

## A Checklist of the Mosses of Vanuatu

By

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**Abstract** A checklist of the mosses of Vanuatu is given based on published reports. Totals of 33 families, 84 genera and 236 species and infraspecific taxa are recorded. The chromosome number,  $n=11$ , for *Acanthorrhynchium papillatum* is reported for the first time by the re-examination of the reported specimens.

Vanuatu, previously known as New Hebrides, is situated in the southwest region of the Pacific Ocean. Its neighbors are New Caledonia, ca. 400 km to the southwest, Fiji, ca. 800 km to the east, and the Solomon Islands, ca. 800 km to the northwest. The irregular Y-shaped archipelago in a northwest/southeast orientation consists of about 80 islands, and stretches 900 km between 13°S and 22°S latitude, and between 166°E and 175°E longitude (Fig. 1). The highest peak of 1879 m is Mt. Tabwemasana on Espiritu Santo which is the largest island in the archipelago. Geologically the islands of Vanuatu originated from volcanic activity and coral formation, and date from the Tertiary (Vitt, 1991). The total land mass is approximately 12,930 square kilometers (Whyte, 1990). From November to April the weather is warm and humid.

The mosses of Vanuatu have been reported by Mitten (1868), Brotherus & Watts (1915), Thériot (1938), Dixon (1948), and Tixier (1972, 1973, 1974). The present state of knowledge of the moss flora of Vanuatu is far from complete. There is no checklist of mosses of Vanuatu except that of Schultze-Motel (1973) who compiled a catalog of mosses of Melanesia. In January 1992 I had the opportunity to do field research at several localities on Efate and Espiritu Santo, and collected more than 500 bryophyte specimens. Based on this collection, recent reports were published by Matsui & Iwatsuki (1993), Inoue & Higuchi (1994), and Iwatsuki & Suzuki (1995).

### Checklist

The present list includes 33 families, 84 genera, and 236 species and infraspecific taxa (Table 1). The nomenclature used follows Index Muscorum (Wijk et al., 1959–1969) except for that found in more recent publications. The

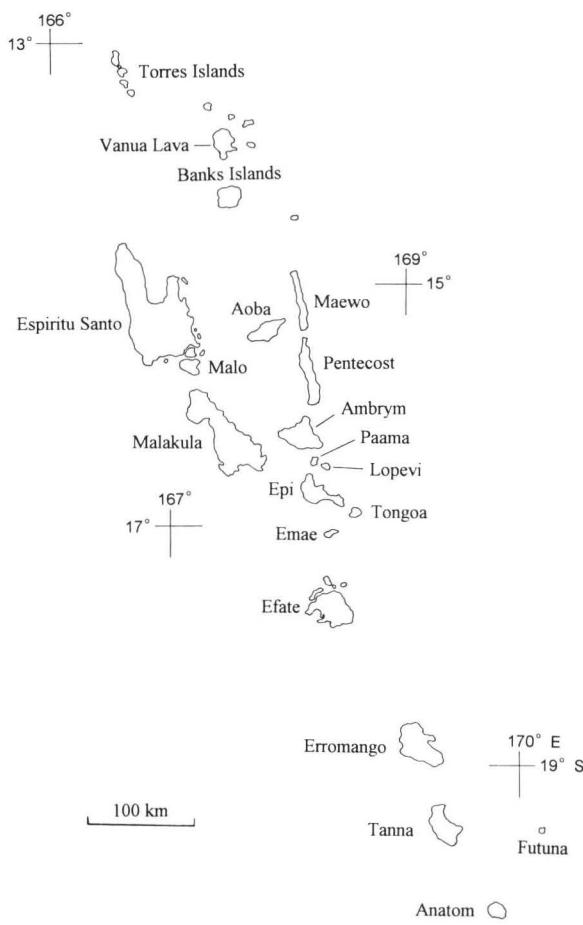


Fig. 1. Outline map of Vanuatu.

arrangement of the families follows Crosby & Magill (1978). Genera and species are arranged alphabetically in families.

### Fissidentaceae

**Fissidens angustifolius** Sull. — Iwatsuki & Suzuki (1995; Efate, Espiritu Santo).

**Fissidens consociatus** Thér. — Iwatsuki & Suzuki (1995; Espiritu Santo).

**Fissidens dealbatus** Hook. f. & Wilson — Iwatsuki & Suzuki (1995; Efate).

**Fissidens flabellulus** Thwaites & Mitt. — Iwatsuki & Suzuki (1995; Efate).

**Fissidens hollianus** Dozy & Molk. — Iwatsuki & Suzuki (1995; Efate, Espiritu Santo).

*Fissidens subscabriisetus* Broth. & Watts — Brotherus & Watts (1915, sp.

Table 1. A summary of the taxa of mosses reported from Vanuatu.

Family	Genera	Species and infraspecific taxa
Fissidentaceae	1	17
Ditrichaceae	1	1
Dicranaceae	4	12
Dicnemonaceae	1	1
Leucobryaceae	2	13
Calyperaceae	6	23
Pottiaceae	3	6
Splachnaceae	1	1
Bryaceae	2	2
Mniaceae	1	1
Calomniaceae	1	1
Rhizogoniaceae	2	4
Hypnodendraceae	1	7
Bartramiaceae	2	4
Spiridentaceae	1	4
Orthotrichaceae	1	8
Racopilaceae	2	6
Cyrtopodaceae	1	1
Myuriaceae	1	1
Pterobryaceae	7	12
Meteoriaceae	5	11
Phyllogoniaceae	1	1
Daltoniaceae	1	2
Neckeraceae	4	7
Lembophyllaceae	1	4
Hookeriaceae	3	13
Hypopterygiaceae	2	4
Thuidiaceae	3	8
Brachytheciaceae	3	6
Entodontaceae	2	4
Sematophyllaceae	10	22
Hypnaceae	7	28
Polytrichaceae	1	1
Total	84	236

nov.; Paama). cf. Iwatsuki & Suzuki (1995).

**Fissidens hyalinus** Hook. & Wilson — Iwatsuki & Suzuki (1995; Espiritu Santo).

**Fissidens lagenarius** Mitt. — Iwatsuki & Suzuki (1995; Efate, Espiritu Santo).

**Fissidens lautokensis** Dixon — Iwatsuki & Suzuki (1995; Espiritu Santo).

**Fissidens laxus** Sull. & Lesq. — Iwatsuki & Suzuki (1995; Efate, Espiritu Santo).

**Fissidens linearis** Brid. var. **obscurete** (Broth. & Paris) I. G. Stone — Iwatsuki & Suzuki (1995; Efate).

**Fissidens maceratus** Mitt. — Iwatsuki & Suzuki (1995; Efate, Espiritu Santo).

**Fissidens oblongifolius** Hook. f. & Wilson — Iwatsuki & Suzuki (1995; Efate).

- Fissidens subbryoides** Hampe ex Gangulee — Iwatsuki & Suzuki (1995; Efate).  
**Fissidens sylvaticus** Griff. — Tixier (1974; Espiritu Santo).  
**Fissidens zippelianus** Dozy & Molk. var. **zippelianus** — Thériot (1938; Tanna),  
     Iwatsuki & Suzuki (1995; Espiritu Santo).  
**Fissidens zippelianus** Dozy & Molk. var. **robinsonii** (Broth.) Z. Iwats. & Suzuki  
     — Iwatsuki & Suzuki (1995; Espiritu Santo).  
**Fissidens zollingeri** Mont. — Iwatsuki & Suzuki (1995; Efate, Espiritu Santo).

