



Early Land Plants Today: Index of Liverwort and Hornwort names published 2017–2018

LARS SÖDERSTRÖM^{1*}, ANDERS HAGBORG² & MATT VON KONRAT²

¹Department of Biology, Norwegian University of Science and Technology, N-7491, Trondheim, Norway;

✉ lars.soderstrom@ntnu.no; <https://orcid.org/0000-0002-9315-4978>

²Department of Research and Education, The Field Museum, 1400 South Lake Shore Drive, Chicago, IL 60605-2496, U.S.A.;

✉ hagborg@pobox.com; <https://orcid.org/0000-0001-8390-319X>;

✉ mvonkonrat@fieldmuseum.org; <https://orcid.org/0000-0001-9579-5325>

*Corresponding author

Abstract

A widely accessible list of known plant species is a fundamental requirement for global biodiversity conservation targets. An index of published names of liverworts and hornworts between 2017 and 2018 is provided as part of a community effort in working toward maintaining an updated world checklist of these groups. The list herein includes 23 higher taxon names, 143 specific names, 21 infraspecific names, one infrageneric autonym and 13 infraspecific autonyms for 2017 and 2018, including also names of fossils and invalid and illegitimate names. Sixteen older names omitted in the earlier indices are included.

Keywords: Liverworts, hornworts, index, nomenclature, fossils, new names

Introduction

Liverworts (Marchantiophyta) and hornworts (Anthocerotophyta) are of critical biological, ecological, and phylogenetic significance (e.g., Asakawa 1999, Gradstein *et al.* 2001, Wellman *et al.* 2003, Qiu *et al.* 2007, Huttunen *et al.* 2017, Morris *et al.* 2013). The publication of new liverwort and hornwort names remains vastly scattered across dozens of journals, a common problem that extends to accessibility of biodiversity data generally (Collin *et al.* 2016). Centralization and standardization of biodiversity data can lead to increased accessibility and lead to the development of checklists and other resources as powerful and important tools for taxonomy and conservation (Söderström *et al.* 2008).

This index follows on from decades of previous bryophyte (mosses, liverworts, hornworts) specific indices. Söderström *et al.* (2018) summarized the many nomenclatural indexing and similar projects, including: TROPICOS (<https://www.tropicos.org/home>); Index Hepaticarum, which includes all effectively published liverwort epithets spanning 12 volumes with the closing date of 1973 (<http://www.ville-ge.ch/musinfo/bd/cjb/hepatic/index.php>); Index of Hepatics by Crosby & Engel (2006) providing an equally valuable nomenclatural resource and catalogue of names at all ranks for liverworts and hornworts published during 1974 to 2000; and the recent indices of the citations for names published for bryophytes for the years 2001–2004 (Crosby & Magill 2005) and 2005 (Crosby & Magill 2006). The current index continues the series in the form of an Index for Liverworts and Hornworts now spanning over a decade (von Konrat *et al.* 2010, Söderström *et al.* 2012, 2014, 2016, 2018).

In the current index we list citations for effectively published names for liverworts and hornworts during the period January 1, 2017 through December 31, 2018. We use the date when it was first effectively published, whether it was a preprint online or in a hardcopy. However, in the reference list we give the bibliographic reference to the printed version wherever possible. Both in the list and the reference list we give the bibliographic publication year without brackets and the year of effective publication within square brackets. We also include names of fossils that may be liverworts or hornworts, but where the actual placement is uncertain, thus the inclusion of such a name does not mean that we have accepted it to be a liverwort or hornwort. Valid, illegitimate and invalid names that were overlooked by earlier indices (2000–2016) are also included. A bibliography contains complete citations for the places of publication of the names,

their basionyms and of any blocking names, in the cases where a replacement name is needed. The format generally follows that of previous indices, especially Söderström *et al.* (2018). For fossils we state the geological period. The type taxon is also provided for new higher taxa. All names are arranged alphabetically. Although names that we judge to be invalidly published under the *International Code of Nomenclature for algae, fungi, and plants* (ICN; Turland *et al.*, 2018) are included in the list, nomenclaturally they are not accepted by the authors of this index, and therefore not considered to be validly published under the ICN (Turland *et al.* 2018; “Shenzhen Code”). As in previous indices, no disposition is provided to an accepted name or to the taxonomy.

Statistics

This list contains 23 names of higher taxa, 143 specific, and 21 infraspecific names, one infrageneric autonym and 13 infraspecific autonoms for 2017 and 2018. Twenty-four names are for fossils. Sixteen older names omitted in the earlier indices are included. Thirteen of the names are invalid. Seventeen higher taxa, 100 species and 8 infraspecific taxa were published as new to science, the rest are new combinations or new names for existing taxa.

Format

The format strongly follows previous versions but is outlined here in detail for ease of reference and for minor modifications. Authorities and citation abbreviations follow the on-line version of Authors of Plant Names at the Royal Botanic Gardens, Kew, Website (www.ipni.org), which is an updated version of Brummitt & Powell (1992).

The following outlines the format for the different categories of names published during the period. Common reasons for notes are superfluous combinations, blocking names, etc., and of the era for fossils.

The name of a *new taxon* published during the period takes the form:

Acromastigum carcinum M.A.M.Renner et T.C.Wilson, *Telopea* 21: 46, 2018 (see Renner & Wilson 2018). TYPE: “Australia: Queensland: Cook District, Cape York Peninsula, Jardine River National Park, Elliot Creek, 53 m, 11°22′54.7″S 142°24′47.8″E, 8 August 2015, M.A.M.Renner 7353 & T.C.Wilson (holotype: NSW 992696, isotypes: BRI, CANB, F, G)”.

It is associated with the article in which it was published in the Bibliography:

Renner, M.A.M. & Wilson, T.C. (2018) Two new species of *Acromastigum* (Lepidoziaceae: Jungermanniopsida) from Queensland, Australia. *Telopea* 21: 45–55. DOI: 10.7751/telopea11775

A *new combination* published during the period takes the form:

Afroriccardia comosa (Steph.) Reeb et Gradst., *Eur. J. Taxon.* 273: 11, 2017 (see Rabeau *et al.* 2017). BASIONYM: *Aneura comosa* Steph., *Bot. Gaz.* 15 (11): 281, 1890 (see Stephani 1890).

Corresponding articles from the Bibliography:

Rabeau, L., Gradstein, S.R., Dubuisson, J.-Y., Nebel, M., Quandt, D. & Reeb, C. (2017) New insights into the phylogeny and relationships within the worldwide genus *Riccardia* (Aneuraceae, Marchantiophytina). *European Journal of Taxonomy* 273: 1–26. DOI: 10.5852/ejt.2017.273

Stephani, F. (1890) Hepaticae africanae novae in insulis Bourbon, Maurice et Madagascar lectae. *Botanical Gazette* 15 (11): 281–292. DOI: 10.1086/326585

One or two asterisks preceding an entry indicate that the name has been interpreted by us as contrary to the ICN (Turland *et al.*, 2018) being either illegitimate (a single asterisk) or invalid (two asterisks). We give both the article that we based our interpretation on, and a short statement about what we think is wrong. For example:

***Heteroscyphus mascarenensis* (S.W.Arnell) Marline, *Div. Biogeo. Madag. Marojeje (thesis)*: 239, 2017, *nom. inval.* ICN Art. 30.5; published in a thesis (and basionym not cited) (see Marline 2017). BASIONYM: *Chiloscyphus mascarenensis* S.W.Arnell, *Svensk Bot. Tidskr.* 59 (1): 71, 1965 (see Arnell 1965).

A dagger, †, preceding an entry indicates a name for a fossil. For example,

†*Metzgerites multifidus* P.C.Wu, *Acta Geol. Sin.* 91 (5): 1548, 2017 (see Guo *et al.* 2017). TYPE: “Holotype: Specimen PEPB00003 (Fig. 3g); Paratypes: PEPB00003; Repository: Museum of Plant History, Institute of Botany, Chinese Academy of Sciences; Type locality: Huangbanjigou Villiage, Shangyuan Town, Liaoning, China”.

The index 2017–2018

Acrobolbus cinerascens var. *marginatus* J.J.Engel, *Phytotaxa* 326 (2): 156, 2017 (see Engel *et al.* 2017). TYPE: “NEW ZEALAND. South Island, Canterbury Prov., Arthur’s Pass Natl. Park, Bealey River, off Bealey Valley Track, 830–850 m, Engel 18465 (holotype F, isotype CHR)”. NOTE: This also creates the autonym.

***Acrobolbus latifolius* (R.M.Schust.) Dimon, Váňa, Schäf.-Verw., Heinrichs et M.A.M.Renner, *Austral. Syst. Bot.* 31 (3): 218, 2018, *nom. inval.* ICN2018 Art. 41.5; basionym not cited (see Dimon *et al.* 2018). BASIONYM: *Marsupidium latifolium* R.M.Schust., *Phytologia* 39 (4): 249, 1978 (see Schuster 1978).

Acromastigum carcinum M.A.M.Renner et T.C.Wilson, *Telopea* 21: 46, 2018 (see Renner & Wilson 2018). TYPE: “Australia: Queensland: Cook District, Cape York Peninsula, Jardine River National Park, Elliot Creek, 53 m, 11°22′54.7″S 142°24′47.8″E, 8 August 2015, M.A.M.Renner 7353 & T.C.Wilson (holotype: NSW 992696, isotypes: BRI, CANB, F, G)”.

Acromastigum implexum M.A.M.Renner, *Telopea* 21: 50, 2018 (see Renner & Wilson 2018). TYPE: “Queensland, Cook, Bellenden Ker Range, Wooroonooran National Park, Russel River catchment, track to Choorichillum from end of Gourka Road, between NW summit and Choorichillum, 17°23′45″S 145°48′56″E, 1460 m, 30 Mar 2012, M.A.M. Renner 6432, V.C. Linis & E.A. Brown (holotype: NSW896971; isotypes: BRI, CANB, F, G)”.

Acromastigum lamyi Thouvenot, *Cryptog. Bryol.* 39 (2): 234, 2018 (see Thouvenot 2018). TYPE: “New Caledonia, Province Sud, Dumbéa, natural reserve of Montagne des Sources, 950 m, rain forest on ultramafic rocks, coordinates UTM 58K 0665439E, 7553475N, on living tree bark, L. Thouvenot NC2012 (holotype: PC0733748, isotype in private herbarium)”.

Afroriccardia Reeb et Gradst., *Eur. J. Taxon.* 273: 11, 2017 (see Rabeau *et al.* 2017). TYPE: *Afroriccardia comosa* (Steph.) Reeb et Gradst.

Afroriccardia comosa (Steph.) Reeb et Gradst., *Eur. J. Taxon.* 273: 11, 2017 (see Rabeau *et al.* 2017). BASIONYM: *Aneura comosa* Steph., *Bot. Gaz.* 15 (11): 281, 1890 (see Stephani 1890).

Bazzania hookeri var. *mamillosa* (Gradst. et A.R.Benitez) Gradst. et A.R.Benitez, *Nova Hedwigia* 105 (1/2): 257, 2017 (see Gradstein 2017a). BASIONYM: *Bazzania arcuata* var. *mamillosa* Gradst. et A.R.Benitez, *Nova Hedwigia* 99 (1/2): 113, 2014 (see Gradstein & Benitez 2014). NOTE: This also creates the autonym.

