



## Notes on Early Land Plants Today. 66. Nomenclatural notes on Acrobolbaceae

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### Introduction

The liverwort family Acrobolbaceae Hodgson (1962: 117) is primarily distributed in the Southern Hemisphere and is currently described as containing three subfamilies and seven genera with approximately 60 accepted species names. The subfamily Acrobolboideae (or Acrobolbaceae *s. str.*) has historically contained the genera *Acrobolbus* Gottsche *et al.* (1844: 5), *Marsupidium* Mitt. in Hooker (1867: 751), and *Tylimanthus* Mitt. in Hooker (1867: 751).

*Tylimanthus* and *Marsupidium* were originally described in the same publication of New Zealand liverworts (Mitten 1867). In establishing these two genera, Mitten separated taxa that had previously been grouped together in an illegitimate genus, *Gymnanthe* Lehmann (1844: 1). He listed *Gymnanthe saccata* (Hooker 1818: pl. 16) Lehmann (1844: 1) in *Tylimanthus*, and *Gymnanthe urvillianiana* (Montagne 1843: 247) Gottsche *et al.* (1845: 193) as a member of *Marsupidium*. Although the species had clear vegetative similarities, Mitten separated the genera on the basis of the position of reproductive branches (gametangia). Regardless of morphological similarities and the fact that both genera were erected using taxa from the same illegitimate genus, it would take almost one hundred years before these two genera would be recognized under the same family, Acrobolbaceae (Hodgson 1962).

When the family Acrobolbaceae was erected based on an understanding of New Zealand taxa, all *Tylimanthus* species were transferred to *Acrobolbus* due to an “overlap” of the genera (Hodgson 1962). Based on their study of South American species, Hässel and Solari (1972) transferred all *Marsupidium* species to *Tylimanthus* as per their interpretation of the variability of gametangial placement seen by their own observations as well as those of Engel and Grolle (1971).

At the species level, taxonomists have identified potential cryptic species, distinguished by molecular and geographic distance, as in *Tylimanthus andinopatagonicus* Stech *et al.* (2006: 28). Burghardt & Gradstein (2008) took the opposite approach, synonymizing over ten species throughout tropical America, Africa and Macaronesia under one extremely widespread and variable species, *Tylimanthus laxus* (Lindenberg 1840: 68) Spruce (1885: 502). Recent molecular and morphological studies in the Acrobolboideae (Briscoe *et al.* 2014) have revealed that the generic concepts of *Acrobolbus*, *Marsupidium*, and *Tylimanthus* are not representative of natural groups, allowing the authors to formally recognize what has been suggested by others (Stech *et al.* 2006), and transfer all taxa in this subfamily to *Acrobolbus*, the oldest available name.

At the species level we place *Tylimanthus andinopatagonicus* as a synonym of *Acrobolbus urvillianus* (Montagne 1843: 247) Trevisan (1877: 423) as the use of additional molecular markers revealed the two taxa to be monophyletic. We also recognize *Acrobolbus azoricus* (Grolle & Persson 1966: 169) *comb. nov.*, *Acrobolbus madeirensis* (Grolle & Persson 1966: 166) *comb. nov.* and *Acrobolbus ruwenzorensis* (Arnell 1956: 560) as separate taxa from *Acrobolbus laxus* (Lindenberg 1840: 68) *comb. nov.*, based on the combination of their being recovered as monophyletic clades and their isolated geography (Briscoe *et al.* 2014).

### Formal treatment

The format of this note follows Söderström *et al.* (2012).

**Acrobolboideae R.M.Schust. ex Briscoe, subfam. nov.** Based on:—Acrobolboideae R.M.Schust., *Hepat. Anthocerotae N. Amer.* 4:543, 1974 (Schuster 1980), nom. inval. (ICN Art. 39.1; no Latin description). Type:—*Acrobolbus* Nees in Gottsche *et al.* (1844: 5). Note:—The description in Schuster (1980: 543) validates the subfamily.

The subfamily was historically comprised of *Acrobolbus* (incl. *Tylimanthus* Mitt. in Hooker 1867: 753) and *Marsupidium* Mitt. in Hooker (1867: 751). ***Acrobolbus* Nees, Syn. Hepat.** 1: 5, 1844 (Gottsche *et al.* 1844). Type:—*Acrobolbus wilsonii* Nees in Gottsche *et al.* (1847: 5).

= *Gymnanthe* Taylor ex Lehm., *Nov. Stirp. Pug.* 8: 1, 1844 (Lehmann 1844), *nom. illeg.* Type:—*Gymnanthe tenella* Lehmann (1844: 1).