### Ditrichaceae

- Ceratodon purpureus** (Hedw.) Brid. — Tixier (1973; Tanna).

### Dicranaceae

- Campylopus caudatus** (Müll. Hal.) Mont. — Tixier (1974; Espiritu Santo).  
**Campylopus comosus** (Schwägr.) Bosch & Sande Lac. var. **auberti** Thér. —  
     Thériot (1938, var. nov.; Tanna).  
**Campylopus introflexus** (Hedw.) Brid. — Brotherus & Watts (1915; Anatom).  
**Campylopus umbellatus** (Arnold) Paris  
     *Pilopogon blumii* (Dozy & Molk.) Broth. — Brotherus & Watts (1915;  
     Anatom).  
     *Campylopus blumii* (Dozy & Molk.) Bosch & Sande Lac. — Thériot (1938;  
     Aoba).  
     *Campylopus richardii* Brid. — Tixier (1974; Espiritu Santo).  
**Campylopus verrucosus** Besch. — Tixier (1974; Espiritu Santo).  
**Campylopus** sp. — Brotherus & Watts (1915; Anatom).  
**Dicranodontium** sp. — Brotherus & Watts (1915; Futuna).  
**Dicranoloma blumii** (Nees) Paris — Tixier (1974; Espiritu Santo).  
**Dicranoloma brachysteleum** (Müll. Hal.) Paris — Müller (1897, sp. nov.;  
     Anatom), Brotherus & Watts (1915; New Hebrides).  
**Dicranoloma braunii** (Müll. Hal.) Paris — Brotherus & Watts (1915; Anatom).  
**Leucoloma molle** (Müll. Hal.) Mitt. — Tixier (1972; Anatom).  
**Leucoloma subtenuifolium** Broth. & Watts — Brotherus & Watts (1915, sp. nov.;  
     Anatom), Tixier (1973; Anatom).

### Dicnemonaceae

- Dicnemon aneitensis** (Broth. & Watts) B. H. Allen — Allen (1989; Anatom).  
     *Synodontia aneitensis* Broth. & Watts — Brotherus & Watts (1915, sp. nov.;  
     Anatom).

### Leucobryaceae

- Leucobryum aduncum** Dozy & Molk. — Dixon (1948; Anatom).
- Leucobryum aneitense** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom), Dixon (1948; Anatom).
- Leucobryum bowringii** Mitt. — Tixier (1973; Anatom), Tixier (1974; Espiritu Santo).
- Leucobryum candidum** (P. Beauv.) Wilson — Brotherus & Watts (1915; Anatom, Epi, Futuna), Thériot (1938; Erromango), Tixier (1974; Efate).
- Leucobryum chlorophyllum** Müll. Hal.
- Leucobryum stenophyllum* Besch. — Brotherus & Watts (1915; Anatom). cf. Yamaguchi & Iwatsuki (1987).
- Leucobryum conocladon** Besch. — Brotherus & Watts (1915; Anatom), Dixon (1948; Anatom).
- Leucobryum fragile** Müll. Hal., nom. nud. — Müller (1901; New Hebrides).
- Leucobryum gunnii** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom, Futuna).
- Leuobryum neo-caledonicum** Besch. — Brotherus & Watts (1915; Futuna), Dixon (1948; Anatom), Yamaguchi & Iwatsuki (1987; New Hebrides).
- Leuobryum sanctum** (Brid.) Hampe — Mitten (1873; Anatom), Fleischer (1904; New Hebrides), Brotherus & Watts (1915; Espiritu Santo).
- Octoblepharum sanctum* (Brid.) Mitt. ex Paris — Mitten (1882; Anatom).
- Leucophanes albescens** Müll. Hal.- Thériot (1938; Futuna).
- Leucophanes candidum** (Schwägr.) Lindb. — Thériot (1938; Futuna).
- Leucophanes glauculum** Müll. Hal. ex M. Fleisch. — Brotherus & Watts (1915; Espiritu Santo).
- Leucophanes octoblepharioides** Brid. — Brotherus & Watts (1915; Epi, Paama, Espiritu Santo).

### Calymperaceae

- Arthrocormus schimperi** (Dozy & Molk.) Dozy & Molk. — Brotherus (1909; Espiritu Santo, Tongoa), Brotherus & Watts (1915; Espiritu Santo), Tixier (1973, Anatom), Tixier (1974, Erromango).
- Calymperes aongstroemii** Besch. — Brotherus & Watts (1915; Espiritu Santo).
- Calymperes chamaeleontium** Müll. Hal. — Tixier (1973; Anatom).
- Calymperes serratum** A. Braun ex Müll. Hal. — Brotherus & Watts (1915; Anatom, Espiritu Santo).
- Calymperes lorifolium* Mitt. — Brotherus & Watts (1915; Anatom).
- Calymperes tahitense** (Sull.) Mitt. — Mitten (1873; Anatom), Mitten (1882; Anatom).

**Exodictyon dentatum** (Mitt.) Cardot — Brotherus & Watts (1915; Futuna, Espiritu Santo), Thériot (1938; Erromango, Futuna, Pentecost).

**Exodictyon subscabrum** (Broth.) Cardot — Brotherus & Watts (1915; Espiritu Santo).

**Mitthyridium constrictum** (Sull.) H. Rob. — Nowak (1980; Espiritu Santo, Tongoa).

*Syrrhopodon constrictus* (Sull.) Mitt. — Brotherus & Watts (1915; Espiritu Santo).

**Mitthyridium cuspidatum** (M. Fleisch.) H. Rob.

*Thyridium cuspidatum* M. Fleisch. — Tixier (1974; Erromango, Espiritu Santo).

**Mitthyridium fasciculatum** (Hook. & Grev.) H. Rob.

*Syrrhopodon fasciculatus* Hook. & Grev. — Brotherus & Watts (1915; Anatom, Epi, Espiritu Santo).

*Thyridium fasciculatum* (Hook. & Grev.) Mitt. — Tixier (1973; Anatom).

**Mitthyridium obtusifolium** (Lindb.) H. Rob.

*Thyridium obtusifolium* (Lindb.) M. Fleisch. — Thériot (1938; Erromango).

**Mitthyridium samoanum** (W. Schultze-Motel) H. Rob. — Nowak (1980; Anatom, Erromango, Espiritu Santo, Futuna).

**Octoblepharum albidum** Hedw. — Brotherus & Watts (1915; Espiritu Santo).

**Syrrhopodon albo-vaginatus** Schwägr. — Brotherus & Watts (1915; Anatom).

**Syrrhopodon japonicus** (Besch.) Broth.

*Syrrhopodon aneitensis* Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom). cf. Reese et al. (1986).

*Syrrhopodon tenuinervis* Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Futuna). cf. Reese et al. (1986).

**Syrrhopodon diversiretis** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).

**Syrrhopodon flammleonervis** Müll. Hal. subsp. *lilliei* (Broth.) Tixier

*Syrrhopodon lilliei* Broth. — Brotherus & Watts (1915, sp. nov.; Anatom).