Bazzania konratiana Gyarmati, *Cryptog. Bryol.* 38 (2): 120, 2017 (see Sass-Gyarmati 2017). TYPE: “MADAGASCAR, Toamasina Prov., Mananara Nord Biosphere Reserve and National Park: lowland rainforest on the E slopes of Mahavoho Hill (very wet types along Mahavoho River, less humid on slopes) with many tree ferns, palms and *Pandanus* ssp.), alt. 300 m, 16°27′S, 49°46.9–47.5′E, corticolous; 16 August 1998, T. Pócs & A. Szabó 9878/CA (Holotype: EGR, isotype: TANA)”.

***Bazzania speciosa* Gottsche ex Gradst., *Nova Hedwigia* 105 (1/2): 255, 2017, *nom. inval.* ICN Art 36.1(b); publ. in syn. [sub *Bazzania hookeri* (Lindenb.) Trevis. var. *hookeri* 2017] / ‘*speciosum*’ (see Gradstein 2017a). NOTE: apparent error for *Mastigobryum speciosum* Gottsche ex Steph., *Hedwigia* 25 (6): 233, 1886 (see Stephani 1886a).

Calypogeia fissa var. *paludosa* (Warnst.) Damsh., *Lindbergia* 40 (1): 18, 2017 (see Damsholt 2017). BASIONYM: *Calypogeia paludosa* Warnst., *Krypt.-Fl. Brandenburg 2, Laubmoose* 5: 1117, 1906 (see Warnstorf 1906).

Calypogeia orientalis Buczk. et Bakalin, *PLOS one* 13 (10: e0204561): 16, 2018 (see Buczkowska *et al.* 2018). TYPE: “Russia. The Russian Far East. Primorsky Territory. Shkotovsky District (43°07′08″N 132°45′45″E), 450 m alt., VB 18.IX.2012 (P-39-4-12, VBGI, duplicate in POZW)”.

Calypogeia sinensis Bakalin et Buczk., *PLOS one* 13 (10 (e0204561)): 13, 2018 (see Buczkowska *et al.* 2018). TYPE: “China. Guizhou Province. Duyun Municipality (26°22′23″N 107°21′21″E), 1300 m alt., VB 22.XI.2013 (China-56-77-13, VBGI, duplicate in POZW)”.

Cephalozella konstantinovae Mamontov et Vilnet, *Polish Bot. J.* 62 (1): 12, 2017 (see Mamontov & Vilnet 2017). TYPE: “RUSSIA, Trans-Baikal Territory, Khentey-Chikoyskoye Nagor’e Uplands, Sokhondinskiy State Biosphere Reserve, valley of Sokhondo River, 49°30′N, 111°04′E, 1205 m a.s.l., 23 Aug. 2011, Mamontov 166-7 (holotype: KPABG; isotypes: G, LE, MHA, NICH)”.

Ceratolejeunea spinistipula (Herzog) R.L.Zhu, L.Shu, Qiong He et Y.M.Wei, *Bryologist* 121 (3): 336, 2018 (see

Zhu *et al.* 2018c). BASIONYM: *Drepanolejeunea spinistipula* Herzog, *Svensk Bot. Tidskr.* 42 (3): 238, 1948 (see Herzog 1948).

Cheilolejeunea azureomontana C.J.Bastos et Schäf.-Verw., *Phytotaxa* 299 (1): 72, 2017 (see Bastos & Schäfer-Verwimp 2017). TYPE: “JAMAICA: St. Andrew, Blue Mountains, Hollywell Recreation Area an der B1 unweit Hardwar Gap, Nebelwald am Oatley Mountain Trail, an Strauch im Gipfelbereich; 1345 m, 18°05.2–3’N, 76°43.6–7’W, 5 Dec. 2013, A. Schäfer-Verwimp 35100 (holotype JE; isotype ALCB)”.

*****Cheilolejeunea cyanomontana*** C.J.Bastos et Schäf.-Verw., *Pesquisas, Bot.* 70: 7, 2017, *nom. inval.* ICN2018 Art. 38.1(a); no description (see Bastos 2017). NOTE: apparent error for *Cheilolejeunea azureomontana* C.J.Bastos et Schäf.-Verw., *Phytotaxa* 299 (1): 72, 2017 (see Bastos & Schäfer-Verwimp 2017).

Cheilolejeunea cyrtolejeuneoides C.J.Bastos et Schäf.-Verw., *Phytotaxa* 299 (1): 66, 2017 (see Bastos & Schäfer-Verwimp 2017). TYPE: “BRAZIL: Brazil, Espírito Santo, Serra de Caparaó, Bergregenwald bei der “Cachoeira Bonita” am rechten Ufer des Rio José Pedro, auf feucht-schattigem Gestein, 1850 m, 26 Jul. 1987, Schäfer-Verwimp & Verwimp 8917 (holotype JE; isotypes ALCB; SP)”.

Cheilolejeunea grosseoleosa C.J.Bastos et Schäf.-Verw., *Phytotaxa* 299 (1): 69, 2017 (see Bastos & Schäfer-Verwimp 2017). TYPE: “BRAZIL: São Paulo, Litoral Norte, Ilha de São Sebastião, 23°51’S, 45°20’W, Regenwald (Mata Atlântica primária) am Westabhang (Weg F 1), epiphytisch, 450 m, 7 Oct. 1990, Schäfer-Verwimp & Verwimp 13204 (holotype JE; isotypes ALCB, SP)”.

†***Cheilolejeunea lamyi*** Heinrichs, Schäf.-Verw., M.A.M.Renner et K.Feldberg, *Cryptog. Bryol.* 39 (2): 156, 2018 (see Heinrichs *et al.* 2018a). TYPE: “Holotype: Liverwort amber inclusion SMNS Do-4263-B-1. *Syninclusions*: fragments of bark. *Repository*: The specimen is deposited in the amber collection of the Museum of Natural History Stuttgart (SMNS)”.

Cheilolejeunea schiavoneana M.E.Reiner et Gradst., *Bol. Soc. Argent. Bot.* 52 (2): 326, 2017 (see Gradstein & Reiner-Drehwald 2017a). TYPE: “Colombia. Departamento Risaralda: western side of the Cordillera Occidental, municipio Mistrato, along the trail from Jeguadasto Puerto de Oro, ca. 5°45’N 76°01’W, on canopy branches in submontane rainforest, 1200 m, 27 July 1992, S.R. Gradstein 8591 (Holotype COL; Isotype GOET)”.

Chiastocaulon fasciculatum M.A.M.Renner, *Austral. Syst. Bot.* 31 (6): 488, 2018 (see Renner & Worboys 2018). TYPE: “Australia, Queensland, Cook District, Daintree National Park, Thornton Peak summit complex, 16°09’52”S, 145°22’27”E, 1283 m, 14 Aug. 2017, M.A.M.Renner 8491, S.Worboys, C.Clarke, T.Hawkes, L.Mulkearns & A.Field (holo: NSW; iso: BRI, CANB, G, LAE, MEL)”.

Chiloscyphus horizontalis* var. *concavus (Steph.) Cuvertino, *Nat. Prod. Comm.* 9 (7): 900, 2014 (see Cuvertino-Santoni *et al.* 2014). BASIONYM: *Lophocolea concava* Steph., *Bih. Kongl. Svenska Vetensk.-Akad. Handl.* 26 (III, 6): 36, 1900 (see Stephani 1900). NOTE: This also creates the autonym.

*****Cololejeunea andamanica*** S.J.Chavan, *Bioinfolet* 7 (1): 7, 2010, *nom. inval.* ICN2018 Art. 38.1(a); no description (see Chavan 2010). ORIGINAL MATERIAL: “Andaman, Bada Balu”.

Cololejeunea elizabethae Meagher et Pócs, *Telopea* 20: 61, 2017 (see Meagher & Pócs 2017). TYPE: “AUSTRALIA, New South Wales, Lord Howe Island, Smoking Tree Ridge, on track to Goathouse, above junction with Rocky Run track, 31°33’25”S, 159°05’15”E, alt. 140 m. In fairly open *Drypetes*–*Cryptocarya* forest. Growing on ? *Cryptocarya* near base of trunk, intermixed with other liverworts, 9 June 2000, E.A. Brown 2000/12 p.p. (holotype: NSW-444684, isotype: EGR)”.

Cololejeunea khawanglungensis Sushil K.Singh, *Nelumbo* 60 (1): 70, 2018 (see Singh 2018). TYPE: “India, Mizoram, Lunglei, Khawanglung WLS, 23°09’8.7” N, 92°55’23.2” E, 714 m, 04.12.2012, S.K. Singh & Party 127760A (holo: ASSAM!”).

Cololejeunea manilaliana Manju, Chandini et K.P.Rajesh, *Acta Bot. Hung.* 59 (1/2): 262, 2017, ‘*manilalia*’ (see Manju *et al.* 2017). TYPE: “INDIA, Kerala, Malappuram district, Nilambur, New Amarambalam Reserved Forest (bordering Mukurti National Park of Tamil Nadu), plants epiphyllous, seen in association with *Cololejeunea spinosa* and *Frullania* sp., 1,200 m alt., coll.: Rajesh, K. P. (111812a) 06.02.2010, (holotype: ZGC!; isotypes: BM!, CAL!, CALI!, ZGC!”).

Cololejeunea murlenensis Sushil K.Singh, *Nelumbo* 60 (1): 70, 2018 (see Singh 2018). TYPE: “India, Mizoram, Champhai, Murlen National Park, 23°38’32.7” N, 93°17’34” E, 1492 m, 19.02.2009, S.K. Singh & Party 120082B (holo: ASSAM!”).

†***Conocephalumites*** P.C.Wu et C.Q.Guo, *Acta Geol. Sin.* 91 (5): 1547, 2017 (see Guo *et al.* 2017). TYPE: *Conocephalumites hexagonites* P.C.Wu et C.Q.Guo.

†***Conocephalumites hexagonites*** P.C.Wu et C.Q.Guo, *Acta Geol. Sin.* 91 (5): 1547, 2017 (see Guo *et al.* 2017). TYPE: “Holotype: Specimen PEPB00002 (Fig. 3f”); Paratypes: PEPB00002; Repository: Museum of Plant History,

Institute of Botany, Chinese Academy of Sciences; Type locality: Huangbanjigou Villiage, Shangyuan Town, Liaoning, China”.

Cryptolophocolea subcostata (Steph.) Thouvenot, *Cryptog. Bryol.* 39 (3): 364, 2018 (see Thouvenot *et al.* 2018). BASIONYM: *Lophocolea subcostata* Steph., *Sp. Hepat. (Stephani)* 6: 295, 1922 (see Stephani 1922).

Cumulolejeunea R.L.Zhu et L.Shu, *Bryologist* 121 (2): 162, 2018 (see Zhu & Shu 2018) . NOM. NOV. PRO: *Rectolejeunea* subg. *Notholejeunea* R.M.Schust., *J. Hattori Bot. Lab.* 89: 128, 2000 (see Schuster 2000). BLOCKING NAME: *Notholejeunea* Kuntze 1903.

Cumulolejeunea ocellata (Herzog) R.L.Zhu et L.Shu, *Bryologist* 121 (2): 162, 2018 (see Zhu & Shu 2018). BASIONYM: *Rectolejeunea ocellata* Herzog, *Trans. & Proc. Roy. Soc. New Zealand* 77 (2): 255, 1949 (see Herzog 1949).

