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A new checklist of the mosses of the continental United States and Canada¹

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ABSTRACT. The checklist includes a listing of the genera and species of North American Bryophyta thought to occur in the continental United States and Canada. The floras of Mexico, Hawaii and Greenland are not included. The current list recognizes 1565 species, 12 subspecies, 34 varieties and one form (for a total of 1612 taxa) in 366 genera and 100 families. As a preface to the list, a systematic arrangement of the families and included genera for North America is presented. Many changes from the previous checklist are documented via footnotes that provide references to where changes were made. Only synonymy since the previous checklist is included. Twenty nomenclatural changes are made. These include 19 new combinations: *Bryum brassicoides* ($\equiv$ *Gemmabryum brassicoides*), *B. pacificum* ($\equiv$ *Ptychostomum pacificum*), *B. torenii* ($\equiv$ *Imbriobryum torenii*), *B. vinosum* ($\equiv$ *Gemmabryum vinosum*), *Chionoloma maragniphyllum* ($\equiv$ *Oxystegus maragniphyllus*), *Lescurea tribulosa* ($\equiv$ *Pseudoleskea tribulosa*), *Pterygoneurum* $\times$ *kieneri* ($\equiv$ *P. subsessile* var. *kieneri* Habeeb), *Pylaisiadelphina canadensis* ($\equiv$ *Brotherella canadensis*), *Streblotrichum convolutum* var. *eustegium* ($\equiv$ *Barbula eustegia*), *Streblotrichum convolutum* var. *gallinula* ($\equiv$ *Barbula convoluta* var. *gallinula*), *Voitia angustata* ($\equiv$ *Splachnum angustatum*), *V. mnioides* ($\equiv$ *Splachnum mnioides*), *V. pallida* ($\equiv$ *Tetraplodon pallidus*), *V. paradoxa* ($\equiv$ *Splachnum paradoxum*), *V. urceolata* ($\equiv$ *Splachnum urceolatum*), *Warnstorfia badia* ($\equiv$ *Hypnum badium*), *W. straminea* ($\equiv$ *Hypnum stramineum*), *W. straminea* var. *patens* (Lindb.) ($\equiv$ *Amblystegium stramineum* var. *patens*), *W. wickesiae* ($\equiv$ *Calliargon wickesiae*). A new order is also introduced: Rhizogemmales W.R.Buck & Goffinet ($\equiv$ Rhizogemmaceae Bonfim Santos, Siebel & Fedosov).

KEYWORDS. Bryophyta, inventory, North America, systematics, classification.



We present here the newest version of the North American moss checklist. In doing so, we stand on the shoulders of previous North American bryologists. Beginning with A. J. Grout (1940), who published the first comprehensive checklist of North American mosses, the task was then taken over by Howard Crum with the collaboration of Lewis Anderson and Bill Steere (Anderson 1990; Anderson et al. 1990; Crum et al. 1965, 1973). It has now been

almost 35 years since the last checklist and our understanding of moss diversity, species delineation and phylogeny and its accompanying nomenclatural and classification changes have moved ahead faster than at any time in the past. Molecular data have revealed relationships previously undetected by morphological observations, and similarly may reveal that phenotypic divergences may be infraspecific rather than diagnostic of speciation events. Moss taxonomy is a dynamic field and hence changes are far from being finished and names will continue to change for the foreseeable future, as we can attest by the changes encountered during the two-year preparation of this list. Furthermore, some concepts remain contentious among authors (e.g., taxonomy

¹ We dedicate this checklist to the memory of Howard A. Crum and Lewis E. Anderson on whose shoulders we stand.

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and systematics of the Pottiaceae), and consequently we have had to make choices. While we aimed at considering the evidence of alternative hypotheses (e.g., strength of the data, whether morphological or molecular, in supporting lineages), in various cases the final decision may have been shaped by our own general concepts. However, the impacts of our perhaps subjective decisions affect primarily systematic rather than taxonomic concepts at the species level, and hence should have a minimal impact on the recognized diversity of species and infraspecific taxa in the continental United States and Canada.

Moss systematics historically has been driven by phenotypic divergences, which is obviously the first step in an effort to organize diversity. The difficulty arose from the weight attributed to specific characters to diagnose lineages. A good example is the genus *Physcomitrella* Bruch & Schimp. (Funariaceae). Distinguished from *Physcomitrium* (Brid.) Brid. by its indehiscent, immersed capsules, its circumscription varied in terms of species and rank (Tan 1979) and even its affinities to *Aphanorhegma* Sull., a unispecific genus also characterized by immersed but operculate capsules. Inferences from DNA sequence data, first from about ten loci (Liu et al. 2012) and then hundreds of organellar (Medina et al. 2018) and then nuclear loci (Medina et al. 2019a), revealed that immersed sporangia evolved multiple times within *Physcomitrium*, and hence recognizing *Physcomitrella* or *Aphanorhegma* resulted in a paraphyletic *Physcomitrium*. Consequently, all species with immersed capsules were transferred to *Physcomitrium* (Medina et al. 2019a).

When a genus diagnosed by morphological traits is resolved as paraphyletic, based on DNA data, for example, due to the inclusion of a small genus, a single genus should be recognized if monophyly is a criterion, such as in the above case of *Physcomitrella* and *Physcomitrium*. The single genus recognized should bear the earliest name available (e.g., *Physcomitrium*) as dictated by the *International Code of Nomenclature for algae, fungi, and plants* (Turland et al. 2018). If the older name applies to a lesser-known genus, such priority can be overruled by a decision to conserve the younger name. Such is the recent case of *Plagiomnium* T.J.Kop. (Koponen 1968) being conserved over *Orthomnion* Wilson (Wilson 1857) at the recent congress in Madrid

(Wilson 2024) on the basis that the former is “a well-established name for a widely distributed genus and therefore conservation would promote nomenclatural stability for the broad community of users of botanical names.” Whether to conserve a name is to some extent a subjective decision based on the perceived “usage” of the younger name. However, one can argue that the sooner a name is adopted the sooner it will gain in usage; the time ahead of us is much longer than the past two centuries of Linnean classification. The genus *Voitia* Hornsch. (1818) has traditionally accommodated two species, and phylogenetic inferences drawn from many nuclear loci (Lewis et al. 2014) reveal that their common ancestor arose from within *Tetraplodon* Bruch & Schimp. (1844), which was thus resolved as paraphyletic. *Tetraplodon* occurs primarily in the Northern Hemisphere with disjunctions in southern South America, and high elevations in Africa and New Guinea, whereas *Voitia* is confined to Laurasia, where it is largely sympatric with species of *Tetraplodon* (Marino 2014). Both genera belong to the Splachnaceae and have been studied in this context (see A. Koponen [1982, 1990] and Marino [1988, 1991a, 1991b] and Marino et al. [2009]). Both genera have been accepted since their protologues and their species have been included in all subsequent inventories. Merging the two genera translates morphologically into species with indehiscent capsules (diagnostic of *Voitia*) having arisen from *Tetraplodon*-like ancestor with dehiscent sporangia. Such a scenario has been accepted for *Voitia grandis* D.G.Long transferred to *Tayloria* (Goffinet & Shaw 2002) and is recurrent in other genera such as *Physcomitrium* (Medina et al. 2019a) or *Weissia* Hedw. (Reese & Lemmon 1965; Zander 1993).

Other genera, primarily speciose ones, have been broken up based on their polyphyletic resolution; examples include *Brachythecium* Schimp. (Brachytheciaceae; e.g., Ignatov & Huttunen 2002) and *Hypnum* Hedw. (Hypnaceae; Schlesak et al. 2018). The outcome may be the recognition of new unispecific genera (e.g., *Buckia* D.Ríos, M.T.Gallego & J.Guerra), which serve as placeholders pending completion of a more comprehensive taxonomic sampling of the speciose genera. We have reluctantly accepted all these segregates. In other cases, the splitting of genera reflects perhaps more subjective preferences, and

may not be supported by phylogenetic evidence. For example, *Racomitrium* Brid. (Grimmiaceae) has been divided into several genera (i.e., the resurrected *Bucklandiella* Roiv. and *Codriophorus* P.Beauv. [Ochyra et al. 2003] and the newly proposed *Dilutineuron* Bedn.-Ochyra, Sawicki, Ochyra, Szczecińska & Plášek [Bednarek-Ochyra et al. 2015], *Frisvollia* Sawicki, Szczecińska, Bedn.-Ochyra & Ochyra [Sawicki et al. 2015] and *Niphotrichum* (Bedn.-Ochyra) Bedn.-Ochyra & Ochyra [Ochyra et al. 2003]). Although these generic segregates may be monophyletic, they all arose from a unique shared common ancestor, i.e., *Racomitrium* s.l. is itself monophyletic (Larraín et al. 2013). Hence, phylogenetically the recognition of smaller genera is not justified. Furthermore, these newer segregate genera lack unambiguous diagnostic morphological traits, given that their circumscription was dependent on DNA versus morphological character analyses (e.g., Bednarek-Ochyra et al. 2015, Sawicki et al. 2015). Hence, we recommend treating these lineages within *Racomitrium* as subgenera as originally proposed by Bednarek-Ochyra (1995). A similar case pertains to the *Warnstorfia* Loeske complex (Calliergonaceae), which comprises four genera, each accommodating only a few species: *Loeskypnum* H.K.G.Paul (2 spp.), *Sarmentypnum* Tuom. & T.J.Kop. (6 spp.), *Straminergon* Hedenäs (1 sp.) and *Warnstorfia* Loeske (4 spp.; Hedenäs 1993). Together these genera compose a monophyletic group (Hedenäs et al. 2005), which we propose recognizing at the generic level.