**Syrrhopodon kindelii** Broth. & Paris — Dixon (1948; Erromango, Espiritu Santo, Tongoa).

**Syrrhopodon laevigatus** Mitt.

*Syrrhopodon graeffeanus* Müll. Hal. — Thériot (1938; Vanua Lava). cf. Schultze-Motel (1973).

**Syrrhopodon mammilosus** Müll. Hal. — Thériot (1938; Tanna).

**Syrrhopodon muelleri** (Dozy & Molk.) Sande Lac. — Brotherus & Watts (1915; Anatom, Espiritu Santo), Thériot (1938; Futuna).

**Syrrhopodon perarmatus** Broth. — Brotherus & Watts (1915, sp. nov.; Anatom, Futuna, Espiritu Santo).

**Syrrhopodon tristichus** Nees ex Schwägr. — Brotherus & Watts (1915; Espiritu

Santo), Tixier (1972; Anatom), Tixier (1973; Tanna), Tixier (1974; Tanna).

### Pottiaceae

**Barbula indica** (Hook.) Spreng. — Thériot (1938; Tanna).

**Hydrogonium aneitense** (Broth. & Watts) W. Schultze-Motel

*Barbula aneitensis* Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).

**Hydrogonium arcuatum** (Griff.) Wijk & Margad.

*Hydrogonium comosum* (Dozy & Molk.) Hilp. — Tixier (1973; Espiritu Santo).

**Hydrogonium consanguineum** (Thwaites & Mitt.) Hilp. — Tixier (1974; Espiritu Santo).

**Hydrogonium inflexum** (Duby) P. C. Chen — Tixier (1973; Espiritu Santo).

**Hyophila microphylla** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).

### Splachnaceae

**Tayloria braithwaitiana** Tixier — Tixier (1974, sp. nov. — Espiritu Santo).

### Bryaceae

**Brachymenium indicum** (Dozy & Molk.) Bosch & Sande Lac. — Brotherus & Watts (1915; Anatom).

**Epipterygium vanuatuicum** H. A. Mill. — Miller (1988, sp. nov.; Ambrym).

### Mniaceae

**Plagiomnium succulentum** (Mitt.) T. J. Kop. (?)

*Mnium 'esculentum'* Mitt. — Tixier (1974; Espiritu Santo).

Tixier (1974) reported *Mnium 'esculentum'* Mitt. (p. 35) from Espiritu Santo. However, this name is not listed on "Index Muscorum (Wijk et al., 1964, 1969)", "Index of Mosses 1963–1989 (Crosby et al., 1992)" and "Indices to the Species of Mosses and Lichens Described by William Mitten (Thiers, 1992)." Judging from the note of the range, "Népal, Assam, Indes, Ceylan, Malaisie, Japon, Indochine, Sumatra, Java, Bornéo, Nouvelle-Guinée," it may be the orthographic error of *Mnium succulentum* Mitt.

### Calomniaceae

**Calomnion melanesicum** H. A. Mill. — Miller (1987; Ambrym, Aoba, Efate, Espiritu Santo, Pentecost, Tanna).

### Rhizogoniaceae

**Pyrrhobryum medium** (Besch.) Manuel

*Rhizogonium medium* Besch. — Brotherus & Watts (1915; Anatom).

**Pyrrhobryum spiniforme** (Hedw.) Mitt. — Inoue & Higuchi (1994; Espiritu Santo).

*Rhizogonium spiniforme* (Hedw.) Bruch — Brotherus & Watts (1915; Anatom, Espiritu Santo, Futuna), Tixier (1973; Espiritu Santo).

**Rhizogonium setosum** (Mitt.) Mitt. — Mitten (1882; Anatom), Brotherus & Watts (1915; Anatom, Epi, Futuna), Thériot (1938; Erromango, Futuna), Tixier (1973; Anatom, Tanna), Tixier (1974; Anatom, Erromango, Espiritu Santo).

**Rhizogonium setosum** (Mitt.) Mitt. f. **crispulum** Thér. — Thériot (1938, f. nov.; Erromango, Tanna, Vanua Lava).

### Hypnodendraceae

**Hypnodendron dendroides** (Brid.) Touw — Touw (1971; Anatom, Espiritu Santo, Vanua Lava).

*Mniodendron densirameum* Broth. — Thériot (1938; Vanua Lava). cf. Touw (1971).

*Mniodendron hellwigii* Broth. ex Broth. — Brotherus & Watts (1915; Anatom), Dixon (1948; Anatom). cf. Touw (1971).

**Hypnodendron flagelliferum** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom), Touw (1971; Anatom), Tixier (1972; Anatom).

**Hypnodendron fusco-mucronatum** (Müll. Hal.) A. Jaeger subsp. **chalmersii** (Mitt.) Touw — Touw (1971; Espiritu Santo).

**Hypnodendron milnei** Mitt. subsp. **milnei** — Mitten (1873, sp. nov.; Anatom), Mitten (1882; Anatom), Touw (1971; Anatom).

*Mniodendron milnei* (Mitt.) Mitt. — Brotherus & Watts (1915; Anatom).

**Hypnodendron spininervium** (Hook.) A. Jaeger — Brotherus & Watts (1915; Anatom, Futuna, Espiritu Santo), Thériot (1938; Tanna).

**Hypnodendron subspininervium** (Müll. Hal.) A. Jaeger subsp. **subspininervium** — Brotherus & Watts (1915; Anatom), Thériot (1938; Futuna), Touw (1971; Anatom, Futuna, Tongoa).

*Braithwaitea arborescens* Miit. — Mitten (1882; Anatom).

**Hypnodendron vitiense** Mitt. subsp. **vitiense** — Touw (1971; Anatom, Espiritu Santo, Futuna, Tanna, Tongoa), Tixier (1973; Espiritu Santo), Tixier (1974; Espiritu Santo).

*Hypnodendron arcuatum* (Hedw.) Lindb. ex Mitt. — Tixier (1972; Anatom).

### Bartramiaceae

**Breutelia arundinifolia** (Duby) M. Fleisch. — Tixier (1974; Espiritu Santo).

**Philonotis hastata** (Duby) Wijk & Margad.

*Philonotis laxissima* Mitt. nom. illeg. — Brotherus & Watts (1915; Anatom).

**Philonotis obtusifolia** (Mitt.) Paris — Brotherus & Watts (1915; Espiritu Santo).

**Philonotis turneriana** (Schwägr.) Mitt. — Tixier (1974; Espiritu Santo).

### Spiridentaceae

**Spiridens aristifolius** Mitt. — Thériot (1938; Futuna).

**Spiridens aristifolius** Mitt. var. **pallidus** Thér. — Thériot (1938, var. nov.; Futuna).

**Spiridens flagellosus** Schimp. — Mitten (1873; Anatom), Mitten (1882; Anatom), Brotherus & Watts (1915; Anatom, Futuna, Espiritu Santo), Thériot (1938; Pentecost), Tixier (1972; Anatom), Tixier (1973; Anatom, Espiritu Santo), Tixier (1974; Efate).

**Spiridens reinwardtii** Nees — Brotherus & Watts (1915; Anatom, Espiritu Santo).

### Orthotrichaceae

**Macromitrium orthostichum** Nees ex Schwägr. — Brotherus & Watts (1915; Futuna).

**Macromitrium orthostichum** Nees ex Schwägr. subsp. **micropoma** M. Fleisch. — Tixier (1974; Anatom).

**Macromitrium pulchrum** Besch. — Dixon (1948; Anatom).

**Macromitrium reinwardtii** Schwägr. — Brotherus & Watts (1915; Anatom), Tixier (1973; Anatom).

**Macromitrium salakanum** Müll. Hal. — Tixier (1972; Anatom), Tixier (1973; New Hebrides), Tixier (1974; Anatom, Erromango).