Cyclolejeunea glimeana M.E.Reiner et Gradst., *Bryophyte Diversity Evol.* 39 (1): 22, 2017 (see Gradstein & Reiner-Drehwald 2017b). TYPE: “COLOMBIA. Departamento Chocó: municipio Nuquí, around Biological Station “El Amargal”, coastal lowland rainforest, ca. 30 m.s.m., growing in dense mats on palm trunks, 6 August 1992, S.R. Gradstein 8895 (holotype, COL!; isotypes, GOET!, PC!). PARATYPE: *ibid.*, S.R. Gradstein 8849 (COL!, GOET!)”.

Cyclolejeunea* subg. *Chocolejeunea M.E.Reiner et Gradst., *Bryophyte Diversity Evol.* 39 (1): 25, 2017 (see Gradstein & Reiner-Drehwald 2017b). TYPE: *Cyclolejeunea glimeana* M.E.Reiner et Gradst.

Dendrocerotales T.Katag. et Furuki (ord.), *Hattoria* 9: 81, 2018 (see Katagiri & Furuki 2018). TYPE: *Dendroceros* Nees.

Diplasiolejeunea cubatensis Prudêncio, Z.R.Mello et D.P.Costa, *Phytotaxa* 385 (1): 51, 2018 (see Prudêncio *et al.* 2018). TYPE: “BRAZIL. São Paulo: Cubatão, Parque Ecológico Perequê, 23° 50'43”S-46°24'54”W, sobre folha na trilha próximo ao rio do Ouro, 29 m, 23 Aug 2017, *Prudêncio & Almeida-Costa* 573 (holotype RB [c. per.]); *ibidem*, *Prudêncio & Almeida-Costa* 568, 575 (paratypes RB); *ibidem*, *Prudêncio & Almeida-Costa* 572 (paratype HUSC); *ibidem*, sobre folha de Myrtaceae na trilha próximo ao rio Perequê, 29 m, 3 Mar 2017, *Cardoso-Rodrigues et. al.* 9 (paratype HUSC)”.

*****Diplophyllum chinense*** Bakalin et Vilnet, *Pl. Syst. Evol.* 304 (10): 1271, 2018, *nom. inval.* ICN 38.1(a); no description (see Bakalin & Vilnet 2018b). NOTE: Error for *Diplophyllum trollii* Grolle in the accession list (A. A. Vilnet, pers. comm.).

Diplophyllum sibiricum Vilnet et Bakalin, *Pl. Syst. Evol.* 304 (10): 1280, 2018 (see Bakalin & Vilnet 2018b). TYPE: “HOLOTYPE: Russia. Amur Province, Stanovoye Uplands, Udokan range, 12 km eastward of Khani Settlement, 900 m a. s. l., 56°50'N, 120°10'E, wet shaded cliffs, 14 Jul 2000, V.A. Bakalin 34-12-00 (KPABG barcode 101702, isotype VBG1). The specimen was published in *Hepaticae Rossicae Exsiccatae* #6 (fasc. 1) under *Diplophyllum obtusatum*, and therefore, the distributed specimens may be regarded as isotypes”.

Drepanolejeunea glimeae R.L.Zhu et Mohamed, *Bryophyte Diversity Evol.* 39 (1): 39, 2017 (see Zhu *et al.* 2017a). TYPE: “BRUNEI DARUSSALAM. Temburong: Kuala Belalong, Kuala Belalong Field Studies Centre of the Universiti Brunei Darussalam, 4°33'18.51" N, 115°09'15.53" E, 80 m, on tree trunks, 16 December 2015, R.-L. Zhu *et al.* 20151216-302A (holotype: HSNU!; isotype: UBDH!)”.

Drepanolejeunea mizoramensis Sushil K.Singh, *Nelumbo* 60 (1): 73, 2018 (see Singh 2018). TYPE: “India, Mizoram, Lawngtlai, Ngengpui WLS, 22°29'49.7” N, 92°46'33.1” E, 138 m, 01.12.2012, S.K. Singh & Party 127584A (holo: ASSAM!)”.

Fossombronia hahnii Frank Müll., *Nova Hedwigia* 106 (1/2): 18, 2018 [2017] (see Müller 2018). TYPE: “Chile, Región del Maule, Talca 5 km north, c. 120 m, on open soil in pasture land, 10.08.2001, leg. Steffen Hahn, C2180 (holotype DR)”.

Fossombronia jostii Crand.-Stotl. et Gradst., *Bryophyte Diversity Evol.* 39 (1): 98, 2017 (see Crandall-Stotler & Gradstein 2017). TYPE: “ECUADOR. Pastaza Province: Río Anzu Reserve, ca. 10 km N of Mera, deep gorge in primary and old secondary rainforest reserve, ca. 1100 m, forming conspicuous, light green mats on moist, periodically inundated limestone rock in riverbed, 19 September 2008, S.R. Gradstein & L. Jost 12126 ((holotype GOET! isotypes QCA! F(ABSH!)”.

Frullania clarkiae J.J.Atwood et Mamontov, *Phytotaxa* 383 (2): 208, 2018, ‘*clarkii*’ (see Atwood & Mamontov 2018). TYPE: “Mexico, without locality or collector. (G 00114898), holotype)”.

†***Frullania grabenhorstii*** Heinrichs, K.Feldberg, Alina S.Müll., Schäf.-Verw., von Konrat et A.R.Schmidt, *Bryophyte Diversity Evol.* 40 (2): 94, 2018 (see Feldberg *et al.* 2018). TYPE: “GERMANY. Goitzsche mine near the city of Bitterfeld. Geoscientific Collections of the University of Göttingen, GZG.BST.21974! (formerly Heinrich Grabenhorst Amber Collection, Le-7)”.

Frullania heinrichsii Gradst., Espinoza-Prieto et J.J.Atwood, *Bryophyte Diversity Evol.* 40 (2): 69, 2018 (see

Atwood *et al.* 2018). TYPE: “PERU. Amazonas: Chachapoyas District, Calla-Calla, between Balsas and Leimebamba, 06°45’S 077°49’W, 3100 m, 31 August 1973, P. & E. Hegewald 6920 (MO-5245147!; isotype, PC-0661603!). PARATYPE: Peru, Cajamarca, Santa Cruz, Pulan District, a 4.3 km SO de Pulan, relicto de bosque montano de la vertiente occidental de los Andes, 06°46’14.92”S 78°53’50.15”W, 3260 m, on fallen trunk at trail edge, 01 August 2018, B. Espinoza-Prieto 1547 (USM!)”.

†*Frullania pinnata* Heinrichs, K.Feldberg, Schäf.-Verw. et M.Krings, *Cret. Res.* 78: 57, 2017 (see Heinrichs *et al.* 2017a). TYPE: “Holotype. Geoscientific Collections of the Georg August University Göttingen, collection number GZG.BST.21963; the large, pinnately branched gametophyte attached to a ± rectangular bark fragment (Figs. 1, 2A–C). Locality. Amber mines near Tanai, Ledo Road, 105 km north-west of Myitkyina, Kachin State, Myanmar”.

†*Frullania rovnoi* Mamontov, Hentschel, Konstant., Perkovsky et Ignatov, *J. Bryol.* 39 (4): 337, 2017 (see Mamontov *et al.* 2017). TYPE: “Amber inclusion SIZK-K-10049F, Figures 1 and 2. Type locality: Ukraine, Klesov, amber quarry “Pugach”. Rovno amber collection of the Schmalhausen Institute of Zoology in Kiev (SIZK)”.

Frullania thouvenotiana Larraín, von Konrat, B.E.Carter et Agüero, *Bryophyte Diversity Evol.* 40 (2): 107, 2018 (see Larraín *et al.* 2018). TYPE: “NEW CALEDONIA. Grande Terre, Province Sud: Commune de Dumbéa, Mont Koghis, along trail to the summit starting in the “auberge”, through the cascades, 22° 10’ 28” S, 166° 30’ 29” E, 550 m, *Agathis-Ficus* old growth forest, on trunk of 10 cm diam. at breast height of young *Agathis*, 18 Oct. 2012, von Konrat 15715 (Holotype, F; Isotypes, PC, AK, DUKE)”.

†*Frullania zerovii* Mamontov, Ignatov et Perkovsky, *Nova Hedwigia* 106 (1/2): 104, 2018 [2017] (see Mamontov *et al.* 2018a). TYPE: “Holotype: Klesov, amber quarry “Pugach”. Rovno amber. Liverwort inclusion in piece SIZK-K-10071F (Figs 1–13). Repository: The specimen is deposited in the Rovno amber collection of the Schmalhausen Institute of Zoology in Kiev (SIZK)”.

Fuscocephaloziopsis connivens var. *bifida* (R.M.Schust.) Stotler et Crand.-Stotl., *Ann. Missouri Bot. Gard.* 102 (4): 620, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Cephalozia connivens* var. *bifida* R.M.Schust., *Hepat. Anthocerotae N. Amer.* 3: 809, 1974 (see Schuster 1974).

Fuscocephaloziopsis connivens var. *compacta* (Warnst.) Stotler et Crand.-Stotl., *Ann. Missouri Bot. Gard.* 102 (4): 620, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Cephalozia compacta* Warnst., *Krypt.-Fl. Brandenburg 1, Leber- & Torfmoose* 2: 217, 1902 (see Warnstorf 1902). NOTE: This also creates the autonym.

Fuscocephaloziopsis pleniceps var. *sphagnum* (C.Massal.) Stotler et Crand.-Stotl., *Ann. Missouri Bot. Gard.* 102 (4): 621, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Cephalozia symbolica* var. *sphagnum* C.Massal., *Malpighia* 21 (7/8): 306, 1907 (see Massalongo 1907).

Gaolejeunea R.L.Zhu et W.Ye, *Bryologist* 121 (1): 45, 2018 (see Ye & Zhu 2018). TYPE: *Gaolejeunea gaoi* (R.L.Zhu, M.L.So et Grolle) R.L.Zhu et W.Ye.

Gaolejeunea gaoi (R.L.Zhu, M.L.So et Grolle) R.L.Zhu et W.Ye, *Bryologist* 121 (1): 46, 2018 (see Ye & Zhu 2018). BASIONYM: *Cheilolejeunea gaoi* R.L.Zhu, M.L.So et Grolle, *Bryologist* 103 (3): 499, 2000 (see Zhu *et al.* 2000).

†*Geocalyx heinrichsii* T.Katag., *Bryophyte Diversity Evol.* 40 (2): 113, 2018 (see Katagiri 2018). TYPE: “Holotype: Two sterile liverwort shoots (Fig. 1A–C & Fig.1 1D–E) in Baltic amber piece (NICH-492966). Type locality: Baltic region. Age: Eocene, 44.1 ± 1.1 to 47.0 ± 1.5 Ma”.

Gottschea multidentata (J.J.Engel) Glenny et J.J.Engel, *Phytotaxa* 326 (2): 157, 2017 (see Engel *et al.* 2017). BASIONYM: *Gottschea conchophylla* var. *multidentata* J.J.Engel, *Nova Hedwigia* 93 (3/4): 407, 2011 (see Engel 2011).

Gymnomitrium fissum Mamontov et Potemkin, *Novosti Sist. Nizsh. Rast.* 51: 275, 2017 (see Potemkin *et al.* 2017). TYPE: “China, Fugong county, Lumadeng Xiang, Yapin Cun, E slope of Gaoligong Shan (Nu Jiang catchment), Burma/Yunnan border ridge, around lake south of **Yapin Pass**, 27°12’21.3”N, 98°41’52.2”E. Alpine valley floor with lake, marshy ground and streams; in cushions on wet ground on lake shore. Alt. 3500 m. 12 August 2005 D. G. Long 34684, DUKE (Holotype)!”.