Another case of segregation of a new genus that can be avoided if a broader concept of the core genus is followed, is *Anomodon* Hook. & Taylor. Ignatov et al. (2019a) divided *Anomodon* into several genera. They erected *Pseudanomodon* for *Anomodon attenuatus* (Hedw.) Huebener because it was only distantly related to the clade comprising the type of *Anomodon*, i.e., *A. viticulosus* (Hedw.) Hook. & Taylor. We support recognizing *Pseudanomodon*. They also established the genus *Anomodontopsis* for *Anomodon rugelii* (Müll.Hal.) Keissl. because the latter is resolved as sister to a clade composed of *Anomodon* s.str. and *Haplohymenium* Dozy & Molke. Given the paraphyly of *Anomodon*, their proposal could be justified on phylogenetic grounds. However, Granzow-de la Cerda (1997) had previously argued for the merger of *Haplohymenium* with *Anomodon*; such a concept would restore the monophyly of *Anomodon*

and hence make the segregation of *Anomodontopsis* unnecessary.

In its traditional circumscription, *Bryum* Hedw. is among the most speciose genera of mosses (Crosby et al. 1999). Some of its diversity was accommodated early on in distinct genera (e.g., *Ptychostomum* Hornsch. [Hornschuch 1824]; *Plagiobryum* Lindb. [Lindberg 1862]), but most have been transferred more recently into new generic segregates (i.e., *Gemmabryum* J.R.Spence & H.P.Ramsay [Spence & Ramsay 2005]; *Imbribryum* N.Pedersen [Pedersen 2005; Pedersen & Hedenäs 2005]; *Plagiobryoides* J.R.Spence [Spence 2005]; *Rosulabryum* J.R.Spence [Spence 1996]). The most recent phylogenetic analyses based on DNA data led Holyoak & Pedersen (2007) to merge *Plagiobryum* with *Ptychostomum* as well as other phylogenetic inferences, whether based on DNA (Pedersen & Hedenäs 2003; Wang & Zhao 2009) or morphological traits (Pedersen et al. 2007), thus raising doubts on the monophyly of the *Bryum* segregates, as recently also discussed by Toren et al. (2024). Consequently, we recognize a single, albeit morphologically diverse, genus, *Bryum*, pending a comprehensive taxonomic and data sampling to resolve the ambiguities.

Finally, generic concepts may be based on the integration of criteria other than strict monophyly. Zander (2024), for example, integrated functional information in the analysis of complexity leading him to recognize monothetic and fractal genera. Admittedly, we do not yet fully understand the conceptual basis for this approach. Therefore, we decided to not recognize the one new generic name that Zander (2023) applied to a taxon present in our flora, i.e., *Neotrichostomum* for *Trichostomum crispulum* Bruch.

Overall, we aimed for consistency in applying criteria for recognizing genera and understand that our concepts depart from those proposed or adopted by others, such as contributors to the *Bryophyte Flora of North America* (Flora of North America Editorial Committee 2007, 2014). In all cases, we sought to provide the basis or explanation for our systematic decisions. Systematic concepts will continue to be vulnerable to change as investigations continue to resolve relationships, methodological approaches evolve, and theoretical principles underlying classifications are developed. However, the generic or systematic concepts adopted have no bearing on the

actual inventory of moss species diversity. Our list provides a significant update to the previous one by Anderson et al. (1990). This list recognizes an additional 183 species and infraspecific taxa, an additional 54 genera, and an additional 28 families. For all additions, deletions, or synonymies we provide documentation in the form of footnotes. We have not reprinted the synonymy of previous lists but are only including names in the list of synonyms that differ from previous lists. All authority names have been checked and updated as needed. The supra-generic classification is built on that proposed by Goffinet et al. (2009a,b), and integrates proposals by Liu et al. (2019), Bechteler et al. (2023), Li et al. (2024) and many others as referenced in the footnotes throughout the classification. The list of taxa occurring in the United States and Canada is available as a spreadsheet (**Supplementary Table S1**), along with an alphabetical list of families of North American mosses and their generic inclusions (**Supplementary Table S2**), an alphabetical list of families of North American mosses and their ordinal affiliations (**Supplementary Table S3**), and an alphabetical list of orders of North American mosses and their familial inclusions (**Supplementary Table S4**).

SYSTEMATIC ARRANGEMENT OF GENERA OF NORTH AMERICAN MOSSES

SUBDIVISION TAKAKIOPHYTINA M.Stech & W.Frey

CLASS TAKAKIOPSIDA M.Stech & W.Frey

TAKAKIALES M.Stech & W.Frey

Takakiaceae M.Stech & W.Frey

Takakia S. Hatt. & Inoue

SUBDIVISION SPHAGNOPHYTINA Doweld

CLASS SPHAGNOPSIDA Schimp.

SPHAGNALES Limpr.

Sphagnaceae Dumort.

Sphagnum L.

SUBDIVISION ANDREAEOPHYTINA Goffinet, W.R.Buck & A.J.Shaw

CLASS ANDREAEOPSIDA Trevis.

ANDREAEALES Limpr.

Andreaeaceae Dumort.

Andreaea Hedw.

CLASS ANDREAEOBRYOPSIDA Goffinet & W.R. Buck¹

ANDREAEOBRYALES B.M.Murray

Andreaeobryaceae Steere

Andreaeobryum Steere & B.M.Murray

SUBDIVISION BRYOPHYTINA Engl.

CLASS POLYTRICHOPSIDA Doweld

OEDIPODIALES Goffinet & W.R.Buck

Oedipodiaceae Schimp.

Oedipodium Schwägr.

POLYTRICHALES Cavers

Polytrichaceae Schwägr.

Atrichum P.Beauv., *nom. cons.*

Bartramiopsis Kindb.

Lyellia R.Br.

Oligotrichum DC., *nom. cons.*

Pogonatum P.Beauv.

Polytrichastrum G.L.Sm.

Polytrichum Hedw.

Psilopilum Brid.

TETRAPHIDALES Cavers

Tetraphidaceae Schimp.

Tetraphis Hedw.

Tetradontium Schwägr.

CLASS BRYOPSIDA Ritgen

SUBCLASS BUXBAUMIIDAE Doweld

BUXBAUMIALES Cavers

Buxbaumiaceae Schwägr.

Buxbaumia Hedw.

SUBCLASS DIPHYSCIIDAE Ochyra

DIPHYSCIALES M.Fleisch.

Diphysciaceae M.Fleisch.

Diphyscium D.Mohr

SUBCLASS GIGASPERMIDAE M.Stech & W.Frey

GIGASPERMALES Goffinet, Wickett, O.Werner, Ros,

A.J.Shaw & C.J.Cox

Gigaspermaceae A.Jaeger & Sauerb.

Lorentziella Müll.Hal. *ex Besch.*

¹ The Andreaeobryophytina were erected by Goffinet et al. (2009a), but recent phylogenetic evidence (Bechteler et al. 2024, Liu et al. 2019) supports that this lineage is sister to the Andreaeopsida, and this combined monophyletic lineage is best treated as the Andreaeophytina.

SUBCLASS FUNARIIDAE Ochyra

DISCELIALES Ignatov, Ignatova & Fedosov

Disceliaceae Schimp.*Discelium* Brid.

ENCALYPTALES Dixon

Encalyptaceae Schimp.*Bryobrittonia* R.S.Williams*Encalypta* Hedw.

FUNARIALES M.Fleisch.

Funariaceae Schwägr.*Entosthodon* Schwägr.*Funaria* Hedw.*Physcomitrium* (Brid.) Brid.*Pyramidula* Brid.**SUBCLASS TIMMIIDAE Ochyra**

TIMMIALES Ochyra

Timmiaceae Schimp.*Timmia* Hedw., *nom. cons.***SUBCLASS DICRANIDAE Doweld**

DISTICHIALES D.Bell & Goffinet

Distichiaceae Schimp.*Distichium* Bruch & Schimp., *nom. cons.***Timmiellaceae Y.Inoue & H.Tsubota***Luisierella* Thér. & P.de la Varde²*Timmiella* (De Not.) Schimp.

