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Notes on Early Land Plants Today. 8. New combinations and some lectotypifications in *Mesoptychia*

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Mesoptychia sahlbergii (Lindberg & Arnell 1889) Evans (1903), was shown by de Roo *et al.* (2007), Vilnet *et al.* (2011) and Masuzaki *et al.* (2010) to belong to Jungermanniaceae and to be a sister of or nested within *Leiocolea* (Müller 1913) Buch (1933). The type of the genus *Hattoriella* (Inoue 1957) Inoue (1961a) [*Hattoriella diversiloba* (= *H. morrisoncola*)] is also nested within *Leiocolea* (Yatsentyuk *et al.* 2004). The three genera *Mesoptychia*, *Leiocolea* and *Hattoriella* should thus be regarded as one. Since the oldest genus is *Mesoptychia*, the necessary new combinations are made here.

***Mesoptychia* (Lindb. et Arnell) A.Evans**, *Ottawa Naturalist* 17: 15, 1903 (Evans 1903).
Basionym:—*Jungermannia* sect. β *Mesoptychia* Lindb. et Arnell, *Kongl. Svenska Vetensk.-Akad. Handl. n.f.* 23 (5): 39, 1889 (Lindberg & Arnell 1889). Type:—*Jungermannia sahlbergii* Lindb. et Arnell.

= *Lophozia* subgen. *Leiocolea* Müll.Frib., *Rabenh. Krypt.-Fl.*, ed. 2, 6 (17): 711, 1913 (Müller 1913), **syn. nov.**
Type:—*Lophozia muelleri* (Nees ex Lindenb.) Dumort. [= *Mesoptychia collaris* (Nees) L.Söderstr. et Váňa].
Leiocolea (Müll.Frib.) H.Buch.

= *Lophozia* subgen. *Hattoriella* Inoue, *Bot. Mag. (Tokyo)* 70: 360, 1957 (Inoue 1957), **syn. nov.** Type:—*Lophozia diversiloba* S.Hatt. 1944 [= *Mesoptychia morrisoncola* (Horik.) L.Söderstr. et Váňa]. *Hattoriella* (Inoue) Inoue, *Leiocolea* subgen. *Hattoriella* (Inoue) Schljakov.

***Mesoptychia badensis* (Gottsche ex Rabenh.) L.Söderstr. et Váňa comb. nov.** Basionym:—*Jungermannia badensis* Gottsche ex Rabenh., *Hepat. Eur., Leberm.* 11-12: no. 95, 1895 (Rabenhorst 1895). Lectotype (here designated):—GERMANY, Baden, an triefenden Stellen der Molassesandfelsen bei Überlingen, leg. Jack (Rabenh. *Hep. Europ. Exs. no. 95. Dresden. 1859*) (JE!; isolectotypes in BUC!, GOET, HAL, JE!, ROST, S!).

= *Leiocolea badensis* (Gottsche ex Rabenh.) Jørg., *Bergens Mus. Skr. n.s.* 16: 166, 1934 (Jørgensen 1934).

***Mesoptychia bantriensis* (Hook.) L.Söderstr. et Váňa comb. nov.** Basionym:—*Jungermannia bantriensis* Hook., *Brit. Jungerm.*: pl. 41, 1813 (Hooker 1813). Lectotype (here designated):—IRELAND, Bantry, leg. Hutchins (BM!).

= *Leiocolea bantriensis* (Hook.) Jørg., *Bergens Mus. Skr. n.s.* 16: 164, 1934 (Jørgensen 1934).

***Mesoptychia bantriensis* subsp. *wallfischii* (Ștefănuț) L.Söderstr. et Váňa comb. nov.**
Basionym:—*Leiocolea bantriensis* subsp. *wallfischii* Ștefănuț, *Hornwort Liverwort Romania*: 21, 2008 (Ștefănuț 2008). Holotype:—ROMANIA, Southern Carpathians, Bucegi Massif, Lăptici Peatbog, 1470 m alt., coord. 45°22'26"N / 25°26'23"E, 28 July 2005, leg. Ștefănuț S. (BUCA B5209). Note:—This entry also creates the autonym.