Gymnomitrium parvitextum (Steph.) Mamontov, Konstant. et Potemkin, *Nova Hedwigia* 106 (1/2): 88, 2018 [2017] (see Mamontov *et al.* 2018b). BASIONYM: *Marsupella parvitexta* Steph., *Bull. Herb. Boissier (sér. 2)* 1 (2): 165 (26), 1901 (see Stephani 1901).

Haplolejeunea amazonica Ilk.-Borg. et Gradst., *Nova Hedwigia* 107 (3/4): 427, 2018 (see Gradstein & Ilkiu-Borges 2018). TYPE: “Brazil, Pará, Melgaço municipality, Ferreira Penna Research Station, Curuá river, lowland rainforest (“upland forest”), 5 Dec 1997, A.L. Ilkiu-Borges *et al.* 966, c.per. (holotype: MG!)”.

Haplolejeunea umbrosa Gradst. et Ilk.-Borg., *Nova Hedwigia* 107 (3/4): 433, 2018 (see Gradstein & Ilkiu-Borges 2018). TYPE: “BRAZIL. São Paulo: 23°45’S, 46°03’W, “Serra do Mar zwischen Mogi das Cruzes und Bertioaga,

Regenwald (Mata atlântica primaria) am Rio Itapanhaú, auf morschem Stamm”, ca. 350 m, 15 Juni 1991, A.Schäfer-Verwimp 14560, c. per. (holotype: GOET!)”.

***Herbertus obtusifolius* Gradst., Vanderp., G.B.A.Reenen et Cleef, *Revista Acad. Colomb. Ci. Exact.* 42 (164): 224, 2018, *nom. inval.* ICN2018 Art. 38.1(a); no description (see Gradstein *et al.* 2018c). BASED ON: *Schisma oblongifolium* Steph., *Sp. Hepat. (Stephani)* 4: 11, 1909 (see Stephani 1909). NOTE: Apparently error for *Herbertus oblongifolius* (Steph.) Gradst. et Cleef, *Proc. Kon. Ned. Akad. Wetensch. C* 80: 398, 1977 (see Gradstein *et al.* 1977). *Heteroscyphus confertus* (Steph.) Thouvenot, *Cryptog. Bryol.* 39 (3): 365, 2018 (see Thouvenot *et al.* 2018). BASIONYM: *Chiloscyphus confertus* Steph., *Sp. Hepat. (Stephani)* 6: 305, 1922 (see Stephani 1922).

***Heteroscyphus mascarenensis* (S.W.Arnell) Marline, *Div. Biogeo. Madag. Marojejy (thesis)*: 239, 2017, *nom. inval.* ICN Art. 30.5; published in a thesis (and basionym not cited) (see Marline 2017). BASIONYM: *Chiloscyphus mascarenensis* S.W.Arnell, *Svensk Bot. Tidskr.* 59 (1): 71, 1965 (see Arnell 1965).

Heteroscyphus rotundiphyllus (H.A.Mill.) Thouvenot, *Cryptog. Bryol.* 39 (3): 365, 2018 (see Thouvenot *et al.* 2018). BASIONYM: *Chiloscyphus rotundiphyllus* H.A.Mill., *Phytologia* 47 (4): 321, 1981 (see Miller 1981).

Isopaches bicrenatus var. *immersus* (R.M.Schust. et Damsh.) Stotler et Crand.-Stotl., *Ann. Missouri Bot. Gard.* 102 (4): 627, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Lophozia bicrenata* var. *immersa* R.M.Schust. et Damsh., *Phytologia* 63 (5): 326, 1987 (see Schuster & Damsholt 1987). NOTE: This also creates the autonym.

Jungermannia afoninae Mamontov, Konstant. et Vilnet, *Bryophyte Diversity Evol.* 40 (2): 83, 2018 (see Mamontov *et al.* 2018c). TYPE: “RUSSIA: Trans-Baikal Territory, Kalar District, Stanovoye Nagor’*e* Uplands, South Muya Range, valley of Koyra River, 574 m a.s.l., 56°13’54.6”N, 115°52’19.6”E, 5 August 2012, Mamontov 309-20 (holotype KPABG!, isotypes PRC! (sub *Jungermannia* sp.), MHA!)”.

***Leiocolea gillmanii* var. *acutifolia* (Limpr.) R.M.Schust. ex Juutinen *et al.*, *Bryobrotherella* 18: 65, 2015, *nom. inval.* ICN Art. 41.5; basionym not cited (see Juutinen *et al.* 2015). BASIONYM: *Jungermannia kaurinii* var. *β acutifolia* Limpr., *Jahresber. Schles. Ges. Vaterl. Cult.* 61: 206, 1884 (see Limpricht 1884).

***Lejeunea andamanica* S.J.Chavan, *Bioinfolet* 7 (1): 6, 2010, *nom. inval.* ICN2018 Art. 38.1(a); no description (see Chavan 2010). ORIGINAL MATERIAL: “Andaman, Elphistone Is.”.

Lejeunea bukpuiensis Sushil K.Singh, *Nelumbo* 60 (1): 73, 2018 (see Singh 2018). TYPE: “India, Mizoram, Kolasib, Bukpui forest, 24°04’14” N, 92°47’22” E, 945 m, 05.12.2010, S.K. Singh & Party 120517 (holo: ASSAM!)”.

Lejeunea compressiuscula (Steph.) G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 28, 2018 (see Lee *et al.* 2018). BASIONYM: *Taxilejeunea compressiuscula* Steph., *Sp. Hepat. (Stephani)* 5: 501, 1914 (see Stephani 1914).

Lejeunea discreta var. *gracilipes* (Taylor) G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 30, 2018 (see Lee *et al.* 2018). BASIONYM: *Omphalanthus gracilipes* Taylor, *London J. Bot.* 5: 385, 1846 (see Taylor 1846). NOTE: This also creates the autonym.

Lejeunea eifrigii var. *indica* Sushil K.Singh, *Nelumbo* 60 (1): 76, 2018 (see Singh 2018). TYPE: “India, Mizoram, Kolasib, Bukpui forest, 24°04’47” N, 92°47’2” E, 900 m, 07.12.2010, S.K. Singh & Party 120612 (holo: ASSAM!)”.

NOTE: This also creates the autonym.

Lejeunea flagellifera C.J.Bastos, M.E.Reiner et Schäf.-Verw., *Phytotaxa* 326 (1): 71, 2017 (see Bastos *et al.* 2017). TYPE: “BRAZIL: Bahia, Miguel Calmon, Parque Estadual das Sete Passagens, 11°39’S, 40°53’W, elev. 1000–1200 m, Capão da Trilha da Cachoeira da Garganta, em floresta montana, growing on tree trunk, 13 Oct. 2007, *J. Ballejos* 2203 (holotype ALCB)”.

Lejeunea giulianettii (Steph.) G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 35, 2018 (see Lee *et al.* 2018). BASIONYM: *Taxilejeunea giulianettii* Steph., *Sp. Hepat. (Stephani)* 5: 502, 1914 (see Stephani 1914).

Lejeunea heinrichsii G.E.Lee, Pócs, Bechteler et Schäf.-Verw., *J. Syst. Evol.* 57(4): 362, 2019 [2018] (see Lee *et al.* 2018). TYPE: “FIJI, NW coast in the SW part of Taveuni Island. Taveuni Estates above Saqulu, on the foothills of Mt. Uluigalau at 360 m, S 16°51.295’, E 179°59.024’, 2003-09-03, S. & T. Pócs 03290/BK (holotype: EGR [c.per.]”.

Lejeunea javanensis G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 30, 2018 (see Lee *et al.* 2018). NOM. NOV. PRO *Taxilejeunea immersa* Eifrig, *Ann. Bryol.* 9: 96, 1936 (see Eifrig 1936). BLOCKING NAME: *Lejeunea immersa* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15 (1): 186, 1884 (see Spruce 1884).

Lejeunea kolasibensis Sushil K.Singh, *Nelumbo* 60 (1): 76, 2018 (see Singh 2018). TYPE: “India, Mizoram, Kolasib, Bukpui forest, 24°04’51.1” N, 92°47’37.3” E, 894 m, 06.12.2010, S.K. Singh & Party 120540 (holo: ASSAM!)”.

Lejeunea konratii G.E.Lee et Pócs, *Phytotaxa* 349 (1): 34, 2018 (see Lee & Pócs 2018). TYPE: “FIJI. Central Viti Levu: NE edge of Rairaimatuku plateau, above Naqelewai village, S from “Barclay’s Point”, 855–945 m, S17°44.208–264’, E 178°03.300–573’, 24 August 2003, S. & T.Pócs 03273/R (holotype EGR [c.per.]”.

Lejeunea koordersii G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 33, 2018 (see Lee *et al.* 2018). NOM. NOV. PRO

Taxilejeunea grandistipula Steph., *Sp. Hepat. (Stephani)* 5: 504, 1914 (see Stephani 1914). BLOCKING NAME: *Lejeunea grandistipula* Steph., *Bot. Jahrb. Syst.* 8 (2): 89, 1886 (see Stephani 1886b).

Lejeunea liromobana Singh Deo et D.K.Singh, *Liverw. Hornw. India, Checklist*: 144, 2016 (see Singh *et al.* 2016). TYPE: “India, Eastern Himalaya, Arunachal Pradesh, West Siang District, Liromoba, 28°04' N 94°29' E, ca 550m, 14.09.2011, S. Singh Deo 51281A (Holotype & Isotype: CAL)”. NOTE: The index for 2015–2016 (Söderström *et al.* (2018) reported the description published in Singh Deo & Singh (2016) but this publication was probably issued at the end of the year (it was issue 4 of 4 issues annually) while the publication cited for the name here was published in June 2016 fide title page.

Lejeunea longidentata C.J.Bastos, Gradst., Vilas Bôas-Bastos et Schäf.-Verw., *Nova Hedwigia* 106 (1/2): 60, 2018 [2017] (see Bastos *et al.* 2018). TYPE: “Brazil, Minas Gerais: Serra da Mantiqueira, Camanducaia, Monte Verde, Araukarienwald am Caminho do Grande Pinheiro, epiphytisch, 1550 m alt., 10 August 1986, Schäfer-Verwimp & Verwimp 7532 (holotype: ALCB; isotype: JE). Paratype: Brazil, Minas Gerais, Serra da Mantiqueira, Piranguçu bei Campos do Jordão, Bachtal bei Centro Vale Verde, epiphytisch in lichtem, feuchtem Wald, 1450 m, 19 April 1986, Schäfer-Verwimp & Verwimp 6893/A (ALCB; GOET; JE)”.

†***Lejeunea miocenica*** Heinrichs, Schäf.-Verw., M.A.M.Renner et G.E.Lee, *Earth Envir. Sci. Trans. Roy. Soc. Edinburgh* 107 (2/3): 323, 2018 [2017] (see Kaasalainen *et al.* 2018). TYPE: “Holotype. American Museum of Natural History, New York, USA, AMNH DR-15-3. The gametophyte fragment shown in Figure 3A (left), B and D represents the holotype. Type locality. Dominican Republic, Santiago area. Age and stratigraphic position. Early Miocene, about 15 to 20 million years old”.

Lejeunea pulchriflora* var. *nymannii (Steph.) G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 35, 2018 (see Lee *et al.* 2018). BASIONYM: *Taxilejeunea nymannii* Steph., *Sp. Hepat. (Stephani)* 5: 507, 1914 (see Stephani 1914). NOTE: This also creates the autonym.