PSEUDODITRICHIALES Ignatov & Fedosov

Pseudoditrichaceae Steere & Z.Iwats.*Pseudoditrichum* Steere & Z.Iwats.

FLEXITRICHIALES D.Bell & Goffinet

Flexitrichaceae Ignatov & Fedosov ex D.Bell & Goffinet*Flexitrichum* Ignatov & Fedosov

CATOSCOPIALES Ignatov & Ignatova

Catoscopiaceae Boulay ex Broth.*Catoscopium* Brid.

SCOULERIALES Goffinet & W.R.Buck

Hymenolomataceae Ignatov & Fedosov³*Hymenoloma* Dusén**Scouleriaceae S.P.Churchill***Scouleria* Hook.**Drummondiaceae Goffinet***Drummondia* Hook., *nom. cons.*

BRYOXIPHIALES Á.Löve & D.Löve

Bryoxiphiaceae Besch., nom. cons.*Bryoxiphium* Mitt., *nom. cons.*RHIZOGEMMALES W.R.Buck & Goffinet⁴**Rhizogemmaceae Bonfim Santos, Siebel & Fedosov***Rhizogemma* Bonfim Santos, Siebel & Fedosov

GRIMMIALES M.Fleisch.

Saelaniaceae Ignatov & Fedosov*Saelania* Lindb.**Grimmiaceae Arn.***Coscinodon* Spreng.*Dryptodon* Brid.*Grimmia* Hedw.*Jaffuelobryum* Thér.*Racomitrium* Brid.*Schistidium* Bruch & Schimp., *nom. cons.***Ptychomitriaceae Schimp.***Brachydontium* Fürnr.*Campylostelium* Bruch & Schimp.*Indusiella* Broth. & Müll.Hal.⁵*Ptychomitrium* Fürnr., *nom. cons.***Seligeriaceae Schimp.***Blindia* Bruch & Schimp.*Blindiadelphus* (Lindb.) Fedosov & Ignatov*Seligeria* Bruch. & Schimp.ARCHIDIALES Limpr.⁶**Archidiaceae Schimp.***Archidium* Brid.**Micromitriaceae Smyth ex Goffinet & Budke***Micromitrium* Austin**Leucobryaceae Schimp.***Atractyllocarpus* Mitt., *nom. cons.*² See Inoue & Tsubota (2014).³ See Fedosov et al. (2016a).⁴ The Rhizogemmaceae were erected by Bonfim Santos et al. (in Fedosov et al. 2023b), and resolved as sister to a clade comprising Archidiales, Seligeriales, Grimmiales and Dicranales. We propose to accommodate this family in its own order, Rhizogemmales W.R.Buck & Goffinet comb. et stat. nov. ≡ Rhizogemmaceae Bonfim Santos, Siebel & Fedosov, Plants 12: 1360 [13]. 2023.⁵ See Hernández-Maqueda et al. (2008).⁶ See Bechteler et al. (2023).

Brothera Müll.Hal.
Campylopus Brid.
Leucobryum Hampe

AMPHIDIALES D.Bell & Goffinet

Amphidiaceae M.Stech

Amphidium Schimp., *nom. cons.*

DICRANALES M.Fleisch.

Ruficaulaceae Bonfim Santos & Fedosov

Ruficaulis Bonfim Santos & Fedosov

Dicranellopsidaceae Bonfim Santos, Siebel & Fedosov

Dicranellopsis Bonfim Santos, Siebel & Fedosov

Fissidentaceae Schimp.

Fissidens Hedw.

Schistostegaceae Schimp.

Schistostega D.Mohr

Dicranaceae Schimp., *nom. cons.*

Campylopodia Cardot

Dicranodontium Bruch & Schimp.

Dicranoweisia Lindb. *ex Milde*

Dicranum Hedw.

Oncophorus (Brid.) Brid.

Oreas Brid., *nom. cons.*

Paraleucobryum (Lindb. *ex* Limpr.) Péterfi

Aongstroemiaceae De Not.

Aongstroemia Bruch & Schimp., *nom. cons.*

Calcidicranella Bonfim Santos, Fedosov & Jan Kučera

Dichodontium Schimp.

Diobelonella Ochrya

Dicranellaceae M.Stech

Dicranella (Müll.Hal.) Schimp., *nom. cons.*

Eccremidium Wilson

Octoblepharaceae A.Eddy *ex* M.Menzel

Octoblepharum Hedw.

Calymperaceae Kindb.

Calymperes Sw.

Syrrhopodon Schwägr.

ERPODIALES Goffinet

Erpodiaceae Broth.

Erpodium (Brid.) Brid.

Solmsiella Müll.Hal.

Venturiella Müll.Hal.

BRUCHIALES Goffinet

Bruchiaceae Schimp.

Bruchia Schwägr.

Trematodon Michx.

RHABDOWEISIALES D.Bell & Goffinet

Rhabdoweisiaceae Limpr., *nom. cons.*

Arctoa Bruch & Schimp.

Brideliella Fedosov, M.Stech & Ignatov

Cnestrum I.Hagen

Cynodontium Bruch & Schimp., *nom. cons.*

Kiaeria I.Hagen

Rhabdoweisia Bruch & Schimp.

Symblepharis Mont.

Rhachithecaceae H.Rob.

Rhachithecium Broth. *ex* Le Jol.

DITRICHIALES D.Bell & Goffinet

Ditrichaceae Limpr., *nom. cons.*

Ceratodon Brid.

Cleistocarpidium Ochrya & Bedn.-Ochrya

Ditrichum Timm *ex* Hampe, *nom. cons.*

Pleuridium Rabenh., *nom. cons.*

Pseudephemerum (Lindb.) I.Hagen

Trichodon Schimp.

POTTIALES M.Fleisch.

Pottiaceae Hampe, *nom. cons.*

Acaulon Müll.Hal.

Aloina Kindb., *nom. cons.*

Anoetangium Schwägr., *nom. cons.*

Aschisma Lindb.

Barbula Hedw., *nom. cons.*

Bellibarbula P.C.Chen

Bryoerythrophyllum P.C.Chen

Chenia R.H.Zander

Chionoloma Dixon

Crossidium Jur., *nom. cons.*

Crumia W.B.Schofield

Didymodon Hedw.

Ephemerum Hampe, *nom. cons.*

Eucladium Bruch & Schimp.

Geheebia Schimp.

Gertrudiella Broth.

Globulinella Steere

Gymnostomiella M.Fleisch.

Gymnostomum Nees & Hornsch., *nom. cons.*

Gyroweisia Schimp., *nom. cons.*

Hennediella Paris

Hilpertia R.H.Zander

Husnotiella Cardot

Hydrogonium (Müll.Hal.) A.Jaeger

Hymenostylium Brid.

Hyophila Brid., *nom. cons.*

Hyophiladelphus (Müll.Hal.) R.H.Zander
Leptodontium (Müll.Hal.) Lindb.
Merceyopsis Broth. & Dixon
Microbryum Schimp.
Molendoa Lindb.
Ozobryum G.L.Sm.Merr.
Plaubelia Brid.
Pleurochaete Lindb.
Pseudocrossidium R.S.Williams
Pterygoneurum Jur., *nom. cons.*
Rhexophyllum Herzog
Scopelophila (Mitt.) Lindb.
Splachnobryum Müll.Hal.
Stegonia Venturi
Streblotrichum P.Beauv.
Syntrichia Brid.
Tortella (Müll.Hal.) Limpr., *nom. cons.*
Tortula Hedw., *nom. cons.*
Trichostomopsis Cardot
Trichostomum Bruch, *nom. cons.*
Triquetrella Müll.Hal.
Tuerckheimia Broth.
Vinealobryum R.H.Zander
Weissia Hedw.
Zanderella J.A.Jiménez & M.J.Cano

SUBCLASS BRYIDAE Engl.

SUPERORDER BRYANAE Goffinet & W.R.Buck

SPLACHNALES Ochyra

Splachnaceae Grev. & Arn.

Aplodon R.Br.
Splachnum Hedw.
Tayloria Hook.
Voitia Hornsch.

Meesiaceae Schimp.

Amblyodon P.Beauv., *nom. cons.*
Leptobryum (Schimp.) Wilson⁷
Meesia Hedw., *nom. cons.*
Paludella Ehrh. ex Brid.

HEDWIGIALES Ochyra

Hedwigiaceae Schimp.