**Macromitrium semi-pellucidum** Dozy & Molk. — Tixier (1974; Efate).

**Macromitrium subtile** Schwägr. — Brotherus & Watts (1915; Futuna, Espiritu Santo).

**Macromitrium sulcatum** (Hook.) Brid. — Tixier (1973; Anatom).

### Racopilaceae

- Powellia involutifolia** Mitt. — Inoue & Higuchi (1994; Espiritu Santo).
- Racopilum cuspidigerum** (Schwägr.) Ångstr. — Brotherus & Watts (1915; Espiritu Santo).
- Racopilum gracillimum** Müll.Hal. — Müller (1896, sp. nov.; Erromango).
- Racopilum pacificum** Besch. — Brotherus & Watts (1915; Futuna), Fleischer (1923; New Hebrides).
- Racopilum pacificum** Besch. var. **gracilescens** Besch. — Thériot (1938; Tanna).
- Racopilum spectabile** Reinw. & Hornsch. — Brotherus & Watts (1915; Anatom, Futuna, Espiritu Santo), Thériot (1938; Aoba), Tixier (1974; Erromango), Inoue & Higuchi (1994; Espiritu Santo).

### Cyrtopodaceae

- Bescherellia elegantissima** Duby — Brotherus & Watts (1915; Anatom), Bartram (1953; Anatom).

### Myuriaceae

- Myurium rufescens** (Reinw. & Hornsch.) M. Fleisch. subsp. **purpuratum** (Mitt.) Maschke
- Oedidcladium purpuratum* Mitt. — Mitten (1882; Anatom).
- Myurium purpuratum* (Mitt.) Dixon & Thér. — Brotherus & Watts (1915; Anatom).

### Pterobryaceae

- Calyptothecium urvilleanum** (Müll. Hal.) Broth. — Brotherus & Watts (1915; Espiritu Santo), Tixier (1974; Espiritu Santo).
- Euptychium dumosum** (Besch.) Broth. — Bartram (1953; New Hebrides).
- Euptychium setigerum** (Sull.) Broth. subsp. **setigerum** — During (1977; Anatom, Efate, Futuna).
- Euptychium assimile* Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Futuna), Tixier (1972; Anatom). cf. During (1977).
- Euptychium gunnii* Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom), Tixier (1973; Anatom), Tixier (1974; Erromango). cf. During (1977).
- Euptychium setigerum** (Sull.) Broth. subsp. **austro-caledonicum** (Besch.) During
- Euptychium austro-caledonicum* (Besch.) Broth. — Tixier (1974; Anatom).
- Garovaglia elegans** (Dozy & Molk.) Hampe ex Bosch & Sande Lac. — During

(1977; Anatom, Espiritu Santo, Futuna).

*Endotrichella elegans* (Dozy & Molk.) M. Fleisch. — Dixon (1948; Anatom).

*Endotrichella campbelliana* Hampe — Hampe (1874, sp. nov.; Anatom), Mitten (1882; Anatom), Brotherus & Watts (1915; Anatom). cf. During (1977).

*Endotrichella samoana* (Mitt.) Müll. Hal. — Thériot (1938; Futuna). cf. During (1977).

**Pterobryella rigida** (Mitt.) Touw — Touw (1971; Anatom).

*Hypnodendron rigidum* Mitt. — Mitten (1873, sp. nov.; Anatom), Mitten (1882; Anatom), Brotherus & Watts (1915; Anatom).

*Pterobryella vagapensis* Müll. Hal. — Brotherus & Watts (1915; Anatom), Tixier (1972; Anatom). cf. Schultze-Motel (1973).

**Sympysodon gunnii** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom, Epi, Futuna), Tixier (1974; Erromango).

**Sympysodon neckeroides** Dozy & Molk.

*Sympysodon micholitzii* Broth. — Brotherus & Watts (1915; Espiritu Santo).

**Sympysodon vitianus** (Sull.) Broth. — Brotherus & Watts (1915; Anatom, Epi, Espiritu Santo), Tixier (1973; Anatom).

**Sympysodontella cylindracea** (Mont.) M. Fleisch. — Brotherus & Watts (1915; Anatom).

**Sympysodontella cylindracea** (Mont.) M. Fleisch. var. **attenuata** Thér. — Thériot (1910, var. nov.; Anatom).

**Trachyloma tahitense** Besch. — Tixier (1974; Espiritu Santo).

### Meteoriaceae

**Aerobryopsis longissima** (Dozy & Molk.) M. Fleisch. — Brotherus & Watts (1915; Anatom, Epi, Espiritu Santo), Tixier (1972; Anatom), Tixier (1973; Tanna).

**Aerobryopsis striatula** (Mitt.) Broth. — Mitten (1873, sp. nov.; Anatom), Brotherus & Watts (1915; Anatom, Epi, Futuna).

**Aerobryopsis vitiana** (Sull.) M. Fleisch. — Brotherus & Watts (1915; Espiritu Santo).

**Barbella futunensis** Thér. — Thériot (1938, sp. nov.; Futuna).

**Floribundaria floribunda** (Dozy & Molk.) M. Fleisch. — Brotherus & Watts (1915; Espiritu Santo), Thériot (1938; Futuna), Tixier (1973; Anatom, Banks, Efate, Espiritu Santo), Tixier (1974; Espiritu Santo).

**Floribundaria floribunda** (Dozy & Molk.) M. Fleisch. var. **brevifolia** (Ren. & Cardot) M. Fleisch. — Thériot (1938; Efate, Pentecost).

**Floribundaria floribunda** (Dozy & Molk.) M. Fleisch. var. **latifolia** Cardot — Thériot (1938; Futuna, Pentecost).

**Floribundaria pseudo-floribunda** M. Fleisch. — Brotherus & Watts (1915; Anatom, Futuna, Paama, Espiritu Santo).

**Meteoriump miquelianum** (Müll. Hal.) M. Fleisch. — Brotherus & Watts (1915; Anatom, Epi, Futuna), Thériot (1938; Futuna), Tixier (1973; Tanna).

**Papillaria helictophylla** (Mont.) Broth. — Brotherus & Watts (1915; Futuna), Thériot (1938; Futuna).

**Papillaria pellucida** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom, Futuna).

### Phyllogoniaceae

**Orthorrhynchium cylindricum** (Lindb.) Broth. — Brotherus & Watts (1915; Espiritu Santo), Thériot (1938; Foutuna, Pentecost).

### Daltoniaceae

**Cyathophorella spinosa** (Müll. Hal.) M. Fleisch. — Brotherus & Watts (1915; Espiritu Santo).

**Cyathophorella tahitensis** (Besch.) M. Fleisch. — Brotherus & Watts (1915; Anatom), Tixier (1974; Espiritu Santo).

### Neckeraceae

**Himantocladium flagelliferum** (Broth.) Broth. — Thériot (1938; Pentecost).

**Himantocladium loriforme** (Bosch & Sande Lac.) M. Fleisch. — Brotherus & Watts (1915; Epi), Tixier (1974; Espiritu Santo).