= *Tylimanthus* Mitt., *Handb. N. Zeal. Flora* 2: 751, 1867 (Hooker 1867), syn. by Hodgson (1962). Type:—*Tylimanthus saccatus* *Handb. N. Zeal. Flora* 2: 753, 1867 (Hooker 1818: pl. 16) Hooker (1867: 753).

= *Marsupidium* Mitt., *Handb. N. Zeal. Flora* 2: 751, 1867 (Hooker 1867), **syn. nov.** Type:—*Marsupidium knightii* Mitt. in Hooker (1867: 753).

= *Hypogastranthus* Schiffn., *Hedwigia* 48: 304, 1909 (Schiffner 1909). Type:—*Hypogastranthus sumatranus* (Schiffner 1898: 203) Schiffner (1909: 306). Note:—Syn. with *Marsupidium* in Grolle (1972).

***Acrobolbus africanus* (Pearson) Briscoe, comb. nov.**, Basionym:—*Tylimanthus africanus* Pearson, *Forh. Vidensk.-Selsk. Kristiania* 1887 (9): 14, 1887 (Pearson 1887). Type:—SOUTH AFRICA. Western Cape: Knysna, 28 October 1883, *H. Iversen* (*hb. Kiaer no. 38 et 43*) (O).

***Acrobolbus anisodontus* (Hook.f. et Taylor) Briscoe, comb. nov.** Basionym:—*Jungermannia anisodonta* Hook.f. et Taylor, *London J. Bot.* 4: 79, 1845 (Hooker & Taylor 1845). Type:—ST. HELENA. *Voy. Erebus et Terror* ≡ *Tylimanthus anisodontus* (Hook.f. et Taylor) Mitt., *Melliss, St. Helena*: 368 (Mitten 1875).

***Acrobolbus azoricus* (Grolle et H.Perss.) Briscoe, comb. nov.** Basionym:—*Tylimanthus azoricus* Grolle et H.Perss., *Svensk Bot. Tidskr.* 60: 169, 1966 (Grolle & Persson 1966). Type:—PORTUGAL. Azores: Flores, Lagoa Rasa near Lagens, 400 m, 24 August 1937, *Allorge s.n.* (S-48106, holotype; JE!-H3155, isotype).

***Acrobolbus cuneifolius* (Steph.) Briscoe, comb. nov.** Basionym:—*Tylimanthus cuneifolius* Steph., *Bull. Herb. Boissier (sér. 2) 5* (12): 1138 (*Spec. Hepat.* 3: 10), 1905 (Stephani 1905). Type:—VENEZUELA. Valencia, *Fendler, (Stephani herb. no. 5730)* (G-00120031, lectotype [Burghardt & Gradstein 2008: 208] [<http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=159233&lang=en>]; S-B5768, isolectotype).

***Acrobolbus epiphytus* (Colenso) Briscoe, comb. nov.** Basionym:—*Marsupidium epiphytum* Colenso, *Trans. & Proc. New Zealand Inst.* 21: 64, 1889 (Colenso 1889), “*epiphyta*.” Type:—NEW ZEALAND. Waipawa: Norsewood, 1885, *W. Colenso* ≡ *Tylimanthus epiphytus* (Colenso) Hamlin, *Rec. Domin. Mus.* 8: 149, 1973 (Hamlin 1973).

***Acrobolbus flavicans* (J.J.Engel et Grolle) Briscoe et J.J.Engel, comb. nov.** Basionym:—*Marsupidium flavicans* J.J.Engel et Grolle, *J. Hattori Bot. Lab.* 34: 438, 1971 (Engel & Grolle 1971). Type:—CHILE, Magallanes: Brunswick Peninsula, Puerto del Hambre, *Hatcher H. 7-10* (UWM!, holotype; F!, isotype). ≡ *Tylimanthus flavicans* (J.J.Engel et Grolle) Hässel et Solari, *Darwiniana* 17: 579, 1972 (Hässel & Solari 1972).

***Acrobolbus gradsteinii* (Grolle) Briscoe, comb. nov.** Basionym:—*Marsupidium gradsteinii* Grolle, *J. Hattori Bot. Lab.* 66: 337, 1989 (Grolle 1989). Type:—GUYANA. Upper Mazaruni: N slope of Mt. Roraima, *Gradstein 5111* (JE!, holotype; U, isotype).

***Acrobolbus integrifolius* (A.Evans) Briscoe, comb. nov.** Basionym:—*Tylimanthus integrifolius* A.Evans, *Trans. Connecticut Acad. Arts.* 8: 259, 1891 (Evans 1891). Type:—USA. Hawaii: East and West Maui, *Baldwin 95, 103*.