Braunia Bruch & Schimp., *nom. cons.*
Hedwigia P.Beauv., *nom. cons.*
Pseudobraunia (Lesq. & James) Broth.

BARTRAMIALES M.Menzel

Bartramiaceae Schwägr.

Anacolia Schimp., *nom. cons.*
Bartramia Hedw., *nom. cons.*
Conostomum Sw.
Philonotis Brid.
Plagiopus Brid.

BRYALES Limpr.

Bryaceae Rchb.

Anomobryum Schimp.
Brachymenium Schwägr.
Bryum Hedw.
Haplodontium Hampe
Plagiobryum Lindb.
Rhodobryum (Schimp.) Limpr., *nom. cons.*

Roellobryaceae Ochyra

Roellobryon Ochyra

Mniaceae Schwägr.

Cinclidium Sw.
Cyrtomnium Holmen
Leucolepis Lindb.
Mnium Hedw., *nom. cons.*
Plagiomnium T.J.Kop., *nom. cons.*
Pseudobryum (Kindb.) T.J.Kop.
Rhizomnium (Mitt. ex Broth.) T.J.Kop.
Trachycystis Lindb.

Mielichhoferiaceae Schimp.

Epipterygium Lindb.
Mielichhoferia Nees & Hornsch.
Pohlia Hedw.

ORTHOTRICHALES Dixon

Orthotrichaceae Arn.

Codonoblepharon Schwägr.
Groutiella Steere
Leratia Broth. & Paris
Lewinskya F.Lara, Garilleti & Goffinet
Macrocoma (Hornsch. ex Müll.Hal.) Grout
Macromitrium Brid.
Nyholmiella Holmen & E.Warncke
Orthotrichum Hedw.
Plenogemma Plášek, Sawicki & Ochyra
Pulviger Plášek, Sawicki & Ochyra
Schlotheimia Brid.
Ulot D.Mohr
Zygodon Hook. & Taylor

⁷ See Cox & Hedderson (1999) and Cox et al. (2000).

RHIZOGONIALES Goffinet & W.R.Buck

Rhizogoniaceae Broth.*Pyrrhobryum* Mitt.

AULACOMNIALES N.E.Bell, A.E.Newton & D.Quandt

Aulacomniaceae Schimp.*Aulacomnium* Schwägr., *nom. cons.*

ORTHODONTIALES N.E.Bell, A.E.Newton & D.Quandt

Orthodontiaceae Goffinet*Orthodontium* Schwägr.SUPERORDER **HYPNANAE** W.R.Buck, Goffinet & A.J.Shaw

HYPNODENDRALES N.E.Bell, A.E.Newton & D.Quandt

Racopilaceae Kindb.*Racopilum* P.Beauv.

HYPOPTERYGIALES Goffinet

Hypopterygiaceae Mitt.*Hypopterygium* Brid.

HOOKERIALES M.Fleisch.

Daltoniaceae Schimp.*Daltonia* Hook. & Taylor, *nom. cons.***Hookeriaceae Schimp.***Hookeria* Sm., *nom. cons.***Pilotrichaceae Kindb.***Callicostella* (Müll.Hal.) Mitt., *nom. cons.**Cyclodictyon* Mitt.*Lepidopilum* (Brid.) Brid., *nom. cons.**Trachyxiphium* W.R.Buck

HYPNALES W.R.Buck & Vitt

Rutenbergiaceae M.Fleisch.*Pseudocryphaea* E.Britton ex Broth.**Fontinalaceae Schimp.***Brachelyma* Schimp. ex Cardot*Dichelyma* Myrin*Fontinalis* Hedw.**Climaciaceae Kindb.***Climacium* F.Weber & D.Mohr*Pleuroziopsis* Kindb. ex E.Britton**Amblystegiaceae Kindb.***Amblystegium* Schimp.*Anacamptodon* Brid.*Campylium* (Sull.) Spruce*Campylophyllopsis* W.R.Buck*Conardia* H.Rob.*Cratoneuron* (Sull.) Spruce*Drepanium* (Schimp.) Spruce*Drepanocladus* (Müll.Hal.) G.Roth, *nom. cons.**Hygroamblystegium* Loeske, *nom. cons.**Hygrohypnella* Ignatov & Ignatova*Hygrohypnum* Lindb.*Leptodictyum* (Schimp.) Warnst.*Limbella* (Müll.Hal.) Renauld & Cardot*Palustriella* Ochyra*Platyhypnum* Loeske*Platylomella* A.L.Andrews*Pseudoamblystegium* Vanderp. & Hedenäs*Pseudocampylium* Vanderp. & Hedenäs*Sanionia* Loeske*Tomentypnum* Loeske**Calliergonaceae Vanderp., Hedenäs, C.J.Cox & A.J.Shaw***Calliergon* (Sull.) Kindb.*Hamatocaulis* Hedenäs*Scorpidium* (Schimp.) Limpr.*Warnstorfia* Loeske**Helodiaceae Ochyra***Helodium* Warnst., *nom. cons.***Leskeaceae Schimp.***Claopodium* (Lesq. & James) Renauld & Cardot*Haplocladium* (Müll.Hal.) Müll.Hal., *nom. cons.**Lescuraea* Schimp.*Leskea* Hedw.*Lindbergia* Kindb.*Pseudoleskeella* Kindb.**Thuidiaceae Schimp.***Abietinella* Müll.Hal.*Echinophyllum* T.J.O'Brien*Herpetineuron* (Müll.Hal.) Cardot*Pelekium* Mitt., *nom. cons.**Rauiella* Reimers*Thuidium* Schimp.**Stereophyllaceae W.R.Buck & Ireland***Entodontopsis* Broth.*Pilosium* (Müll.Hal.) M.Fleisch.*Stereophyllum* Mitt.**Brachytheciaceae Schimp.***Brachytheciastrum* Ignatov & Huttunen*Brachythecium* Schimp.*Bryoandersonia* H.Rob.*Cirriphyllum* Grout*Clasmatodon* Hook. & Wilson*Donrichardsia* H.A.Crum & L.E.Anderson

Eurhynchiastrum Ignatov & Huttunen
Homalotheciella (Cardot) Broth.
Homalothecium Schimp.
Kindbergia Ochyra
Koponeniella Huttunen & Ignatov
Myuroclada Besch.
Oxyrrhynchium (Schimp.) Warnst., *nom. cons.*
Palamocladium Müll.Hal.
Pseudoscleropodium (Limpr.) M.Fleisch.
Rhynchostegium Schimp., *nom. cons.*
Sciuro-hypnum (Hampe) Hampe
Scleropodium Schimp.
Zelometeorium Manuel

Meteoriaceae Kindb.

Meteorium Dozy & Molk., *nom. cons.*
Neodicladiella (Nog.) W.R.Buck

Myriniaceae Schimp.

Myrinia Schimp., *nom. cons.*

Fabroniaceae Schimp.

Fabronia Raddi

Stereodontaceae Hedenäs, Schlesak & D.Quandt

Stereodon (Brid.) Brid.

Pylaisiaceae Schimp.

Aquilonium Hedenäs, Schlesak & D.Quandt
Buckia D.Ríos, M.T.Gallego & J.Guerra
Callicladium H.A.Crum
Calliergonella Loeske
Calliergonellopsis Jan Kučera & Ignatov
Pseudohygrohypnum Kanda
Pseudostereodon (Broth.) M.Fleisch.
Ptilium De Not.
Pylaisia Schimp., *nom. cons.*
Roaldia P.E.A.S.Câmara & Carv.-Silva

Heterocladiellaceae Ignatov & Fedosov

Heterocladiella Ignatov & Fedosov

Hypnaceae Schimp.

Bryocrumia L.E.Anderson
Campylophyllum (Schimp.) M.Fleisch.
Chryso-hypnum Hampe
Dacryophyllum Ireland
Gollania Broth.
Hageniella Broth.
Homomallium (Schimp.) Loeske
Hypnum Hedw., *nom. cons.*
Vesicularia (Müll.Hal.) Müll.Hal., *nom. cons.*

Pterigynandraceae Schimp.

Heterocladium Schimp.
Iwatsukiella W.R.Buck & H.A.Crum
Pterigynandrum Hedw.

Hylocomiaceae M.Fleisch.

Hylocomiadelphus Ochyra & Stebel
Hylocomiastrum M.Fleisch. *ex* Broth.
Hylocomium Schimp., *nom. cons.*
Leptohymenium Schwägr.
Loeskeobryum M.Fleisch. *ex* Broth.
Pleurozium (Sull.) Mitt., *nom. cons.*
Rhytidiadelphus (Limpr.) Warnst.
Rhytidiopsis Broth.

Rhytidiaceae Broth.

Rhytidium (Sull.) Austin *ex* C.F.Parker

Plagiotheciaceae M.Fleisch.