Mesoptychia chichibuensis (Inoue) L.Söderstr. et Váňa comb. nov. Basionym:—*Lophozia chichibuensis* Inoue, *J. Jap. Bot.* 36: 41, 1961 (Inoue 1961b). Holotype:—JAPAN, Mt. Buko, Chichibu distr., Saitama pref., 800m, *Inoue n.5604* (TNS-174460!; isotype in NICH-45965!).

≡ *Leiocolea chichibuensis* (Inoue) Inoue, *J. Jap. Bot.* 39: 105, 1964 (Inoue 1964).

Mesoptychia collaris (Nees) L.Söderstr. et Váňa, comb. nov. Basionym:—*Jungermannia collaris* Nees, *Fl. Crypt. Erlang.*: 15, 1817 (Martius 1817). Lectotype (Grolle 1971): SWITZERLAND, Basel, leg *Friedrich Nees von Esenbeck, Frater* (STR [sub *Jung. barbata* C. *collaris*]).

≡ *Leiocolea collaris* (Nees) Schljakov, *Novosti Sist. Nizsh. Rast.* 13: 228, 1976 (Schljakov 1976).

Mesoptychia fitzgeraldiae (Paton et A.R.Perry) L.Söderstr. et Váňa, comb. nov. Basionym:—*Leiocolea fitzgeraldiae* Paton et A.R.Perry, *J. Bryol.* 18: 470, 1995 (Paton & Perry 1995). Holotype:—IRELAND, Leitrim, south of Glencar Lough, on limestone outcrop in gully, 215 m altitude, 16 August 1965, A.R. Perry (NMW; isotypes in BM!, E, JE, PC, G).

Mesoptychia gillmanii (Austin) L.Söderstr. et Váňa, comb. nov. Basionym:—*Jungermannia gillmanii* Austin, *Bull. Torrey Bot. Club* 3: 12, 1872 (Austin 1872). Holotype:—USA, in a cave in a cliff of Potsdam sandstone, Traine Island, Lake Superior (Michigan), *Henry Gillman* 1867 (NY).

≡ *Leiocolea gillmanii* (Austin) A.Evans, *Bryologist* 38: 83, 1935 (Evans 1935).

Mesoptychia heterocolpos (Thed. ex Hartm.) L.Söderstr. et Váňa comb. nov. Basionym:—*Jungermannia heterocolpos* Thed. ex Hartm., *Handb. Skand. Fl., ed. 3*: 328, 1838 (Hartman 1838). Type:—Herjed. Hede past. Dal. Idre. N Fämundstrakten: *Thedenius*. Lectotype (designated here): NORWAY, Hedmark, Fämundstrakten, in ripa lacus Gröfvvelsjön, Jul. 1836, leg. *Thedenius* (S-B188912).

≡ *Leiocolea heterocolpos* (Thed. ex Hartm.) H.Buch, *Memoranda Soc. Fauna Fl. Fenn.* 8: 284, 1932 [1933] (Buch 1933).

Mesoptychia heterocolpos var. arctica (S.W.Arnell) L.Söderstr. et Váňa comb. nov. Basionym:—*Leiocolea arctica* S.W.Arnell, *Svensk Bot. Tidskr.* 44: 374, 1950 (Arnell 1950). Lectotype (Mårtensson 1955)—: SWEDEN, Torne Lappmark, Allesvage: Gardetjåkko, 1350 m, 1946.08.23, coll. *O. Mårtensson* (UPS B-557451). Note:—Mårtensson (1955) designated a lectotype but did not specify the herbarium. Mårtensson's main herbarium is in UPS with duplicates in S. This specimen corresponds to Mårtensson's selection without any duplicate in S.

≡ *Leiocolea heterocolpos* var. *arctica* (S.W.Arnell) Mårtensson *Kungl. Svenska Vetenskapsakad. Avh. Naturskyddsärenden* 12: 43, 1955 (Mårtensson 1955).