*****Lejeunea rupicola*** D.K.Singh, S.K.Singh et D.Singh, *Liverw. Hornw. India, Checklist*: 295, 2016, *nom. inval.* ICN2018 ICN Art. 38.1(a); no description (see Singh *et al.* 2016). NOTE: apparent error for *Leptocolea rupicola* Pandé et R.N.Misra. *Proceedings of the 26th Indian Science Congress III(5), Botany*: 119, 1943 (see Pandé & Misra 1943). ORIGINAL MATERIAL: “India”.

Lejeunea sect. Echinocolea (R.M.Schust.) Gradst., *Philipp. J. Syst. Biol.* 12 (1): 7, 2018 (see Gradstein 2018). BASIONYM: *Echinocolea* R.M.Schust., *Beih. Nova Hedwigia* 9: 125, 1963 (see Schuster 1963).

Lejeunea serpillifolioides (Raddi) Gradst., *Caldasia* 40 (1): 87, 2018 (see Gradstein *et al.* 2018b). BASIONYM: *Jungermannia serpillifolioides* Raddi, *Critt. Brasil.*: 17, 1822 (see Raddi 1822).

Lejeunea splendida (Eifrig) G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 38, 2018 (see Lee *et al.* 2018). BASIONYM: *Taxilejeunea splendida* Eifrig, *Ann. Bryol.* 9: 88, 1936 (see Eifrig 1936).

Lejeunea streimannii Y.M.Wei et R.L.Zhu, *Phytotaxa* 338 (2): 190, 2018 (see Wei *et al.* 2018). TYPE: “PAPUA NEW GUINEA. Enga province: Mape Creek, Mount Hagen-Wapenamanda Road, 17 km SE of Wapenamanda, 5°46' S, 143°57' E, 2500 m, Urticaceae dominated slope, on the ground, 29 Jun. 1982, H. Streimann 21509 (holotype CBG 8402078!, isotype EGR)”.

Lejeunea tjibodensis (Steph.) G.E.Lee et Heinrichs, *Phytotaxa* 358 (1): 40, 2018 (see Lee *et al.* 2018). BASIONYM: *Hygrolejeunea tjibodensis* Steph., *Sp. Hepat. (Stephani)* 5: 571, 1914 (see Stephani 1914).

Lepidolejeunea grandiocellata Schäf.-Verw., Bechteler, van Melick, M.A.M.Renner et Heinrichs, *Cryptog. Bryol.* 38 (3): 255, 2017 (see Schäfer-Verwimp *et al.* 2017). TYPE: “JAMAICA: St. Andrew, Blue Mountains, military road from Newcastle to Catherines Peak, secondary forest near summit, on bark of young hardwood tree, 1525 m, WGS84: 18°04,7' N, 76°42,2' W, 4. Dez. 2013, leg. A. Schäfer-Verwimp 35071 & H. van Melick (Holotype: JE, isotypes: M, FR)”.

Lepidolejeunea* subg. *Caribeolejeunea Schäf.-Verw., Bechteler, van Melick, M.A.M.Renner et Heinrichs, *Cryptog. Bryol.* 38 (3): 255, 2017 (see Schäfer-Verwimp *et al.* 2017). TYPE: *Lepidolejeunea grandiocellata* Schäf.-Verw., Bechteler, van Melick, M.A.M.Renner et Heinrichs.

Leptolejeunea mizoramensis Sushil K.Singh, *Nelumbo* 60 (1): 80, 2018 (see Singh 2018). TYPE: “India, Mizoram, Kolasib, Pualreng WLS, 24°11'27" N, 92°44'28.3" E, 466 m, 10.12.2010, S.K. Singh & Party 120724B (holo: ASSAM!)”.

Leptoscyphus heterophyllus (Steph.) J.J.Engel, *Phytotaxa* 326 (2): 156, 2017 (see Engel *et al.* 2017). BASIONYM: *Chiloscyphus heterophyllus* Steph., *Sp. Hepat. (Stephani)* 6: 308, 1922 (see Stephani 1922).

Leptoscyphus leoniae Gradst., *Nova Hedwigia* 106 (1/2): 42, 2018 [2017] (see Gradstein & León-Yáñez 2018). TYPE: “Ecuador, Prov. Pichincha, páramo of Papallacta, remnant *Polylepis pauta* forest along the road from Quito to Baeza just before Papallacta pass, ca. 4000 m, on decorticated branches of *P. pauta*, in deep shade, 10 February 2017,

S.R.Gradstein, S.León-Yáñez & M.Ormazá 12600, c. gyn. & spor. (holotype, QCA; isotypes, HUTPL, PC)”.

Liochlaena sichuanica Bakalin et Vilnet, *Phytotaxa* 371 (5): 287, 2018 (see Bakalin *et al.* 2018). TYPE: “China, Sichuan Province, Kangding County, Zheduotang Village, north side of Zheduoshan (29°58’37.4”N, 101°53’05.2”E), 3579 m alt., 13 October 2017, V.A. Bakalin & K.G. Klimova C-39-5-17 (VBGI, isotypes in KPABG and KUN)”.

Lophocolea fragrans* subsp. *cocosana G.Dauphin, Gradst. et M.I.Morales, *Nova Hedwigia* 106 (1/2): 28, 2018 [2017] (see Dauphin *et al.* 2018). TYPE: “COSTA RICA. Puntarenas: Cocos Island, 200 m, 1994, Isla de Cocos, mirador a Bahía Wafer, sobre tronco de *Sacoglottis holdridgei* Cuatr., 13 Jun 1994, G.Dauphin 1210 (holotype, CR; isotype, USJ, MO)”. NOTE: This also creates the autonym.

*****Lopholejeunea pandei*** S.J.Chavan, *Bioinfolet* 7 (1): 5, 2010, *nom. inval.* ICN2018 Art. 38.1(a); no description (see Chavan 2010). ORIGINAL MATERIAL: “Andaman, Pavajig jungle, Baratang, Elphistone Is., Ghani nala”.

Lopholejeunea sikkimensis* var. *kumaunii B.K.Kushwaha, S.N.Srivast., M.Rai et Prateek Srivast., *Int. J. Life Sci.* 5 (4): 544, 2017 (see Kushwaha *et al.* 2017). TYPE: “WHKP 0262 L/15 (Holotype) and WHKP 0263 L/15 (Isotype). Munsyari (300 3’ 50” N; 800 14’ 12.3” E; 2195 m; 06 October 2015) in Pithoragarh district, Kumaun Region, Uttarakhand state, Western Himalaya, leg. S. N. Srivastava, Meena Rai & B. K. Kushwaha, det. S. N. Srivastava, Meena Rai & B. K. Kushwaha (Deposited in Duthie Herbarium, Botany Department, University of Allahabad, Allahabad)”.

Lophozia jurensis (Meyl. ex Müll.Frib.) Mamontov et Vilnet, *Hep. Ross. Exsicc. XIII*: 13, 2017 (see Borovichev & Mamontov 2017). BASIONYM: *Lophozia jurensis* Meyl. ex Müll.Frib., *Lebermoose* 2 (26): 767, 1916 (see Müller 1916).

Lophozia latifolia (R.M.Schust.) Köckinger, *Cat. Fl. Austriae* II (2): 114, 2017 (see Köckinger 2017). BASIONYM: *Lophozia latifolia* R.M.Schust., *Bryologist* 56 (4): 258, 1953 (see Schuster 1953).

Marchantia quadrata* subsp. *hyperborea (R.M.Schust.) Borovich., *Novosti Sist. Nizsh. Rast.* 51: 284, 2017 (see Sokolova *et al.* 2017). BASIONYM: *Preissia quadrata* subsp. *hyperborea* R.M.Schust., *Phytologia* 57 (6): 410, 1985 (see Schuster 1985). NOTE: This also creates the autonym.

Marchesinia principensis Frank Müll. et Shevock, *Phytotaxa* 338 (2): 203, 2018 (see Müller & Shevock 2018). TYPE: “SÃO TOMÉ AND PRÍNCIPE. Príncipe Island, Obô Natural Park de Príncipe. Along trail to Pico Papagaio above roça Santa Trindade, summit ridge of peak, 690 m, mixed hardwood tropical forest with ferns, on hardwood trunk in filtered light, 01°36’38.8”N, 07°23’32.0”E, 24 April 2012, Shevock 40193 (holotype DR, isotypes CAS, EGR, HSNU, STPH)”.

Mesoptychia badensis* var. *apiculata (R.M.Schust.) Potemkin, *Novosti Sist. Nizsh. Rast.* 48: 377, 2014 (see Potemkin 2014). BASIONYM: *Lophozia badensis* var. *apiculata* R.M.Schust., *Hepat. Anthocerotae N. Amer.* 2: 415, 1969 (see Schuster 1969). NOTE: Also combined by Stotler & Crandall-Stotler (2017). NOTE: This also creates the autonym.

Metzgeria holzii Gradst. et A.R.Benítez, *Nova Hedwigia* 106 (1/2): 52, 2018 [2017] (see Gradstein & Benítez 2018). TYPE: “Ecuador. Loja: Saraguro, Loma del Oro, shrubby páramo, 3300 m, on twigs of shrubs, April 2016, Á.Benítez 1214, c. sp. (holotype, HUTPL; isotype, PC)”.

Metzgeria mizoramensis Sushil K.Singh et D.Singh, *Cryptog. Bryol.* 39 (1): 48, 2018 (see Singh & Singh 2018). TYPE: “INDIA: Mizoram, Mamit, Dampa Tiger Reserve, Phuldungsei Range, 23°30’0.7” N, 92°25’0.2” E, 932 m, 27.11.2011, S.K. Singh *et al.* 124090 (holo: CAL; Iso: ASSAM)”.

†***Metzgerites multifidus*** P.C.Wu, *Acta Geol. Sin.* 91 (5): 1548, 2017 (see Guo *et al.* 2017). TYPE: “Holotype: Specimen PEPB00003 (Fig. 3g); Paratypes: PEPB00003; Repository: Museum of Plant History, Institute of Botany, Chinese Academy of Sciences; Type locality: Huangbanjigou Villiage, Shangyuan Town, Liaoning, China”.

Microlejeunea jiboensis C.J.Bastos et Vilas Bôas-Bastos, *Neodiversity* 10 (1): 8, 2017 (see Bastos & Bôas-Bastos 2017). TYPE: “BRAZIL: Bahia, Santa Teresinha, povoado de Pedra Branca, Serra da Jiboia, Morro da Pioneira, in rocky outcrop, growing on a stem of Velloziaceae, 12°51’16.1”S, 39°28’31.8”W, elev. 820 m, 19 Jan 2017, S.B.Vilas Bôas-Bastos 2856 (holotype: ALCB; isotype: SP)”.

Monoclea gottschei* subsp. *australis Gradst., *J. Bryol.* 39 (4): 389, 2017 (see Gradstein 2017b). TYPE: “Chile, Valdivia, Corral, 5 June 1896, P. Dusén 125 (holotype: G 290908/1!, c.sp.; isotype: S 165097!, c.andr.)”.

Mylia vietnamica Bakalin et Vilnet, *Phytotaxa* 348 (1): 43, 2018 (see Bakalin & Vilnet 2018a). TYPE: “Vietnam. Lao Cai Province, SaPa, Phan Xi Pan National Park, cliffs along main ridge near the peak (22°18’11”N 103°46’31”E), 3050–3100 m a.s.l., mesic open cliffs, leg V.A. Bakalin 17.III.2016, V-3-36-16 (VBGI, duplicate in KPABG)”.