**Himantocladium plumula** (Nees) M. Fleisch. — Tixier (1974; Espiritu Santo).

**Homaliodendron flabellatum** (Sm.) M. Fleisch. — Tixier (1973; New Hebrides).  
*Homaliodendron dendroides* (Hook.) M. Fleisch. — Brotherus & Watts (1915; Anatom, Futuna).

**Homaliodendron microdendron** (Mont.) M. Fleisch. — Tixier (1973; Espiritu Santo).

**Neckeropsis lepineana** (Mont.) M. Fleisch. — Brotherus & Watts (1915; Anatom, Epi, Futuna), Thériot (1938; Pentecost), Touw (1962; Anatom, Futuna, Tanna), Tixier (1973; Anatom).

**Thamnobryum aneitense** (Mitt.) W. Schultze-Motel

*Porotrichum aneitense* Mitt. — Mitten (1873; Anatom).

**Thamnium aneitense** (Mitt.) Mitt. — Mitten (1882; Anatom), Brotherus & Watts (1915; Anatom).

### Lembophyllaceae

**Camptochaete arbuscula** (Sm.) Reichardt var. **deflexa** (Wilson) Dixon

*Camptochaete deflexa* (Wilson) A. Jaeger — Tixier (1972; Anatom).

**Camptochaete leichhardtii** (A. Jaeger) Broth. — Brotherus & Watts (1915; Anatom).

*Thamnium leichhardtii* (A. Jaeger) Kindb. — Kindberg (1902; New Hebrides).

**Camptochaete porotrichoides** (Besch.) Broth. — Brotherus & Watts (1915; Anatom), Bartram (1953; Anatom), Tixier (1973; Anatom).

**Camptochaete prolongata** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).

### Hookeriaceae

**Callicostella campbelliana** (Hampe) A. Jaeger — Brotherus & Watts (1915; New Hebrides).

*Hookeria campbelliana* Hampe- Hampe (1874, sp. nov.; Anatom).

**Callicostella frateri** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Paama).

**Callicostella oblongifolia** (Sull.) A. Jaeger — Brotherus & Watts (1915; Espiritu Santo).

**Callicostella papillata** (Mont.) Mitt. — Matsui & Iwatsuki (1993; Efate, Espiritu Santo).

**Chaetomitrium aneitense** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).

**Chaetomitrium aneitense** Broth. & Watts f. **brachiphylla** Dixon — Dixon (1948, f. nov.; Anatom).

**Chaetomitrium hebridense** Dixon — Dixon (1948, sp. nov.; Efate).

**Chaetomitrium tahitense** (Sull.) Mitt. var. **deplanchei** (Besch.) Wijk & Margad. *Chaetomitrium geheebei* Broth. — Brotherus & Watts (1915; Espiritu Santo).

**Chaetomitrium torquescens** Bosch. & Sande Lac. — Tixier (1973; New Hebrides).

**Distichophyllum capillatum** Mitt. — Mitten (1882, sp. nov. — Anatom).

**Distichophyllum graeffeanum** (Müll. Hal.) Broth. — Matsui & Iwatsuki (1993; Espiritu Santo).

**Distichophyllum mittenii** Bosch & Sande Lac. — Brotherus & Watts (1915; Anatom), Matsui & Iwatsuki (1993; Espiritu Santo).

**Distichophyllum vitianum** (Sull.) Mitt. — Brotherus & Watts (1915; Futuna).

### Hypopterygiaceae

**Hypopterygium bowiei** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Espiritu Santo).

**Hypopterygium micholitzii** Paris — Brotherus & Watts (1915; Espiritu Santo).

**Hypopterygium tenellum** Müll. Hal.

*Hypopterygium neo-caledonicum* Besch. — Brotherus & Watts (1915; Anatom, Futuna), Tixier (1972; Anatom). cf. Schultze-Motel (1973).

**Lopidium struthiopteris** (Brid.) M. Fleisch.

*Hypopterygium javanicum* (Hampe) A. Jaeger — Brotherus & Watts (1915; Anatom).

### Thuidiaceae

**Herpetineuron toccoae** (Sull. & Lesq.) Cardot — Brotherus & Watts (1915; Epi), Thériot (1938; Ambrym).

**Pelekium velatum** Mitt. — Brotherus & Watts (1915; Epi, Espiritu Santo), Tixier (1973; Espiritu Santo).

**Thuidium campbellianum** (Hampe) A. Jaeger — Mitten (1882; New Hebrides), Brotherus & Watts (1915; New Hebrides).

*Cryo-hypnum campbellianum* Hampe — Hampe (1874, sp. nov.; Err-mango).

**Thuidium cymbifolium** (Dozy & Molk.) Dozy & Molk. — Brotherus & Watts (1915; Anatom, Espiritu Santo), Tixier (1974; Espiritu Santo, Efate).

**Thuidium ramentosum** (Mitt.) Mitt. — Brotherus & Watts (1915; Anatom, Epi).

**Thuidium glaucinoides** Broth. — Brotherus & Watts (1915; Espiritu Santo), Fleischer (1923; New Hebrides), Thériot (1938; Futuna), Tixier (1974; Espiritu Santo).

**Thuidium glacineum** (Mitt.) Bosch & Sande Lac. — Brotherus & Watts (1915; Anatom, Epi, Espiritu Santo), Thériot (1938; Tanna), Tixier (1973; Anatom, Espiritu Santo).

**Thuidium meyenianum** (Hampe) Dozy & Molk. — Hürlimann (1965; New Hebrides), Tixier (1973; Espiritu Santo), Tixier (1974; Mallicolo).

**Thuidium plumulosum** (Dozy & Molk.) Dozy & Molk. — Brotherus & Watts (1915; Espiritu Santo), Thériot (1938; Aniwa, Pentecost, Tanna).

### Brachytheciaceae

**Eurhynchium savatieri** Besch.

*Oxyrrhynchium savatieri* (Besch.) Broth. — Thériot (1938; Tanna).

**Rhynchostegiella menadense** (Sande Lac.) E. B. Bartram

*Rhynchostegium menadense* (Sande Lac.) A. Jaeger — Brotherus & Watts (1915; Epi).

**Rhynchostegiella vitiensis** Dixon — Thériot (1938; Efate, Tanna).**Rhynchostegium javanicum** (Bél.) Besch. — Brotherus & Watts (1915; Espiritu Santo).**Rhynchostegium oblongifolium** Broth. & Watts — rotherus & Watts (1915, sp. nov.; Futuna, Espiritu Santo).**Rhynchostegium trachypelma** (Müll. Hal.) A. Jaeger

*Rhynchostegium javanicum* (Bél.) Besch. var. *majus* Besch. — Tixier (1974; Espiritu Santo, Mallicolo).

**Entodontaceae****Entodon aneitensis** Mitt. — Mitten (1882, sp. nov.; Anatom).**Entodon pallidus** Mitt. — Mitten (1873, sp. nov.; Anatom), Brotherus & Watts (1915; Epi, Futuna).**Entodon plicatiformis** Dixon — Dixon (1948, sp. nov.; Efate).**Plagiotheciopsis oblonga** (Broth.) Broth. — Brotherus & Watts (1915; New Hebrides).**Sematophyllaceae****Acanthorrhynchium papillatum** (Harv.) M. Fleisch. — Thériot (1938; Err-mango).