Mesoptychia heterocolpos var. harpanthoides (Bryhn et Kaal.) L.Söderstr. et Váňa comb. nov. Basionym:—*Lophozia harpanthoides* Bryhn et Kaal., *Rep. Second Norweg. Arctic Exped.* 11: 33, 1906 (Bryhn 1906). Lectotype (Frye & Clark 1945):—CANADA, Fram Fiord, southeast Ellesmere I., ca 76°20' N., 80°55' W. *Simmons* (O). Note:—The autonym is created by this and the previous name.

≡ *Leiocolea heterocolpos* var. *harpanthoides* (Bryhn et Kaal.) R.M.Schust. ex S.W.Arnell, *Ill. Moss Fl. Fennosc. Hep.*: 112, 1956 (Arnell 1956).

Mesoptychia holmeniana (Inoue et Steere) L.Söderstr. et Váňa comb. nov. Basionym:—*Lophozia holmeniana* Inoue et Steere, *J. Hattori Bot. Lab.* 44: 285, 1978 (Steere & Inoue 1978). Holotype:—USA, Alaska, Noluck Lake, De Long Mountains, Brooks Range; north-facing mountainside tundra, ca. 700 m alt, coll. *WCS[teere]* no. 72-345 (NY; isotype in TNS-50086!).

≡ *Leiocolea holmeniana* (Inoue et Steere) Konstant. *Arctoa* 9: 33, 2000, “*holmenianum*” (Konstantinova 2000).

***Mesoptychia igiana* (S.Hatt.) L.Söderstr. et Váňa comb. nov.** Basionym:—*Lophozia igiana* S.Hatt., *J. Jap. Bot.* 31: 201, 1956 (Hattori 1956). Holotype:—JAPAN, Shikoku: Tokushima pref., Mt. Tsurugi, 1740m, leg. Kodama, n.7248, 1954 (NICH-54251; isotype in TNS-179283).

≡ *Leiocolea igiana* (S.Hatt.) Inoue, *J. Hattori Bot. Lab.* 25: 190, 1962 (Inoue 1962).

***Mesoptychia mamatkulovii* (Duda) L.Söderstr. et Váňa comb. nov.** Basionym:—*Lophozia mamatkulovii* Duda, *Trans. Brit. Bryol. Soc.* 6: 82, 1970 (Duda 1970). Holotype:—TADZHIKISTAN, Pamir:, mts. Darvacskij, decl. septentr., convallis fluminis Obi-Chingou, angustiae Jachnak-Dara, 2450m, supra mare, No.7328, 10. 7.1965 leg. U.K. Mamatkulov (LE; isotypes in OP!, Herb. Váňa!).

≡ *Leiocolea mamatkulovii* (Duda) Duda, *Novosti Sist. Nizsh. Rast.* 10: 270, 1973 (Abramov *et al.* (1973)).

***Mesoptychia mayebarae* (S.Hatt.) L.Söderstr. et Váňa comb. nov.** Basionym:—*Cephalozia mayebarae* S.Hatt., *J. Hattori Bot. Lab.* 3: 37 1948 [1950] (Hattori 1950). Holotype:—JAPAN, Prov. Higo; Hitoyoshi, K. Mayebara, 1. Jun. 1947 (NICH-11565!).

≡ *Leiocolea mayebarae* (S.Hatt.) Furuki et Mizut., *Bryol. Res.* 8: 310, 2004 (Furuki & Mizutani 2004), ≡ *Hattoriella mayebarae* (S.Hatt.) Inoue, *J. Hattori Bot. Lab.* 23: 40, 1960 [1961] (Inoue 1961a).

***Mesoptychia morrisoncola* (Horik.) L.Söderstr. et Váňa comb. nov.** Basionym:—*Lophozia morrisoncola* Horik., *J. Sci. Hiroshima Univ., Ser. B., Div. 2, Bot.* 2: 150, 1934 (Horikawa 1934). Holotype:—TAIWAN, Formosa: Mt. Morrison (Tâtaka-Niitakashita), prov. Tainan leg. Y. Horikawa, no. 11305, Aug. 1932 (HIRO!).