Herzogiella Broth.
Isopterygiella Ignatov & Ignatova
Isopterygiopsis Z.Iwats.
Myurella Schimp.
Ortholimnobia Dixon
Orthothecium Schimp., *nom. cons.*
Plagiothecium Schimp.
Platydictya Berk.
Pseudotaxiphyllum Z.Iwats.
Rectithecium Hedenäs & Huttunen
Redfearnia J.T.Wynns

Entodontaceae Kindb., *nom. cons.*

Entodon Müll.Hal.

Jocheniaceae Jan Kučera & Ignatov⁸

Jochenia Hedenäs, Schlesak & D.Quandt

Pylaisiadelphaceae Goffinet & W.R.Buck

Isopterygium Mitt.
Platygyrium Schimp., *nom. cons.*
Pylaisiadelpha Cardot
Serpoleskea (Hampe *ex* Limpr.) Loeske
Taxithelium Spruce *ex* Mitt.
Trochophyllohypnum Jan Kučera & Ignatov
Wijkia H.A.Crum

Sematophyllaceae Broth., *nom. cons.*

Acroporium Mitt.
Brittonodoxa W.R.Buck, P.E.A.S.Câmara & Carv.-Silva
Donnellia Austin
Heterophyllum (Schimp.) Müll.Hal. *ex* Kindb.
Sematophyllum Mitt.

Cryphaeaceae Schimp.

Cryphaea F.Weber
Dendroalsia E.Britton
Schoenobryum Dozy & Molk.

⁸ See Kučera et al. (2019).

Leucodontaceae Schimp.*Antitrichia* Brid.*Leucodon* Schwägr.*Nogopterium* Crosby & W.R.Buck**Pterobryaceae Kindb.***Henicodinium* (Müll.Hal.) Kindb.*Jaegerina* Müll.Hal.*Pirella* Cardot**Neckeraceae Schimp.***Alleniella* S.Olsson, Enroth & D.Quandt*Bryolawtonia* D.H.Norris & Enroth*Dannorisia* Enroth*Forsstroemia* Lindb.⁹*Homalia* Brid., *nom. cons.**Metaneckera* Steere*Neckera* Hedw., *nom. cons.**Neckeropsis* Reichardt*Neomacounia* Ireland*Pseudanomodon* (Limpr.) Ignatov & Federov*Thamnobryum* Nieuwl.**Leptodontaceae Schimp.***Leptodon* D.Mohr, *nom. cons.***Lembophyllaceae Broth.***Bestia* Broth.*Isothecium* Brid.*Pseudisothecium* Grout*Tripterocladium* (Müll.Hal.) A.Jaeger**Anomodontaceae Kindb.***Anomodon* Hook. & Taylor*Anomodontella* Ignatov & Fedosov*Schwetschkeopsis* Broth.**Taxiphyllaceae Ignatov¹⁰***Leptopterigynandrum* Müll.Hal.*Taxiphyllum* M.Fleisch.**Ctenidiaceae Qinghua Wang & Y.Jia¹¹***Ctenidium* (Schimp.) Mitt.**Miyabeaceae Enroth, S.Olsson, Buchb., Hedenäs,****Huttunen & D.Quandt***Homaliadelphus* Dixon & P.de la Varde**Theliaceae M.Fleisch.***Thelia* Sull.**ALPHABETICAL LIST OF TAXA*****Abietinella*** Müll.Hal. (THUIDIACEAE)*abietina* (Hedw.) M.Fleisch.***Acaulon*** Müll.Hal. (POTTIACEAE)*mediterraneum* Limpr.¹²*muticum* (Hedw.) Müll.Hal.*rufescens* A.Jaeger¹³*schimperianum* (Sull.) Sull.*triquetrum* (Spruce) Müll.Hal.***Acroporium*** Mitt. (SEMATOPHYLLACEAE)*smallii* (R.S.Williams) H.A.Crum & L.E.Anderson***Alleniella*** S.Olsson, Enroth & D.Quandt¹⁴ (NECKERACEAE)*besseri* (Łobarz.) S.Olsson, Enroth & D.Quandt*complanata* (Hedw.) S.Olsson, Enroth & D.Quandt***Aloina*** Kindb., *nom. cons.* (POTTIACEAE)*ambigua* (Bruch & Schimp.) Limpr.*bifrons* (De Not.) Delgad.*brevirostris* (Hook. & Grev.) Kindb.*hamulus* (Müll.Hal.) Broth.*rigida* (Hedw.) Limpr.***Amblyodon*** P.Beauv., *nom. cons.* (MEESIACEAE)*dealbatus* (Hedw.) P.Beauv.***Amblystegium*** Schimp. (AMBLYSTEGIACEAE)*serpens* (Hedw.) Schimp.***Amphidium*** Schimp., *nom. cons.* (AMPHIDIACEAE)*californicum* (Hampe ex Müll.Hal.) Broth.*lapponicum* (Hedw.) Schimp.*mougeotii* (Bruch & Schimp.) Schimp.***Anacamptodon*** Brid. (AMBLYSTEGIACEAE)*splachnoides* (Brid.) Brid.***Anacolia*** Schimp., *nom. cons.* (BARTRAMIACEAE)*baueri* (Hampe) Paris¹⁵*laevisphaera* (Taylor) Flowers*menziesii* (Turner) Paris***Andreaea*** Hedw. (ANDREAEACEAE)*alpestris* (Thed.) Schimp.*blyttii* Schimp.*crassinervia* Bruch*heinemannii* Hampe & Müll.Hal.*megistospora* B.M.Murray var. *megistospora*var. *epapillosa* (B.M.Murray) H.A.Crum & L.E.Anderson*mutabilis* Hook.f. & Wilson⁹ See Enroth et al. (2022).¹⁰ See Ignatov et al. (2012).¹¹ See Li et al. (2024).¹² See GBIF.org (2024a).¹³ See McLaughlin (2024).¹⁴ See Olsson et al. (2011).¹⁵ See McLaughlin & Carter (2024).

- nivalis* Hook.
rothii F.Weber & D.Mohr subsp. *rothii*
 subsp. *falcata* (Schimp.) Lindb.
rupestris Hedw. var. *rupestris*
 var. *papillosa* (Lindb.) Podp.
schofieldiana B.M.Murray
sinuosa B.M.Murray
Andreaeobryum Steere & B.M.Murray (ANDREAEOBRYACEAE)
macrosporum Steere & B.M.Murray
Anoetangium Schwägr., *nom. cons.* (POTTIACEAE)
aestivum (Hedw.) Spruce
sikkimense M.N.Aziz & Vohra¹⁶
stracheyanum Mitt.¹⁷
Anomobryum Schimp. (BRYACEAE)
concinnum (Spruce) A.Jaeger
julaceum (P.Gaertn., B.Mey. & Scherb.) Schimp.
Anomodon Hook. & Taylor¹⁸ (ANOMODONTACEAE)
minor (Hedw.) Lindb.
rugelii (Müll.Hal.) Keissl.
thraustus Müll.Hal.
tristis (Ces.) Sull.
viticulosus (Hedw.) Hook. & Taylor
Anomodontella Ignatov & Fedosov (ANOMODONTACEAE)¹⁹
longifolius (Schleich. ex Brid.) Ignatov & Fedosov²⁰
Antitrichia Brid. (LEUCODONTACEAE)
californica Sull. ex Lesq.
curtipendula (Hedw.) Brid.
gigantea (Sull. & Lesq.) Kindb.²¹
Aongstroemia Bruch & Schimp. (AONGSTROEMIIACEAE)
canadensis (Mitt.) Siebel & Fedosov
grevilleana (Brid.) Müll.Hal.
longipes (Sommerf.) Bruch & Schimp.
schreberiana (Hedw.) Bonfim Santos & Fedosov²²

¹⁶ See Zander (2017).

¹⁷ See Zander & Eckel (2007).

¹⁸ The generic circumscription of the Anomodontaceae was revised by Ignatov et al. (2019a) based on phylogenetic inferences from organellar loci. We accept the recognition of *Pseudanomodon* and *Anomodontella* but not the segregate unispecific genus *Anomodontopsis*, and maintain the merger of *Haplohymenium* with *Anomodon* (Granzow-de la Cerda 1997).

¹⁹ See Ignatov et al. (2019a).

²⁰ *Anomodon longifolius* and *A. thraustus* were reported as new to North America by Granzow-de la Cerda & Düll (2009).

²¹ See Hedenäs (2008a).

²² See Fedosov et al. (2023a).