Myriocoleopsis* sect. *Protocolea (R.M.Schust.) Gradst., *Philipp. J. Syst. Biol.* 12 (1): 8, 2018 (see Gradstein 2018). BASIONYM: *Cololejeunea* subg. *Protocolea* R.M.Schust., *Beih. Nova Hedwigia* 9: 171, 1963 (see Schuster 1963). NOTE: This also creates the autonym.

Neoorthocaulis hyperboreus* subsp. *helophilus (R.M.Schust. et Damsh.) Stotler et Crand.-Stotl., *Ann. Missouri*

Bot. Gard. 102 (4): 659, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Lophozia hyperborea* subsp. *helophila* R.M.Schust. et Damsh., *Phytologia* 63 (5): 325, 1987 (see Schuster & Damsholt 1987). NOTE: This also creates the autonym.

Notoscyphus darjeelingensis var. *sikkimensis* D.Singh, D.K.Singh et Ad.Kumar, *Indian J. Forest.* 33 (1): 93, 2010 (see Singh *et al.* 2010). TYPE: “India: Eastern Himalaya, Sikkim, Gourigawa, ea 1600 m, 29.10.2005, D. Singh 36691 (CAL)”. NOTE: This also creates the autonym.

Notothylias guizhouensis Li Zhang et T.Peng, *Phytotaxa* 367 (2): 191, 2018 (see Zhang *et al.* 2018). TYPE: “CHINA. Guizhou Province. Jiangkou County. Minxiao. Yuliangxi Grand Valley (exit at Guangzai). N 27°37'35”, E 108°42'57”. On soil bank by river, 455 m. 24 September 2017. L. ZHANG 13590 (Holotype SZG!)”.

†*Odontoschisma dimorphum* (Casp.) Heinrichs, K.Feldberg, Váňa et Schäf.-Verw., *Foss. Rec.* 20: 151, 2017, ‘*dimorpha*’ (see Feldberg *et al.* 2017). BASIONYM: *Jungermannia dimorpha* Casp., *Schriften Königl. Phys.-Ökon. Ges. Königsberg* 27: 2, 1887 (see Caspary 1887).

Orthocaulis quadrilobus f. *cephalozielloides* (R.M.Schust.) Potemkin, *Novosti Sist. Nizsh. Rast.* 49: 384, 2015 (see Potemkin & Safronova 2015). BASIONYM: *Lophozia quadriloba* f. *cephalozielloides* R.M.Schust., *Hepat. Anthocerotae N. Amer.* 2: 278, 1969 (see Schuster 1969).

†***Pallaviciniites riccioites* (S.Q.Wu) P.C.Wu et C.Q.Guo, *Acta Geol. Sin.* 91 (5): 1547, 2017, *nom. inval.* ICN Art. 41.5; basionym not cited (see Guo *et al.* 2017). BASIONYM: *Thallites riccioites* S.Q.Wu, *Palaeoworld* 11: 8, 33, 1999 (see Wu 1999).

†*Pallaviciniites strictus* P.C.Wu et C.Q.Guo, *Acta Geol. Sin.* 91 (5): 1545, 2017, ‘*stricta*’ (see Guo *et al.* 2017). TYPE: “Holotype: Specimen PEPB00019 (Fig. 3d); Paratypes: PEPB00016, PEPB00019; Repository: Museum of Plant History, Institute of Botany, Chinese Academy of Sciences; Type locality: Huangbanjigou Villiage, Shangyuan Town, Liaoning, China”.

†*Pellites* P.C.Wu et C.Q.Guo, *Acta Geol. Sin.* 91 (5): 1547, 2017 (see Guo *et al.* 2017). TYPE: *Pellites latithallus* P.C.Wu et C.G.Gao.

†*Pellites latithallus* P.C.Wu et C.Q.Guo, *Acta Geol. Sin.* 91 (5): 1547, 2017 (see Guo *et al.* 2017). TYPE: “Holotype: Specimen PEPBOOOOIB (Fig. 3e); Paratypes: PEPBOOOOI (A, B); Repository: Museum of Plant History, Institute of Botany, Chinese Academy of Sciences; Type locality: Huaogbanjigou Villiage, Shangyuo Town, Liaoning, China”.

Plagiochila aemula M.A.M.Renner, *Telopea* 21: 281, 2018 (see Renner 2018). TYPE: “[Australia, Queensland] Upper West Mulgrave River, below Bobbin Bobbin Falls, 17°22’S 145°46’E, 600 m, 3 Sep 2014, *M.A.M. Renner 7334 & L.J. Gray* (holotype: NSW 880509; isotypes: BRI, CANB)”.

Plagiochila aenea M.A.M.Renner, *Telopea* 21: 319, 2018 (see Renner 2018). TYPE: “Australia: Queensland: Cook, Daintree National Park, track to Manjal Jimalji, between coral fern patch and split rock, 16°23’29”S 145°17’29”E, 1025 m, *M.A.M. Renner 6975 & T.C. Wilson* (holotype: NSW 858925; isotypes: BRI, CANB, MEL, SUVA)”.

Plagiochila apatila M.A.M.Renner, *Telopea* 21: 333, 2018 (see Renner 2018). TYPE: “Australia, Queensland, North Kennedy, Tully Falls National Park, Tully Falls Road, Charmill Creek, 17°42’03”S 145°31’26”E, 1000 m, 31 May 2014, *M.A.M. Renner 7090 & T.C. Wilson* (holotype: NSW 858920; isotypes: BRI, CANB, G)”.

Plagiochila lamellata M.A.M.Renner, *Telopea* 21: 314, 2018 (see Renner 2018). TYPE: “Australia, Queensland, Daintree National Park, track to Manjal Jimalji, between coral fern patch and split rock, 16°23’29”S 145°17’29”S, 1025 m, 19 May 2014, *M.A.M. Renner 6976 & T.C. Wilson* (holotype: NSW 858927; iso types: BRI, CANB, G, SUVA)”.

Plagiochila lamyana Gradst. et D.P.Costa, *Cryptog. Bryol.* 39 (2): 148, 2018 (see Gradstein & Costa 2018). TYPE: “Brazil, Roraima State, Uiramutã, Parque Nacional do Monte Roraima, summit area of Mt. Caburái, 5°10’22”N 60°12’57”W, on trunk base in woodland, 1316 m, November 2014, D.P. Costa *et al.* 6018, c. gyn. & andr. (holotype: RB!; isotype: PC!). paratypes: same general locality and habitat, D.P. Costa *et al.* 6011 p.p., 6065, 6068, 6084 p.p., 6142 p.p. (RB!)”.

Plagiochila meridionalis M.A.M.Renner, *Telopea* 21: 355, 2018 (see Renner 2018). TYPE: “Australia, Queensland, Morton National Park, Macpherson Range, west of Toolona Lookout, 28°15’37”S 153°10’19”E, 1176 m, 6 Mar 2014, *M.A.M. Renner 6826 & A.E. Orme* (holotype: NSW 858805; isotypes: BRI, CANB, G, MEL)”.

Plagiochila minax M.A.M.Renner, *Telopea* 21: 326, 2018 (see Renner 2018). TYPE: “Australia, Queensland, North Kennedy, Tully Gorge National Park, Tully River, Cochable Creek catchment, Cannabullen Creek walking track, Whispy Falls, 17°43’34”S 145°37’22”E, 234 m, 11 May 2014, *M.A.M. Renner 6958 & T.C. Wilson* (holotype: NSW 858855; isotypes: BRI, CANB, G, LAE, MEL, SUVA)”.

Plagiochila minutissima M.A.M.Renner, *Telopea* 21: 306, 2018 (see Renner 2018). TYPE: “Australia, Queensland,

Cook, Wooroonooran National Park, Bartle Frere, stream flowing past Western Summit camp from summit ridge north of Bartle Frere, 17°23'45"S 145°48'55"E, 1459 m, 2 Sep 2014, *M.A.M. Renner 7312 & L.J. Gray* (holotype: NSW 880483; isotypes: BRI, CANB, G, LAE, SUVA)".

Plagiochila nebulosa M.A.M. Renner, *Telopea* 21: 337, 2018 (see Renner 2018). TYPE: "Australia, Queensland, North Kennedy, Tully Falls National Park, Tully Falls Road, track to Rhyolite Pinnacle from Charmillan Creek, 17°42'20"S 145°32'48"E, 1005 m, 1 Jun 2014, *M.A.M. Renner 7112 & T.C. Wilson* (holotype: NSW 852994; isotypes: BRI, CANB, G, SUVA)".

Plagiochila pautaphila Gradst. et León-Yáñez, *Nova Hedwigia* 106 (1/2): 45, 2018 [2017] (see Gradstein & León-Yáñez 2018). TYPE: "Ecuador, Pichincha: páramo of Papallacta, remnant *Polylepis pauta* forest along the road from Quito to Baeza just before Papallacta pass, ca. 4000 m, on trunk bases of *P. pauta*, in large, yellowish-green tufts, 10 February 2017, S.R. Gradstein, S. León-Yáñez & M. Ormaza 12604, c.gyn. (holotype, QCA; isotype, PC)".

Plagiochila praecipua M.A.M. Renner, *Telopea* 21: 237, 2018 (see Renner 2018). NOM. NOV. PRO *Plagiochila gymnoclada* var. *major* Schiffn., *Consp. Hepat. Arch. Ind.*: 166, 1898 (see Schiffner 1898a). BLOCKING NAME: *Plagiochila major* (Nees) S.W. Arnell, *Ill. Moss Fl. Fennosc. Hep.*: 162, 1956, *nom. illeg.* (see Arnell 1956).

Plagiochila priceana Gradst. et A.R. Benitez, *Cryptog. Bryol.* 38 (4): 341, 2017 (see Gradstein & Benitez 2017). TYPE: "Azua: El Cajas, 3930 m, on humus over large rock in humid *Polylepis reticulata* forest in páramo, 2°46'27"S, 79°13'14"W, 2 March 2017, S.R. Gradstein, A. Benitez & S. León-Yáñez 12647, ster. (holotype: QCA; isotypes: G, HUTPL, PC 0728079)".

Plagiochila schiffneriana M.A.M. Renner, *Telopea* 21: 237, 2018 (see Renner 2018). NOM. NOV. PRO *Plagiochila gymnoclada* var. *longifolia* Schiffn., *Denkschr. Kaiserl. Akad. Wiss. Wien, Math.-Naturwiss. Kl.* 67: 166, 1898 (see Schiffner 1898b). BLOCKING NAME: *Plagiochila longifolia* Steph., *Sp. Hepat. (Stephani)* 6: 178, 1921 (see Stephani 1921).

Plagiochila* sect. *Austrocaules M.A.M. Renner, *Telopea* 21: 224, 2018 (see Renner 2018). TYPE: *Plagiochila deltea* S. Hatt.

Plagiochila sichotensis Bakalin et Vilnet, *Bot. Pacifica* 6 (2): 55, 2017 (see Bakalin & Vilnet 2017). TYPE: "RUSSIA. Primorye Territory, Shkotovsky District, Beryozovyy Stream, *Picea-Abies*-broadleaved deciduous forest in the stream valley, on decaying wood (43°08'14"N 132°47'51"E), 395 m alt., leg. V.A. Bakalin & G. Arutiunov, 1-25-13 (VBGI, isotype in KPABG)".