***Acrobolbus knightii* (Mitt.) Briscoe, comb. nov.** Basionym:—*Marsupidium knightii* Mitt., *Hooker, Handb. N. Zeal. Flora* 2: 753, 1867 (Mitten 1867). Type:—NEW ZEALAND. *Knight* (NY!). ≡ *Tylimanthus knightii* (Mitt.) Hässel et Solari, *Darwiniana* 17: 586, 1972 (Hässel & Solari 1972).

- Acrobolbus kunkelii* (Hässel et Solari) Briscoe et J.J.Engel, *comb. nov.*** Basionym:—*Tylimanthus kunkelii* Hässel et Solari, *Darwiniana* 17: 574, 1972 (Hässel & Solari 1972). Type:—CHILE. Isla de Mocha, 18 October 1958, Kunkel n. 2050/5 (BA-21024!, holotype).
- Acrobolbus laxus* (Lehm. et Lindenb.) Briscoe, *comb. nov.*** Basionym:—*Plagiochila laxa* Lehm. et Lindenb., *Sp. Hepat. (Lindenberg)* 2–4: 68, 1840 (Lindenberg 1840). Type:—GUADELOUPE. *herb. Hookeri* (W, lectotype [Burghardt & Gradstein 2008: 200]). ≡ *Tylimanthus laxus* (Lehm. et Lindenb.) Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 502, 1885 (Spruce 1885).
- Acrobolbus limbatus* (Steph.) Briscoe et J.J.Engel, *comb. nov.*** Basionym:—*Tylimanthus limbatus* Steph., *Kungl. Svenska Vetensk.-Akad. Handl. (n.f.)* 46 (9): 25, 1911 (Stephani 1911). Type:—CHILE. Magallanes: Cal. Rayo, 4 June 1908, C. Skottsberg (G, holotype; UPS-B532511!, S! isotypes). ≡ *Marsupidium limbatum* (Steph.) Grolle, *Bot. Mag. (Tokyo)* 78 (921): 82, 1965 (Grolle 1965).
- Acrobolbus madeirensis* (Grolle et H.Perss.) Briscoe, *comb. nov.*** Basionym:—*Tylimanthus madeirensis* Grolle et H. Perss., *Svensk Bot. Tidskr.* 60: 166, 1966 (Grolle & Persson 1966). Type:—PORTUGAL. Madeira: Fanal, 28 July 1952, Manuel de Nóbrega (S-B48581, holotype. isotypes).
- Acrobolbus papillosus* (J.J.Engel et Glenn) Briscoe, *comb. nov.*** Basionym:—*Marsupidium papillosum* J.J.Engel et Glenn, *Nova Hedwigia* 87 (374): 289, 2008 (Engel & Glenn 2008). Type:—NEW ZEALAND., South Island: Fiordland, Fiordland, Smithy Creek, N of Mt. Eglinton, *Engel & von Konrat 27419* (F!, holotype; CHR, isotype).
- Acrobolbus perpusillus* (Colenso) Briscoe, *comb. nov.*** Basionym:—*Tylimanthus perpusillus* Colenso, *Trans. & Proc. New Zealand Inst.* 19: 286, 1887 (Colenso 1887). Type:—NEW ZEALAND. Waipawa: Porangahau, 1886, H.Hill.
- Acrobolbus perpusillus* var. *denticulatum* (J.J.Engel et Glenn) Briscoe, *comb. nov.*** Basionym:—*Marsupidium perpusillum* var. *denticulatum* J.J.Engel et Glenn, *Nova Hedwigia* 87 (3/4): 284, 2008 (Engel & Glenn 2008): Type:—NEW ZEALAND. South Island: Otago Prov., Old Man Range, Symes Road, *Engel 23247* (F!, holotype; CHR, isotype). Note:—This combination also creates the autonym.
- Acrobolbus plagiochiloides* (J.J.Engel et Glenn) Briscoe, *comb. nov.*** Basionym:—*Marsupidium plagiochiloides* J.J.Engel et Glenn, *Nova Hedwigia* 87 (3/4), 284 (Engel & Glenn 2008). Type:—NEW ZEALAND. South Island: Westland Prov., Mt. Aspiring Natl. Park, *Engel 17841* (F!, holotype; CHR 592015, isotype).
- Acrobolbus pseudosaccatus* (Grolle) Briscoe, *comb. nov.*** Basionym:—*Tylimanthus pseudosaccatus* Grolle, *Nova Hedwigia* 6 (3/4): 391, 1963 (Grolle 1963). Type:—AUSTRALIA. Tasmania: Leprena, 1911, *Weymouth* (MANCH, holotype).
- Acrobolbus renifolius* (Hässel et Solari) Briscoe et J.J.Engel, *comb. nov.*** Basionym:—*Tylimanthus renifolius* Hässel et Solari, *Darwiniana* 17: 583, 1972 (Hässel & Solari 1972). Type:—CHILE: Tierra del Fuego, Desolación Island, Puerto Augusto, 1 April 1896, *Dusén 217* (UPS-B532501/B-532505!, S-B48585!, H). *nom. nov. pro* ≡ *Tylimanthus integrifolius* Steph., *Kungl. Svenska Vetensk.-Akad. Handl. (n.f.)* 46 (9): 14, 1911 (Stephani 1911), *nom. illeg.* (ICN Art. 53.1; non A.Evans 1892). ≡ *Marsupidium renifolium* (Hässel et Solari) R.M.Schust., *Phytologia* 39 (4): 250, 1978 (Schuster 1978). Non *Acrobolbus integrifolius* (A.Evans) Briscoe.
- Acrobolbus ruwenzoriensis* (S.W.Arnell) Briscoe, *comb. nov.*** Basionym:—*Tylimanthus ruwenzorensis* S.W.Arnell, *Ark. Bot. (n. s.)* 3 (16): 560, 1956 (Arnell 1956). Type:—UGANDA. Ruwenzori, Mobuku Valley, *O. Hedberg no* 339f (UPS, holotype).
- Acrobolbus setulosus* (Mitt.) Briscoe, *comb. nov.*** Basionym:—*Gymnanthe setulosa* Mitt., *Hooker, Bot. Antarct. Voy. II (Fl. Nov.-Zel. 2)*: 144, 1852 (Mitten 1852). Type:—NEW ZEALAND. North Island: Tararua, *Colenso*. ≡ *Marsupidium setulosum* (Mitt.) Mitt., *Hooker, Handb. N. Zeal. Flora* 2: 753, 1867 (Mitten 1867). ≡ *Tylimanthus setulosus* (Mitt.) Hamlin, *Rec. Domin. Mus.* 8: 149, 1973 (Hamlin 1973).