*Taxithelium papillatum* (Harv.) Broth. — Brotherus & Watts (1915; Anatom).

Inoue & Higuchi (1994) reported the chromosome number of *Trichosteleum gunnii* based on the plants (*Higuchi 21141, 21145*) from Espiritu Santo Island. However these are the misidentification of *Acanthorrhynchium papillatum*. The chromosome number,  $n=11$ , for *A. papillatum* is reported for the first time.

**Acanthorrhynchium substigmosum** (Müll. Hal.) M. Fleisch. — Thériot (1938; Futuna, Pentecost).

*Taxithelium substigmosum* (Müll. Hal.) Broth. — Brotherus & Watts (1915; Espiritu Santo).

**Acpororium hamulatum** (M. Fleisch.) M. Fleisch. — Tixier (1974; Espiritu Santo).**Acpororium hermaphroditum** (Müll. Hal.) M. Fleisch. — Thériot (1938; Aoba).**Acpororium oxyporum** (Sande Lac.) M. Fleisch. — Dixon (1948; Anatom, Efate).

*Sematophyllum serricalyx* Broth. & Watts — Brotherus & Watts (1915, sp.

nov.; Anatom, Epi, Futuna, Espiritu Santo).

**Acporium sigmatodontium** (Müll. Hal.) M. Fleisch. — Thériot (1938; Futuna).

*Sematophyllum sigmatodontium* (Müll. Hal.) A. Jaeger — Brotherus & Watts (1915; Espiritu Santo).

**Acporium turgidum** (Mitt.) Mitt. — Tixier (1973; Tanna), Tixier (1974; Erromango, Espiritu Santo).

*Sematophyllum turgidum* (Mitt.) Mitt. — Brotherus & Watts (1915; Anatom).

**Aptychella glabrifolia** (Broth. & Watts) Broth.

*Sematophyllum glabrifolium* Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).

**Clastobryum hebridense** Broth. — Brotherus & Watts (1915, sp. nov.; Anatom).

**Rhaphidostichum bunodicarpum** (Müll. Hal.) M. Fleisch.

*Sematophyllum bunodiocarpum* (Müll. Hal.) Broth. — Brotherus & Watts (1915; Anatom, Epi).

**Sematophyllum microcladiellum** M. Fleisch. — Tixier (1974; Erromango).

**Taxithelium annandii** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Espiritu Santo).

**Trichosteleum gunnii** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).

**Trichosteleum hamatum** (Dozy & Molk.) A. Jaeger var. **semi-mammillosum** (Müll. Hal.) Paris — Brotherus & Watts (1915; Anatom), Tixier (1973; Anatom, Tanna).

**Trichosteleum hebridarum** W. Schultze-Motel

*Trichosteleum subtile* Broth. & Watts, hom. illeg. — Brotherus & Watts (1915, sp. nov.; Paama).

**Trichosteleum neocaledonicum** Thér. — Dixon (1948; Erromango).

**Trichosteleum pickeringii** (Sull.) A. Jaeger — Brotherus & Watts (1915; Anatom, Espiritu Santo), Inoue & Higuchi (1994; Espiritu Santo).

**Trichosteleum subrhinophyllum** (Müll. Hal.) A. Jaeger — Thériot (1938; Vanua Lava).

**Trismegistia complanatula** (Müll. Hal.) Müll. Hal. — Brotherus & Watts (1915; Anatom, Espiritu Santo), Tixier (1972; Anatom), Tixier (1973; Anatom).

**Trismegistia pedunculata** (Mitt.) Broth. — Brotherus & Watts (1915; Anatom).

*Acanthocladium pedunculatum* Mitt. — Mitten (1882, sp. nov.; Anatom).

**Trismegistia ridida** (Mitt.) Broth.

*Sematophyllum rigidum* (Mitt.) Mitt. — Mitten (1873; Anatom).

**Wijika tanytricha** (Mont.) H. A. Crum

*Acanthocladium tanytrichum* (Mont.) Broth. — Tixier (1972; Anatom).

### Hypnaceae

- Ectropothecium aneitense** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom).
- Ectropothecium aubertii** Thér. — Thériot (1938, sp. nov.; Vanua Lava), Tixier (1973; Tanna), Tixier (1974; Erromango).
- Ectropothecium bowiei** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Espiritu Santo).
- Ectropothecium buitenzorgii** (Bél.) Mitt.  
*Ectropothecium brachiphyllum* Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom). cf. Schultze-Motel (1973).
- Ectropothecium gunnii** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Anatom), Thériot (1938; Vanua Lava), Dixon (1948; Anatom).
- Ectropothecium ichnotocladum** (Müll. Hal.) A. Jaeger — Tixier (1974; Espiritu Santo).
- Ectropothecium laticuspis** Broth. — Thériot (1938; Vanua Lava).
- Ectropothecium malacoblastum** (Müll. Hal.) A. Jaeger — Thériot (1938; Futuna).
- Ectropothecium micholitzii** Broth. — Brotherus & Watts (1915; Epi, Futuna), Thériot (1938; Pentecost).
- Ectropothecium pacificum** Mitt. — Mitten (1868, sp. nov.; Erromango), Müller (1874; Erromango), Brotherus & Watts (1915; Anatom), Inoue & Higuchi (1994; Espiritu Santo).
- Ectropothecium percomplanatum** Broth. — Brotherus & Watts (1915; Epi, Espiritu Santo).
- Ectropothecium sodale** (Sull.) Mitt. — Brotherus & Watts (1915; Espiritu Santo), Inoue & Higuchi (1994; Espiritu Santo).
- Ectropothecium tannaense** Thér. — Thériot (1938, sp. nov.; Tanna), Tixier (1974; Espiritu Santo).
- Ectropothecium tannaense** Thér. f. *inundata* Thér. — Thériot (1938, f. nov.; Tanna).
- Ectropothecium zollingeri** (Müll. Hal.) A. Jaeger  
*Glossadelphus obscurum* (Broth. & Paris) Broth. — Tixier (1974; Espiritu Santo). cf. Higuchi & Iwatsuki (1994).
- Isopterygium albescens** (Hook.) A. Jaeger — Tixier (1974; Efate), Inoue & Higuchi (1994; Espiritu Santo).
- Isopterygium gunnii** Broth. & Watts — Brotherus & Watts (1915, sp. nov.; Futuna).
- Isopterygium minutirameum** (Müll. Hal.) A. Jaeger  
*Isopterygium austro-pusillum* (Müll. Hal.) A. Jaeger — Thériot (1938; Tanna).

**Isopterygium sarasinii** Thér. — Thériot (1938; Futuna).

**Mittenothamnium nano-operculatum** (Thér.) W. Schultze-Motel

*Microthamnium nano-operculatum* Thér. — Thériot (1938, sp. nov.; Pentecost).

**Pseudotaxiphyllum pohliaecarpum** (Sull. & Lesq.) Z. Iwats.

*Isopterygium pohliaecarpum* (Sull. & Lesq.) A. Jaeger — Tixier (1973; Espiritu Santo).

**Taxiphyllum taxirameum** (Mitt.) M. Fleisch. — Inoue & Higuchi (1994; Espiritu Santo).

*Isopterygium taxirameum* (Mitt.) A. Jaeger — Brotherus & Watts (1915; Epi, Futuna, Espiritu Santo).

