Tetralophozia (1)

Tritomaria (1)

Family **Gymnomitriaceae**

Apomarsupella (1)

Gymnomitrium (2)

Marsupella (2)

Family **Scapaniaceae**

Scapania (2)

Family **Geocalycaceae**

Chiloscyphus (15)

Conoscyphus (1)

Heteroscyphus (12)

Lophocolea (3)

Saccogynidium (5)

Family **Arnelliaceae**

Southbya (1)

Family **Plagiochilaceae**

Chiastocaulon (1)

Plagiochila (47)

Plagichilon (4)

Family **Acrobolbaceae**

- Acrobolbus* (1)
Tylimanthus (1)
- Family **Schistochilaceae**
Schistochila (7)
- Family **Balantiopsaceae**
Balantiopsis (1)
Isotachis (1)
- Family **Pleuroziaceae**
Eopleurozia (1)
Pleurozia (5)
- Family **Radulaceae**
Radula (35)
- Family **Porellaceae**
Porella (2)
- Family **Frullaniaceae**
Frullania (67)
- Family **Jubulaceae**
Jubula (1)
Neohattoria (1)
- Family **Lejeuneaceae**
Acrolejeunea (5)
Aphanotropis (1)
Archilejeunea (1)
Caudalejeunea (1)
Cephalolejeunea (1)
Ceratolejeunea (7)
Cheilolejeunea (21)
Cololejeunea (84)
Colura (17)
Cryptolejeunea (1)
Dactylophorella (1)
Diplasiolejeunea (6)
Drepanolejeunea (31)
Harpalejeunea (3)
Hygrolejeunea (1)
Lejeunea (27)
Lepidolejeunea (3)
Leptolejeunea (14)
Leucolejeunea (1)
Lopholejeunea (12)
- Mastigolejeunea* (6)
Metalejeunea (1)
Microlejeunea (4)
Otolejeunea (1)
Pictolejeunea (1)
Ptychanthus (1)
Pycnolejeunea (6)
Schiffneriolejeunea (4)
Spruceanthus (3)
Stictolejeunea (1)
Taxilejeunea (5)
Thysananthus (7)
Tuyamaella (4)
- Family **Pallaviciniaceae**
Jensenia (1)
Pallavicinia (3)
Podomitrium (1)
- Family **Aneuraceae**
Aneura (1)
Lobatiriccardia (1)
Riccardia (14)
Ricciocarpos (1)
- Family **Metzgeriaceae**
Metzgeria (8)
- Family **Mizutaniaceae**
Mizutania (1)
- Family **Sandeothallaceae**
Sandeothallus (1)
- Family **Aytoniaceae**
Asterella (1)
Reboulia (1)
- Family **Marchantiaceae**
Marchantia (7)
- Family **Dumortieraceae**
Dumortiera (2)
- Family **Wiesnerellaceae**
Wiesnerella (1)
- Family **Ricciaceae**
Riccia (1)