***Acrobolbus sumatranus* (Schiffn.) Briscoe, comb. nov.** Basionym:—*Lophozia sumatrana* Schiffn., *Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl.* 67: 203, 1898 (Schiffner 1898). Type:—SUMATRA. West Sumatra: Mt. Merapi, 30 July 1894, (Schiffner 606). ≡ *Tylimanthus sumatranus* (Schiffn.) Steph., *Bull. Herb. Boissier (sér. 2)* 5 (12): 1140 (Stephani 1905). ≡ *Marsupidium sumatranum* (Schiffn.) Grolle, *J. Hattori Bot. Lab.* 36: 550, 1973 (Grolle 1973).

***Acrobolbus tenellus* var. *diversifolius* (E.A.Hodgs.) Briscoe, comb. nov.** Basionym:—*Tylimanthus diversifolius* E.A.Hodgs., *Trans. Roy. Soc. New Zealand* 85 (4): 575 (Hodgson 1958). Type:—NEW ZEALAND. South Island: Bealey River, 1874, *Berggren 3150* (LD-1266317, holotype; S-B48110, isotype). ≡ *Tylimanthus tenellus* var. *diversifolius* (E.A.Hodgs.) J.J.Engel, *Nova Hedwigia* 93 (3/4): 403, 2011 (Engel 2011). Note:—This combination also creates the autonym.

***Acrobolbus urvillianus* (Mont.) Trevis., Mem. Reale Ist. Lombardo Sci. (Ser. 3), C. Sci. Mat.** 4 (13): 423, 1877 (Trevisan 1877). Basionym:—*Plagiochila urvilliana* Mont., *Ann. Sci. Nat. Bot. (sér. 2)* 19: 247, 1843 (Montagne 1843). Type:—CHILE. Strait of Magellan, *Dumont d'Urville*. (PC, holotype; STR, isotype). = *Tylimanthus andinopatagonicus* M.Stech et W.Frey, *Nova Hedwigia* 83 (1/2): 28, 2006 (Stech et al. 2006), **syn. nov.** Type:—CHILE, La Araucanía: ENE Villarrica, 6 March 2001, *W.Frey & F.Schaumann 01-195a* (VALD, holotype; F!, herb. W.Frey, isotypes).

***Acrobolbus viridis* (Mitt.) Briscoe et J.J.Engel, comb. nov.** Basionym:—*Tylimanthus viridis* Mitt., *J. Linn. Soc. Bot.* 15 (84): 197, 1877 (Mitten 1876). Type:—KERGUELEN. Royal Sound, 20 October 1874, *Rev. Eaton* (NY!).

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