**Taxiphyllum taxirameum** (Mitt.) M. Fleisch. f. **gracilis** Thér. — Thériot (1938; Tanna).

**Trachythecium hebridense** (Dixon) W. Schultze-Motel

*Ectropothecium hebridense* Dixon — Dixon (1948, sp. nov.; Anatom, Efate, Erromango).

**Vesicularia aperta** (Sull.) Thér. — Thériot (1938; Futuna), Tixier (1974; Mallioco).

**Vesicularia inflectens** (Brid.) Müll. Hal. — Brotherus & Watts (1915; Epi), Thériot (1938; Futuna), Inoue & Higuchi (1994; Espiritu Santo).

*Vesicularia subinflexens* Müll. Hal. — Tixier (1974; Espiritu Santo).

**Vesicularia perviridis** (Ångstr.) Müll. Hal. — Dixon (1948; Efate).

**Vesicularia pinnatula** Müll. Hal. ex Broth. — Inoue & Higuchi (1994; Espiritu Santo).

### Polytrichaceae

**Pogonatum neesii** (Müll. Hal.) Dozy — Hyvönen (1989; Vanuatu).

*Pogonatum circinatum* Besch. — Brotherus & Watts (1915; Anatom), Tixier (1973; Espiritu Santo), Tixier (1974; Espiritu Santo). cf. Hyvönen (1989).

*Polytrichum collieanum* Müll. Hal. — Müller (1897, sp. nov.; Anatom). cf. Hyvönen (1989).

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## References

- Allen, B. H., 1989. The genus *Dicnemon* (Musci: Dicnemonaceae) in New Caledonia. *Hikobia* 10: 245–267.
- Bartram, E. B., 1953. New Caledonian mosses collected by Dr. O. H. Selling. *Bot. Not.* 1953: 197–203.
- Brotherus, V. F., 1909. Contribution à la flore bryologique de la Nouvelle Calédonie. *Oefv. Finsk. Vet. Soc. Foerh.* 51A(17): 1–31.
- Brotherus, V. F. & W. W. Watts, 1915. The mosses of the New Hebrides. *J. Roy. Soc. New South Wales* 49: 127–157.
- Crosby, M. R. & R. E. Magill, 1978. A Dictionary of Mosses. 43 pp. Missouri Botanical Garden, St. Louis.
- Crosby, M. R., R. E. Magill & C. R. Bauer, 1992. Index of Mosses 1963–1989. 646 pp. Monographs in Systematic Botany from the Missouri Botanical Garden, vol. 42. Missouri.
- Dixon, H. N., 1948. Notes on the moss collection of the Royal Botanic Garden, Edinburgh, Part II. *Notes Roy. Bot. Gard. Edinburgh* 20: 93–102.
- During, H. J., 1977. A Taxonomical Revision of the Garovaglioideae (Pterobryaceae, Musci). 244 pp. *Bryophytorum Bibliotheca*, 12. J. Cramer Verlag, Vaduz.
- Fleischer, M., 1904. Die Musci der Flora von Buitenzorg. Band I, pp. I–XXIX, 1–379. Leiden.
- Fleischer, M., 1923. Die Musci der Flora von Buitenzorg. Band IV, pp. I–XXXI, 1105–1729. Leiden.
- Hampe, E., 1874. Species muscorum novas ex Herbario Melbourneo Australiae. *Linnaea* 38: 661–672.
- Higuchi, M. & Z. Iwatsuki, 1994. New Caledonian *Ectropothecium* (Hypnaceae). *J. Hattori Bot. Lab.* 75: 85–95.
- Hürlimann, H., 1965. Weitere Laubmoose von den Tonga-Inseln. *Bauhinia* 2—289–294.
- Hyvönen, Jaakko, 1989. A synopsis of genus *Pogonatum* (Polytrichaceae, Musci). *Acta Bot. Fennica* 138: 1–87.
- Inoue, S. & M. Higuchi, 1994. Chromosome numbers on some mosses from Vanuatu. *Hikobia* 11: 479–482.
- Iwatsuki, Z. & T. Suzuki, 1995. *Fissidens* (Musci, Fissidentaceae) in Vanuatu (New Hebrides) collected by Dr. M. Higuchi. *Fragsm. Flor. Geobot.* 40: 153–158.
- Kindberg, N. C., 1902. Grundzge einer Monographie der Labumoss-Gattung *Thamnium*. *Hedwigia* 41: 203–268.
- Matsui, T. & Z. Iwatsuki, 1993. Callicostaceae and Daltoniaceae (Hookeriales, Musci) from Fiji and Vanuatu. *Hikobia* 11: 281–284.
- Miller, H. A. 1987. Pacific bryophytes: 5. A new Calomnion (Calomniaceae) from Melanesia. *Mem. New York Bot. Gard.* 45: 599–601.
- Miller, H. A., H. O. Whittier & B. A. Whittier, 1978. *Prodromus Florae Muscorum Polynesiae*. 334 pp. *Bryophytorum Bibliotheca*, 16. J. Cramer Verlag, Vaduz.
- Mitten, W., 1868. A list of the Musci collected by the Rev. Thomas Powell in the Samoa or Navigator's Islands. *J. Linn. Soc. Bot.* 10: 166–195.
- Mitten, W., 1873. Musci. In B. Seemann, *Flora Vitiensis*, pp. 378–404. London.
- Mitten, W., 1882. Record of new localities of Polynesian mosses, with descriptions of some hitherto undefined species. *Proc. Linn. Soc. New South Wales* 7(1): 98–104.
- Müller, C., 1874. Musci polynesiaci praesertim Vitiani et Samoani Graeffeani. *J. Mus. Goddeffroy* 3(6): 51–90.
- Müller, C., 1887. Musci exotici. *Rev. Bryol.* 14: 56–58.