Plagiochila trispicata* var. *rekohuensis (J.J. Engel et G.L. Merr.) M.A.M. Renner, *Bot. J. Linn. Soc.* 186 (1): 125, 2018 [2017] (see Renner *et al.* 2018). BASIONYM: *Plagiochila arbuscula* var. *rekohuensis* J.J. Engel et G.L. Merr., *Nova Hedwigia* 91 (3/4): 509, 2010 (see Engel & Smith Merrill 2010). NOTE: This also creates the autonym.

Plagiochila vampira M.A.M. Renner, *Telopea* 21: 311, 2018 (see Renner 2018). TYPE: "Australia, Queensland, Cook, Dinden National Park, Kahlpali Rock, between summit and junction with Ridge Track, 17°0'59"S 145°37'49"E, 1200 m, 12 May 2014, *M.A.M. Renner 6929 & T.C. Wilson* (holotype: NSW 855503; isotypes: BRI, CANB, G)".

Plagiochila vitilevuana (Schiffn.) M.A.M. Renner, *Telopea* 21: 236, 2018 (see Renner 2018). BASIONYM: *Plagiochila blepharophora* var. *vitilevuana* Schiffn., *Leberm., Forschungs: Gazelle* 4 (4): 6, 1890 (see Schiffner 1890).

Porella biedermannii Frank Müll., *Cryptog. Bryol.* 38 (4): 351, 2017 (see Müller 2017). TYPE: "Chile, VII Región del Maule, province Talca, Armerillo (= 70 km SE of Talca), secondary valley of the Río Maule, valley with *Nothofagus* forest, epiphytic, 35°43'S, 71°01'W; 24.03.1999, leg. Frank Müller C629 (DR)".

Prionolejeunea clementinae Ilk.-Borg., G. Dauphin et N. Salazar, *Nova Hedwigia* 106 (1/2): 66, 2018 (see Ilkiu-Borges *et al.* 2018). TYPE: "Panamá, Distrito La Pintada, Corregimiento El Copé, Parque Nacional General de División Omar Torrijos Herrera, Sendero Cuerpo de Paz, Transecto #2, UTM: 17 P, 545027 E 958212 N, 696 m, on trunk of *Ficus* tree, 1 m from the ground, in exposed site, 31.VII.2012, Dauphin & Gudiño L. 4442 (holotype, PMA; isotype, MG)".

† ***Protofrullania*** Heinrichs, *Cret. Res.* 74: 225, 2017 (see Heinrichs *et al.* 2017b). TYPE: *Protofrullania cornigera* Heinrichs.

† ***Protofrullania cornigera*** Heinrichs, *Cret. Res.* 74: 225, 2017 (see Heinrichs *et al.* 2017b). TYPE: "Holotype. Geoscientific Collections of the Georg August University Göttingen, collection number GZG.BST.21956; Fig. 1. Locality. Amber mines near Tanai, Ledo Road, 105 km northwest of Myitkyina, Kachin State, Myanmar".

† ***Pseudofrullania*** Heinrichs, K. Feldberg, M.A.M. Renner et Schäf.-Verw., *Krings et al., Transformative Paleobotany*: 225, 2018 (see Heinrichs *et al.* 2018b). TYPE: *Pseudofrullania hamatosetacea* (Grolle) Heinrichs, K. Feldberg, M.A.M. Renner et Schäf.-Verw.

† ***Pseudofrullania hamatosetacea*** (Grolle) Heinrichs, K. Feldberg, M.A.M. Renner et Schäf.-Verw., *Krings et al.*,

Transformative Paleobotany: 225, 2018 (see Heinrichs *et al.* 2018b). BASIONYM: *Frullania hamatosetacea* Grolle, *Liverw. Bitterfeld amber*: 22, 2004 (see Grolle & Meister 2004).

Pycnolejeunea chocoensis M.E.Reiner et Gradst., *Cryptog. Bryol.* 39 (3): 326, 2018 (see Reiner-Drehwald & Gradstein 2018). TYPE: “Colombia. Departamento Chocó: municipio Nuquí, around Biological Station “El Amargal”, coastal lowland rainforest, ca 30 m s.n.m., on liana, 6 August 1992, S.R. Gradstein 8877 (holotype, COL!; isotypes, GOET!, PC!)”.

Pycnolejeunea remotistipula C.J.Bastos et Zartman, *Neodiversity* 10 (1): 2, 2017 (see Bastos & Zartman 2017). TYPE: “BRAZIL: Amazonas, Rio Negro, between Manaus and São Gabriel, along BR 307, from São Gabriel, just N of Igarapé Iá-Mirim, near Jerusalém; primary forest, 00°20'N, 66°35'W, 17 July 1979, R.M.Schuster 79-18-835 (holotype: F)”.

Radula camerunensis Pócs et Döbbeler, *Stud. Bot. Hung.* 48 (1): 24, 2017 (see Pócs 2017). TYPE: “Cameroon, Southwest Province: Bimbia-Bonadikombo Forest Reserve (Mabeta-Moliwe Forest Reserve), lowland rainforest at sea level, with 5000 mm annual precipitation, epiphyllous, hosting the bryoparasitic ascomycete *Epibryum platycarpum* Döbbeler et T. Franke. Coll.: Thassilo Franke, 27.11.2000, Döbbeler No. 8784 (holotype: EGR, isotype: NY, under the fungal name of *Epibryum platycarpum*, paratypes from the same collector, locality, and date: Döbbeler No. 8779, M; 8780 (holotype of *E. platycarpum*, M); No. 8789, TUR; No. 8778, B)”.

†***Radula cretacea*** Bechteler, M.A.M.Renner, Schäf.-Verw. et Heinrichs, *Foss. Rec.* 20 (2): 206, 2017 (see Bechteler *et al.* 2017). TYPE: “Single liverwort fossil in Burmese amber piece PB22484 of the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences”.

Radula deflexilobula Promma, L.N.Zhang et R.L.Zhu, *Cryptog. Bryol.* 39 (4): 484, 2018 (see Promma *et al.* 2018). TYPE: “Thailand. Trang, Palian, Chao Pa Waterfall, 7°14'21.90” N, 99°50'39.18” E, 75 m, epiphytic on branches along stream of limestone rapids in lowland evergreen forest, 24 Nov. 2014, *Chantanaorrapint & Promma* 3933 (holotype: PSU!, isotypes: BKF!, HSNU!)”.

†***Radula intecta*** M.A.M.Renner, Schäf.-Verw. et Heinrichs, *Earth Envir. Sci. Trans. Roy. Soc. Edinburgh* 107 (2/3): 324, 2018 [2017] (see Kaasalainen *et al.* 2018). TYPE: “Holotype. American Museum of Natural History, New York, USA, AMNH DR-15-3. The gametophyte fragment shown in Figure 4D represents the holotype. Type locality. Dominican Republic, Santiago area. Age and stratigraphic position. Early Miocene, about 15 to 20 million years old”.

Reinerantha Gradst. et R.L.Zhu, *J. Syst. Evol.* 56 (1): 71, 2018 [2017] (see Gradstein *et al.* 2018a). TYPE: *Reinerantha foliicola* Gradst. et R.L.Zhu.

Reinerantha foliicola Gradst. et R.L.Zhu, *J. Syst. Evol.* 56 (1): 71, 2018 [2017] (see Gradstein *et al.* 2018a). TYPE: “Ecuador. Pichincha: Western Cordillera, old road Quito to St Domingo, Las Palmeras, 1800 m, on leaves of *Piper capunya* Ruiz & Pav. and *Acalypha platyphylla* Müll. Arg. along Río Guajalito, in open area of meadows and remnant montane rainforest, 0°14'S, 78°47'W, 17 Feb. 2017, S. R. Gradstein & A. J. Pérez 12621, c. andr. & gyn. (holotype: QCA!; isotypes: PC!, HSNU!)”.

Riccardia lachungensis D.Singh et D.K.Singh, *Liverw. Hornw. India, Checklist*: 51, 2016 (see Singh *et al.* 2016). TYPE: “Holotype: India. Eastern Himalaya, Sikkim, North district, 12 km from Lachung towards Katau, 27°40'53.5"N, 88°46'19.8"E, c. 3118 m, 24 May 2011, D. Singh 52130A (CAL)”.

Riccardia latifrons* subsp. *parasitans (Steph.) Gradst. et Reeb, *Cryptog. Bryol.* 39 (4): 530, 2018 (see Gradstein & Reeb 2018). BASIONYM: *Aneura parasitans* Steph., *Biblioth. Bot.* 21 (87): 175, 1916 (see Stephani 1916).

Riccardia udarii D.Singh et D.K.Singh, *Liverw. Hornw. India, Checklist*: 53, 2016 (see Singh *et al.* 2016). TYPE: “Holotype: India. Eastern Himalaya, Sikkim, South district, Shimkharkha, 27°14'21.3"N, 88°25'31.1"E, c. 1421 m, 14 Dec. 2013, D. Singh 60674A (CAL)”.

†***Riccardiothallus palmatus*** P.C.Wu et C.Q.Guo, *Acta Geol. Sin.* 91 (5): 1543, 2017, ‘*palmata*’ (see Guo *et al.* 2017). TYPE: “Holotype: Specimen PEPB00007A (Fig. 2a); Paratypes: PEPB00007 (A, B)-9(A, B); PEPBOOOIO-11; PEPB00017-18; Repository: Museum of Plant History, Institute of Botany, Chinese Academy of Sciences; Type locality: Huangbanjigou Villiage, Shangyuan Town, Liaoning, China”.

Riccia oryzicola T.Tominaga et Furuki, *Hikobia* 17 (3): 181, 2017 (see Tominaga & Furuki 2017). TYPE: “Japan. Honshu, Tochigi-ken, Utsunomiya-shi, Mobaracho, 36°28'0"N, 139°53'8"E, 78 m alt., on soil in paddy field for non-irrigation period after harvest, Jan. 3. 2008, coll. T. Tominaga 1940 (holotype in Tochigi Prefectural Museum, isotype in CBM)”.

Scapania marsupelloides Potemkin, Vilnet et Mamontov, *Phytotaxa* 385 (2): 59, 2018 (see Mamontov *et al.* 2018d). TYPE: “CHINA. Yunnan: Fugong County, Lumadeng Xiang, Yaping Cun, E slope of Gaoligong Shan (Nu Jiang catchment), east slope of Burma/Yunnan border ridge beside ‘Twin Lakes’ south of ‘Yaping Pass’, ca. 3610 m

a. s. l., 27°12'01.1"N, 98°41'40.1"E, alpine lake shore with marshy slopes, boulders and tall herbs; on flushed slope, 5 October 2007, D. G. Long & J. Shevock 37350 det. as *Marsupella sphacelata*, MO (Holotype), LE, MHA, KPABG, VBGI (isotypes)".

Schistochilopsis grandiretis* subsp. *proteidea (Arnell) Stotler et Crand.-Stotl., *Ann. Missouri Bot. Gard.* 102 (4): 688, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Jungermannia grandiretis* var. *proteidea* Arnell, *Ark. Bot.* 19 (10): 70, 1925 (see Arnell 1925). NOTE: This also creates the autonym.

Sinomylia P.C.Wu, Y.Jia et M.Z.Wang, *Chenia* 13: 15, 2018 (see Wu *et al.* 2018). TYPE: *Sinomylia chenii* P.C.Wu, Y.Jia et M.Z.Wang.