≡ *Leiocolea morrisoncola* (Horik.) Furuki et Mizut., *Bryol. Res.* 8: 310, 2004 (Furuki & Mizutani 2004), ≡ *Hattoriella morrisoncola* (Horik.) Bakalin, *Arctoa* 12: 93, 2003 (Bakalin 2003).

= *Lophozia diversiloba* S.Hatt., *J. Jap. Bot.* 20: 265, 1944 (Hattori 1944). ≡ *Hattoriella diversiloba* (S.Hatt.) Inoue, *J. Hattori Bot. Lab.* 23: 40, 1960 [1961] (Inoue 1961a). ≡ *Leiocolea diversiloba* (S.Hatt.) Schljakov, *Novosti Sist. Nizsh. Rast.* 15: 245, 1978 (Schljakov 1978), syn. by Kitagawa (1981).

***Mesoptychia rutheana* (Limpr.) L.Söderstr. et Váňa comb. nov.** Basionym:—*Jungermannia rutheana* Limpr., *Jahresber. Schles. Ges. Vaterl. Cult.* 61: 207, 1884 (Limpricht 1884). Lectotype (Grolle 1976):—POLAND, bei Neue Welt unweit Bärwalde in der Neumark. *R. Ruthe. Gott. et Rabenh. Hep. Europ. Exs. no. 583. Dresden. 1873 sub Jung. bantriensis* (JE!; isolectotypes in G-17360, GOET, H, M, S!).

≡ *Leiocolea rutheana* (Limpr.) Müll.Frib. *Kl. Kryptogamenfl. Mitteleuropas* I: 40, 1940 (Gams 1940).

***Mesoptychia rutheana* var. *laxa* (Schiffn. ex Burrell) L.Söderstr. et Váňa comb. nov.** Basionym:—*Lophozia schultzii* var. *laxa* Schiffn. ex Burrell, *J. Bot.* 49: 217, 1911 (Burrell 1911). Type:—UNITED KINGDOM, in loco uliginoso, Flordon, Norfolk, 25 m alto legit W. H. Burrell, vii, 1909 (BM; not found 2012.02.06, L. Ellis, pers. comm.). Note:—This also creates the autonym.

≡ *Leiocolea rutheana* var. *laxa* (Schiffn. ex Burrell) Paton, *J. Bryol.* 18: 823, 1995 (Paton 1995).

***Mesoptychia subcrispa* (Schiffn.) L.Söderstr. et Váňa comb. nov.** Basionym:—*Lophozia subcrispa* Herzog, *Ann. Naturhist. Mus. Wien* 53: 362, 1942 [1943] (Herzog 1943). Holotype:—SUMATRA, Padang, leg. Schild (JE!).

≡ *Hattoriella subcrispa* (Herzog) Bakalin, *Arctoa* 12: 94 (Bakalin 2003).

Mesoptychia turbinata (Raddi) L.Söderstr. et Váňa, comb. nov. Basionym:—*Jungermannia turbinata* Raddi, *Jungermanniogr. Etrusca*: 18, 1818 [=*Mem. Mat. Fis. Soc. Ital. Sci. Modena* 18: 29, 1820] (Raddi 1818). Type (Grolle 1976):—ITALIEN, Umgebung von Florenz. Syntypes: BOLO [sub *Jungermannia inflata*], W [Lindenb. Hep. no. 3627 sub *Cephalozia connivens*]—“Ein fraglicher Syntypus in FI [Hb. Micheli]”. Note:—Grolle (1976) did not designate any lectotype. We here designate the specimen in BOLO as lectotype.

≡ *Leiocolea turbinata* (Raddi) H.Buch, *Ann. Bryol.* 10: 4, 1937 [1938] (Buch *et al.* 1938).

Mesoptychia ussuriensis (Bakalin) L.Söderstr. et Váňa comb. nov. Basionym:—*Leiocolea ussuriensis* Bakalin, *Arctoa* 17: 103, 2008 [2009] (Bakalin 2009). Holotype:—RUSSIA. Primorsky Territory: Ussurijsky Nature Reserve, Koryavaya Pad', Zmeinaya Mt. (43°38'N, 132°33'E), 214 m alt. leg. V.A. Bakalin 15.X.2008 P-64-10-08 (VLA).

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