- Aplodon** R.Br. (SPLACHNACEAE)
wormskioldii (Hornem.) R.Br.
Aquilonium Hedenäs, Schlesak & D.Quandt²³
 (PYLAISIIACEAE)
adscendens (Lindb.) Hedenäs, Schlesak & D.Quandt
plicatulum (Lindb.) Hedenäs, Schlesak & D.Quandt
Archidium Brid. (ARCHIDIACEAE)
alternifolium (Dicks. ex Hedw.) Mitt.
crassicosatum D.R.Toren, Kellman & Shevock²⁴
donnellii Austin
hallii Austin
minus (Renauld & Cardot) Snider
ohioense Schimp.
tenerrimum Mitt.
Arctoa Bruch & Schimp. (RHABDOWEISIIACEAE)
anderssonii Wich.
blyttii (Bruch & Schimp.) Loeske
fulvella (Dicks.) Bruch & Schimp.
glacialis (Berggr.) Fedosov, Jan Kučera & M.Stech²⁵
hyperborea (Gunnerus ex Dicks.) Bruch & Schimp.
starkei (F.Weber & D.Mohr) Loeske
Aschisma Lindb. (POTTIACEAE)
kansanum A.L.Andrews
Atractyllocarpus Mitt., *nom. cons.* (LEUCOBRYACEAE)
subporodictyon (Broth.) Bonfim Santos & M.Stech²⁶
Atrichum P.Beauv., *nom. cons.* (POLYTRICHACEAE)
altecristatum (Renauld & Cardot) Smyth & L.C.
 R.Smyth
angustatum (Brid.) Bruch & Schimp.
crispulum Schimp. ex Besch.²⁷
crispum (James) Sull.
cylindricum (Willd. ex F.Weber) G.L.Sm.
flavisetum Mitt.
selwynii Austin
tenellum (Röhl.) Bruch & Schimp.
undulatum (Hedw.) P.Beauv.
Aulacomnium Schwägr., *nom. cons.* (AULACOMNIACEAE)
acuminatum (Lindb. & Arnell) Kindb.
androgynum (Hedw.) Schwägr.
heterostichum (Hedw.) Bruch & Schimp.
palustre (Hedw.) Schwägr.
turgidum (Wahlenb.) Schwägr.

²³ *Aquilonium* was established by Schlesak et al. (2018) based on phylogenetic evidence.

²⁴ See Toren et al. (2016).

²⁵ See Fedosov et al. (2021).

²⁶ See Bonfim Santos & Stech (2017).

²⁷ See Merrill & Ireland (2007).

- Barbula*** Hedw., *nom. cons.* (POTTIACEAE)
orizabensis Müll.Hal.
unguiculata Hedw.
- Bartramia*** Hedw., *nom. cons.* (BARTRAMIACEAE)
aprica Müll.Hal.²⁸
brevifolia Brid.²⁹
halleriana Hedw.
ithyphylla Brid.
pomiformis Hedw.
potosica Mont.
subulata Bruch & Schimp.
- Bartramiopsis*** Kindb. (POLYTRICHACEAE)
lescurii (James) Kindb.
- Bellibarbula*** P.C.Chen³⁰ (POTTIACEAE)
recurva (Griff.) R.H.Zander
- Bestia*** Broth. (LEMBOPHYLLACEAE)
longipes (Sull. & Lesq.) Broth.
- Blindia*** Bruch & Schimp. (SELIGERACEAE)
acuta (Hedw.) Bruch & Schimp.
- Blindiadelphus*** (Lindb.) Fedosov & Ignatov³¹
 (SELIGERACEAE)
campylopodus (Kindb.) Fedosov & Ignatov
diversifolius (Lindb.) Fedosov & Ignatov
polaris (Berggr.) Fedosov & Ignatov
recurvatus (Hedw.) Fedosov & Ignatov
subimmersus (Lindb.) Fedosov & Ignatov
- Brachelyma*** Schimp. ex Cardot (FONTINALACEAE)
subulatum (P.Beauv.) Schimp. ex Cardot
- Brachydontium*** Fürnr. (PTYCHOMITRIACEAE)
olympicum (E.Britton) T.T.McIntosh & J.R.Spence
trichodes (F.Weber) Milde
- Brachymenium*** Schwägr. (BRYACEAE)
andersonii H.A.Crum
exile (Dozy & Molk.) Bosch & Sande Lac.³²
erectum (Hook.) Wilson ex Mont.
macrocarpum Cardot
mexicanum Mont.
niveum Besch.
speciosum (Hook.f. & Wilson) Steere
systylium (Müll.Hal.) A.Jaeger
vinosulum Cardot³³

- Brachytheciastrum*** Ignatov & Huttunen³⁴
 (BRACHYTHECIACEAE)
collinum (Schleicher ex Müll.Hal.) Ignatov & Huttunen
delicatulum (Flowers) Ignatov
fendleri (Sull.) Ochya & Żarnowiec
leibergii (Grout) Ignatov & Huttunen
salicinum (Schimp.) Orgaz, M.J.Cano & J.Guerra³⁵
trachypodium (Brid.) Ignatov & Huttunen
velutinum (Hedw.) Ignatov & Huttunen var. *velutinum*
- Brachythecium*** Schimp. (BRACHYTHECIACEAE)
acuminatum (Hedw.) Austin
acutum (Mitt.) Sull.
albicans (Hedw.) Schimp.
asperrimum (Mitt. ex Müll.Hal.) Sull.³⁶
boreale Ignatov³⁷
brandegeei (Austin) H.Rob.
campestre (Müll.Hal.) Schimp.
capillaceum (F.Weber & D.Mohr) Giacom.³⁸
cirrosum (Schwägr.) Schimp.
erythrorrhizon Schimp. var. *erythrorrhizon*
 var. *alpinum* Kosovich-Anderson & Ignatov³⁹
falcatum (Grout) H.A.Crum⁴⁰
frigidum (Müll.Hal.) Besch.
jacuticum Ignatov⁴¹
laetum (Brid.) Schimp.
novae-angliae (Sull. & Lesq.) Austin subsp. *novae-angliae*
 subsp. *hultenii* (E.B.Bartram) Huttunen
rivulare Schimp.
ruderae (Brid.) W.R.Buck⁴²
rutabulum (Hedw.) Schimp.
salebrosum (Hoffm. ex F.Weber & D.Mohr) Schimp.
tauriscorum Molendo & Lorentz⁴³
turgidum (Hartm.) Kindb.
udum I.Hagen⁴⁴

²⁸ See Müller (2014).

²⁹ See Fransén (1995).

³⁰ See Zander (1993).

³¹ See Fedosov et al. (2017).

³² See Spence et al. (2022).

³³ See Spence (2007).

³⁴ See Ignatov & Huttunen (2002).

³⁵ See Orgaz et al. (2013).

³⁶ See Norris & Shevock (2004a,b).

³⁷ See Ignatov (2014).

³⁸ See Hodgetts et al. (2020).

³⁹ See Kosovich-Anderson & Ignatov (2010).

⁴⁰ See Crum (2001).

⁴¹ See Ignatov (2014).

⁴² See Buck (1998).

⁴³ See Hedenäs (2017).

⁴⁴ See Ignatov (2014).

Braunia Bruch & Schimp., *nom. cons.* (HEDWIGIACEAE)
andrieuxii Lorentz⁴⁵

secunda (Hook.) Bruch & Schimp.

Brideliella Fedosov, M.Stech & Ignatov⁴⁶
 (RHABDOWEISIACEAE)

wahlenbergii (Brid.) Fedosov, M.Stech & Ignatov

Brittonodoxa W.R.Buck, P.E.A.S.Câmara & Carv.-Silva⁴⁷ (SEMATOPHYLLACEAE)

subpinnata (Brid.) W.R.Buck, P.E.A.S.Câmara
 & Carv.-Silva

Brothera Müll.Hal. (DICRANACEAE)

leana (Sull.) Müll.Hal.

Bruchia Schwägr. (BRUCHIACEAE)

bolanderi Lesq.

brevifolia Sull.

carolinae Austin

drummondii Hampe ex E.Britton

flexuosa (Schwägr.) Müll.Hal.

fusca E.Britton

hallii Austin

queenslandica I.G.Stone

ravenelii Wilson ex Sull.

texana Austin

vogesiaca Nest. ex Schwägr.

Bryoandersonia H.Rob. (BRACHYTHECIACEAE)

illecebra (Hedw.) H.Rob.

Bryobrittonia R.S.Williams (ENCALYPTACEAE)

longipes (Mitt.) D.G.Horton

Bryocrumia L.E.Anderson (HYPNACEAE)

vivicolor (Broth. & Dixon) W.R.Buck

Bryoerythrophyllum P.C.Chen (POTTIACEAE)

columbianum (F.J.Herm. & E.Lawton) R.H.Zander

ferruginascens (Stirt.) Giacom.

inaequalifolium (Taylor) R.H.Zander

recurvirostrum (Hedw.) P.C.Chen

wallichii (Mitt.) P.C.Chen⁴⁸

Bryolawtonia D.H.Norris & Enroth⁴⁹ (NECKERACEAE)

vancouveriensis (Kindb.) D.H.Norris & Enroth

Bryoxiphium Mitt., *nom. cons.* (BRYOXIPHIACEAE)

norvegicum (Brid.) Mitt.