Sinomylia chenii P.C.Wu, Y.Jia et M.Z.Wang, *Chenia* 13: 16, 2018 (see Wu *et al.* 2018). TYPE: "China, Yunnan, Gongshan Co., east slope of Gaoligong Mts., near East Fan, in peat land, alt. 3 200 m, M.-Z. Wang 9412-1 (holotype, PE; isotype, KUN)".

Soella R.L.Zhu, L.Shu, Qiong He et Y.M.Weï, *Bryologist* 121 (3): 332, 2018 (see Zhu *et al.* 2018c). TYPE: *Soella obtusifolia* (T.Yamag.) R.L.Zhu, L.Shu, Qiong He et Y.M.Weï.

Soella obtusifolia (T.Yamag.) R.L.Zhu, L.Shu, Qiong He et Y.M.Weï, *Bryologist* 121 (3): 334, 2018 (see Zhu *et al.* 2018c). BASIONYM: *Drepanolejeunea obtusifolia* T.Yamag., *J. Jap. Bot.* 59 (11): 332, 1984 (see Yamaguchi 1984).

Solenostoma granulatum (Steph.) T.Katag. et Furuki, *Hattoria* 9: 90, 2018, 'granulata' (see Katagiri & Furuki 2018). BASIONYM: *Nardia granulata* Steph., *Bull. Herb. Boissier* 5 (2): 100, 1897 (see Stephani 1897).

Solenostoma orientale (Bakalin et Vilnet) T.Katag. et Furuki, *Hattoria* 9: 91, 2018 (see Katagiri & Furuki 2018). BASIONYM: *Metasolenostoma orientale* Bakalin et Vilnet, *Bot. Pacifca* 3 (2): 12, 2014 (see Bakalin *et al.* 2014).

Solenostoma pfeidereri (Amakawa et Váña) Sushil K.Singh, *Liverw. Hornw. India, Checklist*: 267, 2016 (see Singh *et al.* 2016). BASIONYM: *Jungermannia pfeidereri* Amakawa et Váña, *J. Hattori Bot. Lab.* 35: 388, 1972 (see Amakawa 1972).

Solenostoma shinii (Amakawa) T.Katag. et Furuki, *Hattoria* 9: 92, 2018 (see Katagiri & Furuki 2018). BASIONYM: *Jungermannia shinii* Amakawa, *J. Hattori Bot. Lab.* 33: 156, 1970 (see Amakawa 1970).

Spruceanthus floreus (Mitt.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Phragmicoma florea* Mitt., *J. Linn. Soc., Bot.* 22 (146): 323, 1886 (see Mitten 1886).

Spruceanthus semirepandus* var. *indicus Sushil K.Singh, *Nelumbo* 60 (1): 83, 2018 (see Singh 2018). TYPE: "India, Mizoram, Lunglei, Khawanglung WLS, 23°09'21.8" N, 92°55'00.5" E, 721 m, 04.12.2012, S.K. Singh & Party 127726A (holo: ASSAM!)".

Syzygiella burghardtii Gradst. et A.R.Benitez, *Cryptog. Bryol.* 38 (4): 343, 2017 (see Gradstein & Benitez 2017). TYPE: Ecuador, "Loja / Zamora Chinchipe: pass El Tiro (Fig. 5), 2900–3000 m, epiphyte in shrubby subpáramo, 24 April 2008, M. Burghardt, X. Haro-Carrion & A. Moscoso MB7054 (holotype: PC 0728083; isotypes: HUTPL, QCA)".

Thiersianthus R.L.Zhu et L.Shu, *Bryologist* 120 (4): 513, 2017 (see Zhu *et al.* 2017b). TYPE: *Thiersianthus silamensis* R.L.Zhu et L.Shu.

Thiersianthus silamensis R.L.Zhu et L.Shu, *Bryologist* 120 (4): 513, 2017 (see Zhu *et al.* 2017b). TYPE: "MALAYSIA. SABAH: Lahad Datu, Sepagaya Forest Reserve, Mount Silam, along trail to Silam water spring, 04858028.5000N, 118810052.6200E, 303 m, on tree roots, 16 Sept. 2016, Rui-Liang Zhu, Lei Shu & Xiang-Bo Yin 20160916-23A (holotype: HSNU!; isotypes: BORH!, SAN!, SNP!)".

Thysananthus* sect. *Ligulati Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). TYPE: *Thysananthus ligulatus* (Lehm. et Lindenb.) Sukkharak et Gradst.

Thysananthus* sect. *Mastigolejeunea (Spruce) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Lejeunea* subg. *Mastigolejeunea* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15 (1): 100, 1884 (see Spruce 1884).

Thysananthus* sect. *Nigri (R.M.Schust.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Mastigolejeunea* sect. *Nigrae* R.M.Schust., *Bryologist* 64(2/3): 167, 1961 (see Schuster 1961).

Thysananthus* subg. *Mastigolejeunea (Spruce) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Lejeunea* subg. *Mastigolejeunea* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15: 100, 1884 (see Spruce 1884).

Thysananthus auriculatus (Wilson et Hook.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Jungermannia auriculata* Wilson et Hook., *Musci Amer., S. States*: no. 170, 1841 (see Wilson 1841).

Thysananthus auriculatus var. *rhodesicus* (Vanden Berghen) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Brachiolejeunea rhodesica* Vanden Berghen, *Bull. Jard. Bot. État Bruxelles* 21 (1/2): 94, 1951 (see Vanden Berghen 1951). NOTE: This also creates the autonym.

†*Thysananthus bidentulus* (Gradst.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 103, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Mastigolejeunea bidentula* Gradst., *Nova Hedwigia* 57 (3/4): 365, 1993 (see Gradstein 1993).

Thysananthus calcaratus (Steph.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Archilejeunea calcarata* Steph., *Sp. Hepat. (Stephani)* 4: 724, 1911 (see Stephani 1911).

†*Thysananthus contortus* (Göpp. et Berendt) Sukkharak et Gradst., *Phytotaxa* 326 (2): 103, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Jungermannites contortus* Göpp. et Berendt, *Goeppert & Berendt, Die Bernstein:* 114, 1845 (see Goeppert 1845).

Thysananthus gradsteinii (Sukkharak) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Mastigolejeunea gradsteinii* Sukkharak, *J. Bryol.* 36 (1): 56, 2014 (see Sukkharak 2014).

Thysananthus humilis (Gottsche) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Phragmicoma humilis* Gottsche, *Syn. Hepat.* 2: 299, 1845 (see Gottsche *et al.* 1845a).

Thysananthus indicus (Steph.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Mastigolejeunea indica* Steph., *Sp. Hepat. (Stephani)* 4: 776, 1912 (see Stephani 1912).

Thysananthus innovans (Spruce) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Lejeunea innovans* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15 (1): 103, 1884 (see Spruce 1884).

Thysananthus ligulatus (Lehm. et Lindenb.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017, ‘*ligulata*’ (see Sukkharak & Gradstein 2017). BASIONYM: *Jungermannia ligulata* Lehm. et Lindenb., *Nov. Stirp. Pug.* 6: 39, 1834 (see Lehmann 1834).

Thysananthus niger (Steph.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017, ‘*nigrus*’ (see Sukkharak & Gradstein 2017). BASIONYM: *Mastigolejeunea nigra* Steph., *Hedwigia* 30 (5): 206, 1891 ‘*Mastigo-Lejeunea*’ (see Stephani 1891).

Thysananthus plicatiflorus (Spruce) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Lejeunea plicatiflora* Spruce, *Trans. & Proc. Bot. Soc. Edinburgh* 15 (1): 104, 1884 (see Spruce 1884).

Thysananthus reconditus (Steph.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 102, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Ptycholejeunea recondita* Steph., *Hedwigia* 35 (3): 122, 1896 (see Stephani 1896).

Thysananthus repletus (Taylor) Sukkharak et Gradst., *Phytotaxa* 326 (2): 103, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Lejeunea repleta* Taylor, *London J. Bot.* 5: 392, 1846 (see Taylor 1846).

Thysananthus truncatus (Mizut.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 103, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Mastigolejeunea truncata* Mizut., *J. Hattori Bot. Lab.* 61: 292, 1986 (see Mizutani 1986).

Thysananthus turgidus (Steph.) Sukkharak et Gradst., *Phytotaxa* 326 (2): 103, 2017 (see Sukkharak & Gradstein 2017). BASIONYM: *Mastigolejeunea turgida* Steph., *Hedwigia* 31 (4): 170, 1892 (see Stephani 1892).

Trilophozia quinquedentata var. *turgida* (Lindb.) Konstant., *Folia Cryptog. Estonica* 55: 112, 2018 (see Konstantinova & Savchenko 2018). BASIONYM: *Jungermannia quinquedentata* var. β *turgida* Lindb., *Kongl. Svenska Vetensk.-Akad. Handl. (n.ser.)* 23 (5): 59, 1889 (see Lindberg & Arnell 1889).

Tritomaria capitata (Hook.) Stotler et Crand.-Stotl., *Ann. Missouri Bot. Gard.* 102 (4): 698, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Jungermannia capitata* Hook., *Brit. Jungermann.*: tab. 80, 1816 (see Hooker 1816).

Tritomaria laxa (Lindb.) Stotler et Crand.-Stotl., *Ann. Missouri Bot. Gard.* 102 (4): 698, 2017 (see Stotler & Crandall-Stotler 2017). BASIONYM: *Jungermannia laxa* Lindb., *Acta Soc. Sci. Fenn.* 10: 529, 1875 (see Lindberg 1875).

Udaria D.K.Singh, S.Majumdar et D.Singh, *Curr. Sci.* 115 (8): 1537, 2018 (see Singh *et al.* 2018). TYPE: *Udaria lamellicaulis* D.K.Singh, S.Majumdar et D.Singh.

Udaria lamellicaulis D.K.Singh, S.Majumdar et D.Singh, *Curr. Sci.* 115 (8): 1537, 2018 (see Singh *et al.* 2018). TYPE: “India: Eastern Himalaya, Sikkim, North district, Zakhthang, 27°46'55.8"N, 88°28'09.4"E, c. 3360 m, 24 March 2013, D. Singh 60533A (Holotype & Isotype: CAL)”.

Vitalianthus lamyii R.L.Zhu, L.Shu et Mohamed, *Cryptog. Bryol.* 39 (2): 294, 2018 (see Zhu *et al.* 2018a). TYPE: “Brunei Darussalam. Temburong, Kuala Belalong, Kuala Belalong Field Studies Centre of the Universiti

Brunei Darussalam, 4°33'18.51" N, 115°09'15.53" E, 80 m, on tree trunks, 16 Dec. 2015, R.-L. Zhu et al. 20151216-62 (holotype: HSNU!; isotype: UBDH!)"

Yanoella R.L.Zhu, L.Shu, C.J.Bastos et Vilas Bôas-Bastos, *Bryologist* 121 (3): 271, 2018 (see Zhu et al. 2018b).
TYPE: *Yanoella truncatilobula* (C.J.Bastos) R.L.Zhu, L.Shu, C.J.Bastos et Vilas Bôas-Bastos.

Yanoella truncatilobula (C.J.Bastos) R.L.Zhu, L.Shu, C.J.Bastos et Vilas Bôas-Bastos, *Bryologist* 121 (3): 271, 2018 (see Zhu et al. 2018b). BASIONYM: *Rectolejeunea truncatilobula* C.J.Bastos, *J. Bryol.* 34 (2): 144, 2012 (see Bastos 2012).

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