- Müller, C., 1896. *Bryologia Hawaiiica adjectis nonnullis muscis novis oceanicis*. Flora 82: 434–479.
- Müller, C., 1897. *Symbolae ad Bryologiam Australiae I*. Hedwigia 36: 331–365.
- Nowak, H., 1980. Revision der Laubmoosgattung *Mitthyridium* (Mitten) Robinson für Ozeanien (Calymporaceae). 236 pp. Bryophytorum Bibliotheca, 20. J. Cramer Verlag, Vaduz.
- Ramsay, H. P., J. Seur, P. G. Wilson & T. Goodwin, 1990. Register of type specimens of mosses in Australian herbaria. General introduction and Part I. Special collections at NSW—Lord Howe Island, Vanuatu (New Hebrides). Telopea 3: 571–592.
- Reese, W. D., T. Koponen & D. H. Norris, 1986. Bryophyte flora of the Huon Peninsula, Papua New Guinea. XIX. *Calympères*, *Syrrhopodon* and *Mitthyridium* (Calymporaceae, Musci). Acta Bot. Fennica 133: 151–202.
- Schutlz-Motel, W., 1973. Katalog der Laubmose von Melanesien. Willdenowia 7: 47–82.
- Thériot, I., 1910. Diagnoses d'espèces et de variétés nouvelles de mousses 7. Bull. Acad. Int. Géogr. Bot. 20: 96–104.
- Thériot, I., 1938. Sur une collection de mousses des Nouvelles-Hébrides. Rev. Bryol. Lichénol. 10: 128–135.
- Thiers, B. M., 1992. Indices to the Species of Mosses and Lichens Described by William Mitten. 113 pp. Memoirs of the New York Botanical Garden, vol. 68. New York.
- Tixier, P., 1972. Mousses exotiques. Bull. Mus. Hist. Nat. (Paris), ser. 3, 48: 89–98.
- Tixier, P., 1973. Bryophytes exotiques. Bull. Mus. Hist. Nat. (Paris), ser. 3, 190: 73–86.
- Tixier, P., 1974. Bryophytes exotiques—Bryophytes des Nouvelles-Hébrides (expédition de la Royal Society). Bull. Mus. Hist. Nat. (Paris), ser. 3, 269: 33–45.
- Touw, A., 1962. Revision of the moss-genus *Neckeropsis* (Neckeraceae) I. Asiatic and Pacific species. Blumea 11: 373–425.
- Touw, A., 1971. A taxonomic revision of the Hypnodendraceae (Musci). Blumea 19: 211–354.
- Vitt, D. H., 1991. Distribution patterns, adaptive strategies, and morphological changes of mosses along elevational and latitudinal gradients on South Pacific islands. In P. L. Nimis & T. J. Crovello (eds.), Quantitative Approaches to Phytogeography, pp. 205–231. Kluwer Academic Publishers.
- Whyte, J. (ed.), 1990. Vanuatu. 10 Years of Independence. 279 pp. Other People Publications, Rozelle.
- Wijk, R. van der, W. D. Margadant & P. A. Florschütz, 1964. Index Muscorum (Hypnum-O). 529 pp. Utrecht.
- Wijk, R. van der, W. D. Margadant & P. A. Florschütz, 1969. Index Muscorum (T-Z, Appendix). 922 pp. Utrecht.
- Yamaguchi, T. & Z. Iwatsuki, 1987. New Caledonian *Leucobryum* (Musci). J. Hattori Bot. Lab. 63: 473–491.

## Appendix

### Synonyms

*Acanthocladium pedunculatum* = *Trismegistia pedunculata*

*Acanthocladium tanytrichum* = *Wijika tanytricha*

*Barbula aneitensis* = *Hydrogonium aneitense*

*Braithwaitea arborescens* = *Hypnodendron subspininervium*

*Calympères lorifolium* = *Calympères serratum*

*Camptochaete deflexa* = *Camptochaete arbuscula* var. *deflexa*

- Campylopus blumii* = *Campylopus umbellatus*  
*Campylopus richardii* = *Campylopus umbellatus*  
*Chaetomitrium geheebii* = *Chaetomitrium tahitense*  
*Cryo-hypnum campbellianum* = *Thuidium campbellianum*  
*Ectropothecium brachiphyllum* = *Ectropothecium buitenzorgii*  
*Ectropothecium hebridense* = *Trachythecium hebridense*  
*Endotrichella campbelliana* = *Garovaglia elegans*  
*Endotrichella elegans* = *Garovaglia elegans*  
*Endotrichella samoana* = *Garovaglia elegans*  
*Eptychium assimile* = *Eptychium setigerum* subsp. *setigerum*  
*Eptychium austro-caledonicum* = *Eptychium setigerum* subsp. *austro-caledonicum*  
*Eptychium gunnii* = *Eptychium setigerum* subsp. *setigerum*  
*Fissidens subscabrisetus* = *Fissidens hollianus*  
*Glossadelphus obscurum* = *Ectropothecium zollingeri*  
*Homaliodendron dendroides* = *Homaliodendron flabellatum*  
*Hookeria campbelliana* = *Callicostella campbelliana*  
*Hydrogonium comosum* = *Hydrogonium arcuatum*  
*Hypnodendron rigidum* = *Pterobryella rigida*  
*Hypnodendron arcuatum* = *Hypnodendron vitiense* subsp. *vitiense*  
*Hypopterygium javanicum* = *Lopidium struthiopteris*  
*Hypopterygium neo-caledonicum* = *Hypopterygium tenellum*  
*Isopterygium austro-pusillum* = *Isopterygium minutirameum*  
*Isopterygium pohliaecarpum* = *Pseudotaxiphyllum pohliaecarpum*  
*Isopterygium taxirameum* = *Taxiphyllum taxirameum*  
*Leucobryum stenophyllum* = *Leucobryum chlorophyllosum*  
*Microthamnium nano-operculatum* = *Mittenothamnium nano-operculatum*  
*Mniodes dendroides* = *Hypnodendron dendroides*  
*Mniodes hellwigii* = *Hypnodendron dendroides*  
*Mniodes milnei* = *Hypnodendron milnei* subsp. *milnei*  
*Mnium succulentum* = *Plagiomnium succulentum*  
*Myurium purpuratum* = *Myurium rufescens* subsp. *purpuratum*  
*Octoblepharum sanctum* = *Leucobryum sanctum*  
*Oedipodium purpuratum* = *Myurium rufescens* subsp. *purpuratum*  
*Oxyrrhynchium savatieri* = *Eurhynchium savatieri*  
*Philonotis laxissima* = *Philonotis hastata*  
*Pilopogon blumii* = *Campylopus umbellatus*  
*Pogonatum circinatum* = *Pogonatum neesii*  
*Polytrichum collieanum* = *Pogonatum neesii*  
*Porotrichum aneitense* = *Thamnobryum aneitense*  
*Pterobryella vagapensis* = *Pterobryella rigida*

- Rhizogonium medium* = Pyrrhobryum medium  
*Rhizogonium spiniforme* = Pyrrhobryum spiniforme  
*Rhynchosstegium javanicum* var. *majus* = Rhynchosstegium trachypelma  
*Rhynchosstegium menadense* = Rhynchosstegiella menadense  
*Sematophyllum bunodiocarpum* = Rhaphidostichum bunodicarpum  
*Sematophyllum glabrifolium* = Aptychella glabrifolia  
*Sematophyllum rigidum* = Trismegistia ridida  
*Sematophyllum serricalyx* = Acporium oxyporum  
*Sematophyllum sigmatodontium* = Acporium sigmatodontium  
*Sematophyllum turgidum* = Acporium turgidum  
*Symphysodon micholitzii* = Symphysodon neckeroides  
*Synodontia aneitensis* = Dicnemon aneitensis  
*Syrrhopodon aneitensis* = Syrrhopodon japonicus  
*Syrrhopodon constrictus* = Mitthyridium constrictum  
*Syrrhopodon fasciculatus* = Mitthyridium fasciculatum  
*Syrrhopodon graeffeanus* = Syrrhopodon laevigatus  
*Syrrhopodon lilliei* = Syrrhopodon flammeonervis subsp. lilliei  
*Syrrhopodon tenuinervis* = Syrrhopodon japonicus  
*Taxithelium papillatum* = Acanthorrhynchium papillatum  
*Taxithelium substigmosum* = Acanthorrhynchium substigmosum  
*Thamnium aneitense* = Thamnobryum aneitense  
*Thamnium leichhardtii* = Camptochaete leichhardtii  
*Thuidium ramentosum* = Thuidium cymbifolium  
*Thyridium cuspidatum* = Mitthyridium cuspidatum  
*Thyridium fasciculatum* = Mitthyridium fasciculatum  
*Thyridium obtusifolium* = Mitthyridium obtusifolium  
*Trichosteleum subtile* = Trichosteleum hebridarum  
*Vesicularia subinfllectens* = Vesicularia inflectens