Bryum Hedw. (BRYACEAE)

aenum Blytt ex Bruch & Schimp.

algovicum Sendtn. ex Müll.Hal. var. *algovicum*⁵⁰

var. *rutheanum* (Warnst.) Crundw.

alpinum Huds. ex With.

amblyodon Müll.Hal.

andicola Hook.

apiculatum Schwägr.

archangelicum Bruch & Schimp.

arcticum (R.Br.) Bruch & Schimp.

argenteum Hedw. var. *argenteum*

var. *majus* Schwägr.

var. *muticum* Brid.

austriacum Köckinger, Holyoak & Suanjak⁵¹

biforme R.S.Williams⁵²

billarderii Schwägr.

bimum (Schreb.) Turner⁵³

blindii Bruch & Schimp.

bornholmense Wink. & R.Ruthe

brachyneuron Kindb.

brassicoides (J.R.Spence & Kellman) W.R.Buck
 & Goffinet⁵⁴

caespitium Hedw.

californicum Sull.⁵⁵

calobryoides J.R.Spence

calophyllum R.Br.

canariense Brid.

capillare Hedw. var. *capillare*

var. *barbatum* (C.E.O.Jensen) Podp.

cellulare Hook.⁵⁶

chryseum Mitt.⁵⁷

coronatum Schwägr.

creberrimum Taylor

cryophilum Mårtensson⁵⁸

⁵⁰ Spence (2014) treated *B. algovicum* as a synonym of *Ptychostomum pendulum*; in *Bryum* the correct name should be *B. algovicum* as the combination *B. pendulum* (Hornsch.) Schimp. has earlier homonyms.

⁵¹ See Spence et al. (2022).

⁵² See Spence et al. (2022).

⁵³ See Spence (2014) as *Ptychostomum bimum* (Schreb.) J.R.Spence.

⁵⁴ Reported as *Gemmabryum brassicoides* by Spence & Kellman (2015) but accommodated here in *Bryum*; *Bryum brassicoides* (J.R.Spence & Kellman) W.R.Buck & Goffinet comb. nov. $\equiv$ *Gemmabryum brassicoides* J.R.Spence & Kellman, Madroño 62(2):124. 2015. TYPE: U.S.A., California, Santa Cruz Co.: Quail Hollow Ranch County Park, 37°04'57"N, 122°03'50"W, 18 Mar. 2006, K.M. Kellman 5104 (holotype, CAS).

⁵⁵ See Spence (2014).

⁵⁶ See Spence (2014).

⁵⁷ See Toren & Heise (2009).

⁴⁵ See Allen (2010).

⁴⁶ See Fedosov et al. (2021).

⁴⁷ See Carvalho-Silva et al. (2017).

⁴⁸ See Allen (2022).

⁴⁹ See Norris & Enroth (1990).

curvatum Kaurin & Arnell
cyclophyllum (Schwägr.) Bruch & Schimp.
demaretianum Arts⁵⁹
dichotomum Hedw.
elegans Nees ex Brid.
eremaeum Catches. ex J.R.Spence & H.P.Ramsay⁶⁰
erythroloma (Kindb.) Syed
flabelliforme D.R.Toren, J.R.Spence & Shevock⁶¹
flaccidum Brid.
gemmiferum R.Wilczek & Demaret
gemmilucens R.Wilczek & Demaret
gemmiparum De Not.
hagenii Limpr.
imbricatulum Müll.Hal.⁶²
incrassatolimbatum Cardot
intermedium (Brid.) Turton
klinggraeffii Schimp.
knowltonii Barnes
kunzei Hornsch.⁶³
lanatum (P.Beauv.) Brid.⁶⁴
lonchocaulon Müll.Hal.
longisetum Blandow ex Schwägr.
marratii Hook. & Wilson
meesioides Kindb.
microchaeton Hampe
mildeanum Jur.⁶⁵
miniatum Lesq.
moravicum Podp.
muehlenbeckii Bruch & Schimp.
neodamense Itzigs.⁶⁶
nitidulum Lindb.
oblongum Lindb.
pacificum (J.R.Spence & Shevock) W.R.Buck & Goffinet⁶⁷

pallens Sw.
pallescens Schleich. ex Schwägr.
pseudocapillare Besch.
pseudotriquetrum (Hedw.) P.Gaertn., B.Mey. & Scherb.
purpurascens (R.Br.) Bruch & Schimp.
radiculosum Brid.
reedii H.Rob.
riparium I.Hagen
rubens Mitt.
ruderales Crundw. & Nyholm
rutilans Brid. & Schimp.
salinum I.Hagen ex Limpr.
sanguilentum Renauld & Cardot⁶⁸
schleicheri Schwägr.
subapiculatum Hampe
subneodamense Kindb.
tenuisetum Limpr.
teres Lindb.
torenia (J.R.Spence & Shevock) W.R.Buck & Goffinet⁶⁹
torquescens Bruch & Schimp.⁷⁰
turbinatum (Hedw.) Turner
uliginosum (Brid.) Bruch & Schimp.
valparaisense Thér.
veronense De Not.⁷¹
vinosum (J.R.Spence & Kellman) W.R.Buck & Goffinet⁷²

⁵⁸ See Spence (2014).

⁵⁹ See Whitehouse (2001).

⁶⁰ See Kellman (2017).

⁶¹ See Toren et al. (2024).

⁶² Spence (2014) recognized *Gemmabryum badium*, which is considered conspecific with *Bryum imbricatulum* by Holyoak & Pedersen (2007), which at the species level takes priority.

⁶³ See Spence (2014).

⁶⁴ See Spence (2014).

⁶⁵ See Spence (2014).

⁶⁶ See Spence (2005).

⁶⁷ Described by Spence & Shevock (2012) as *Ptychostomum pacificum*; accommodated here in *Bryum*, under the new combination *Bryum pacificum* (J.R.Spence & Shevock) W.R.Buck & Goffinet comb. nov. $\equiv$ *Ptychostomum pacificum*

J.R.Spence & Shevock, Madroño 59(3): 156. 2012. TYPE: U.S.A. California, Fresno Co.: Sierra National Forst, Highway 168 above Huntington Lake, 37°12'59.7"N, 119°11'30.4"W, 2 Sep. 2002, J.R. Shevock 22887 & B. Ertter (holotype, CAS; isotypes, H, KRAM, MO, NY).

⁶⁸ See Spence et al. (2022).

⁶⁹ Described as *Imbribryum torenii* by Spence & Shevock (2015) and accommodated here in *Bryum* under the new combination *Bryum torenii* (J.R.Spence & Shevock) W.R.Buck & Goffinet comb. nov. $\equiv$ *Imbribryum torenii* J.R.Spence & Shevock, Madroño 62(1): 68. 2015. TYPE: U.S.A., California, Monterey Co.: Fort Hunter Liggett Military Reservation, along Gabilan Road at bridge crossing Nacimiento River, southern end of the Palisades, 35°51'05"N, 121°11'51"W, 10 Apr. 2004, J. R. Shevock et al. 24830 (holotype, CAS; isotypes, MO, NY).

⁷⁰ See Spence (2014).

⁷¹ See Spence (2014).

⁷² Described as *Gemmabryum vinosum* by Spence & Kellman (2015) and accommodated here in *Bryum* under the new combination *Bryum vinosum* (J.R.Spence & Kellman) W.R.Buck & Goffinet comb. nov. $\equiv$ *Gemmabryum vinosum* J.R.Spence & Kellman, Madroño 62(2):127. 2015. TYPE:

- violaceum* Crundw. & Nyholm
warneum (Schwägr. ex Steud.) Brid.
weigeli Biehler
wrightii Sull. & Lesq.
Buckia D.Ríos, M.T.Gallego & J.Guerra⁷³ (PYLAISACEAE)
vaucheri (Lesq.) D.Ríos, M.T.Gallego & J.Guerra
Buxbaumia Hedw. (BUXBAUMIACEAE)
aphylla Hedw.
minakatae S.Okamura
piperi Best
viridis (Moug. ex DC.) Brid. ex Moug. & Nestl.
Calcidicranella Bonfim Santos, Fedosov & Jan Kučera⁷⁴ (AONGSTROEMIACEAE)
howei (Renauld & Cardot) Bonfim Santos, Fedosov & Jan Kučera
pacifica (W.B.Schofield) Jan Kučera & Fedosov
varia (Hedw.) Bonfim Santos, Fedosov & Jan Kučera
Callicladium H.A.Crum⁷⁵ (PYLAISACEAE)
fujiyamae (Broth.) Jan Kučera & Ignatov⁷⁶
haldaneanum (Grev.) H.A.Crum
imponens (Hedw.) Hedenäs, Schlesak & D.Quandt
Callicostella (Müll.Hal.) Mitt., *nom. cons.* (PILOTTRICHACEAE)
pallida (Hornsch.) Spruce
Calliergon (Sull.) Kindb. (CALLIERGONACEAE)
cordifolium (Hedw.) Kindb.
giganteum (Schimp.) Kindb.
megaloophyllum Mikut., *nom. cons.*
orbicularicordatum (Renauld & Cardot) Broth.⁷⁷
richardsonii (Mitt.) Kindb. ex G.Roth
Calliergonella Loeske (PYLAISACEAE)
curvifolia (Hedw.) B.H.Allen⁷⁸

U.S.A., California, Fresno Co.: BLM San Joaquin River Gorge Management Area, along river via a 0.25 mi trail from powerhouse and parking lot, 37°04'37"N, 119°33'43"W, 26 Mar. 2009, J. R. Shevock *et al.* 32676 (holotype, CAS; isotypes, H, KRAM, MO, NY, UC).

⁷³ See Câmara *et al.* (2018).

⁷⁴ *Calcidicranella* was erected and segregated from *Dicranella* by Bonfim Santos *et al.* (Fedosov *et al.* 2023b) based on phylogenetic evidence.

⁷⁵ *Callicladium* comprised a single species until Kučera *et al.* (2019) and Schlesak *et al.* (2018) transferred *Hypnum fujiyamae* and *H. imponens*, respectively.

⁷⁶ The species was reported from North America by Schofield (2014) as *Hypnum fujiyamae* (Broth.) Paris.

⁷⁷ Ignatova *et al.* (2021) argued that *C. orbicularicordatum* falls within the variation of *C. cordifolium*; we tentatively retain it as distinct until further data are available.

- cuspidata* (Hedw.) Loeske
lindbergii (Mitt.) Hedenäs var. *lindbergii*⁷⁹
 var. *americana* (Renauld & Cardot) J.J.Atwood & Brinda⁸⁰
Calliergonellopsis Jan Kučera & Ignatov⁸¹ (PYLAISACEAE)
dieckii (Renauld & Cardot) Jan Kučera & Ignatov
Calymperes Sw. ex F.Weber (CALYMPERACEAE)
afzelii Sw.
erosum Müll.Hal.
palisotii Schwägr.
pallidum Mitt.⁸²
tenerum Müll.Hal.
Campylium (Sull.) Spruce (AMBLYSTEGIACEAE)
bambergeri (Schimp.) Hedenäs, Schlesak & D.Quandt
chrysophyllum (Brid.) Lange
laxifolium Engelmark & Hedenäs
longicuspis (Lindb. & Arnell) Hedenäs
protensum (Brid.) Kindb.
stellatum (Hedw.) Lange & C.E.O.Jensen
Campylophylopsis W.R.Buck⁸³ (AMBLYSTEGIACEAE)
hispidula (Brid.) Ochyra
sommerfeltii (Myrin) Ochyra
Campylophyllum (Schimp.) M.Fleisch.⁸⁴ (HYPNACEAE)
halleri (Hedw.) M.Fleisch.
montanum (Lindb.) B.H.Allen⁸⁵
Campylopodiella Cardot (DICRANACEAE)
flagellacea (Müll.Hal.) J.-P.Frahm & Isov.⁸⁶
stenocarpa (Wilson) P.Müll. & J.-P.Frahm
Campylopus Brid. (DICRANACEAE)
angustiretis (Austin) Lesq. & James
arctocarpus (Hornsch.) Mitt.
atrovirens De Not. var. *atrovirens*⁸⁷
 var. *cucullatifolius* J.-P.Frahm
carolinae Grout
flexuosus (Hedw.) Brid.
fragilis (Brid.) Bruch & Schimp.
gracilis (Mitt.) A.Jaeger⁸⁸

⁷⁸ See Allen (2014).

⁷⁹ See Hedenäs (1990).

⁸⁰ See Atwood & Brinda (2020).

⁸¹ See Kučera *et al.* (2019).

⁸² See Buck (1994).

⁸³ See Goffinet *et al.* (2009b).

⁸⁴ See Kučera *et al.* (2019).

⁸⁵ See Allen (2014).

⁸⁶ See Shevock (2000), as *Atractylocarpus flagellaceus*.

⁸⁷ See Frahm (2007).

⁸⁸ See Frahm (2007).

- introflexus* (Hedw.) Brid.
oerstedianus (Müll.Hal.) Mitt.
pilifer Brid.
pyriformis (Schultz) Brid.
schimperi Milde
schmidii (Müll.Hal.) A.Jaeger⁸⁹
sinensis (Müll.Hal.) J.-P.Frahm⁹⁰
subulatus Schimp. ex Milde
surinamensis Müll.Hal.
tallulensis Sull. & Lesq.
- Campylostelium** Bruch & Schimp. (PTYCHOMITRIACEAE)
brachycarpum (Nog.) Z.Iwats., Tateishi & Tad. Suzuki⁹¹
laegerae Brinda, D.R.Toren & Shevock⁹²
pitardii (Corb.) E.Maier⁹³
saxicola (F.Weber & D.Mohr) Bruch & Schimp.
- Catoscopium** Brid. (CATOSCOPIACEAE)
nigrum (Hedw.) Brid.
- Ceratodon** Brid. (DITRICHACEAE)
 × *conicus* (Hampe ex Müll.Hal.) Lindb.
heterophyllum Kindb.
purpureus (Hedw.) Brid.
stenocarpus Bruch & Schimp.⁹⁴
- Chenia** R.H.Zander⁹⁵ (POTTIACEAE)
leptophylla (Müll.Hal.) R.H.Zander
- Chionoloma** Dixon⁹⁶ (POTTIACEAE)
cylindrotheca (Mitt.) M.Alonso, M.J.Cano & J. A.Jiménez
maragniphyllum (R.H.Zander & Eckel) W.R. Buck & Goffinet⁹⁷
orthodontum (Müll.Hal.) M.Alonso, M.J.Cano & J.A.Jiménez

- recurvifolium* (Taylor) M.Alonso, M.J.Cano & J. A.Jiménez
stenocarpum (Thér.) M.Alonso, M.J.Cano & J.A. Jiménez
tenuirostre (Hook. & Taylor) M.Alonso, M.J. Cano & J.A.Jiménez
- Chryso-hypnum** Hampe (HYPNACEAE)
diminutivum (Hampe) W.R.Buck
- Cinclidium** Sw. (MNIACEAE)
alaskanum R.E.Wyatt & A.H.Stoneb.⁹⁸
arcticum (Bruch & Schimp.) Schimp.
latifolium Lindb.
minutifolium Broth.⁹⁹
stygium Sw.
subrotundum Lindb.
- Cirriphyllum** Grout (BRACHYTHECIACEAE)
piliferum (Hedw.) Grout
- Claopodium** (Lesq. & James) Renauld & Cardot (LESKEACEAE)
bolanderi Best
crispifolium (Hook.) Renauld & Cardot
pellucinerve (Mitt.) Best
rostratum (Hedw.) Ignatov¹⁰⁰
whippleanum (Sull.) Renauld & Cardot
- Clasmatodon** Hook. & Wilson (BRACHYTHECIACEAE)
parvulus (Hampe) Sull.
- Cleistocarpidium** Ochyra & Bedn.-Ochyra¹⁰¹ (DITRICHACEAE)
palustre (Bruch & Schimp.) Ochyra & Bedn.-Ochyra
- Climacium** F.Weber & D.Mohr (CLIMACIACEAE)
americanum Brid.
dendroides (Hedw.) F.Weber & D.Mohr
kindbergii (Renauld & Cardot) Grout
- Cnestrum** I.Hagen¹⁰² (RHABDOWEISIACEAE)
alpestre (Wahlenb.) Nyholm
glaucescens (Lindb. & Arnell) Holmen ex Mogensen & Steere
schisti (F.Weber & D.Mohr) I.Hagen
- Codonoblepharon** Schwägr.¹⁰³ (ORTHOTRICHACEAE)
menziesii Schwägr.¹⁰⁴

⁸⁹ See Frahm (2007).⁹⁰ See Frahm (2007).⁹¹ See Iwatsuki et al. (1999).⁹² See Brinda et al. (2016).⁹³ See Brinda et al. (2016).⁹⁴ We retain this taxon as a distinct species following Shevock et al. (2021).⁹⁵ See Zander (1989).⁹⁶ See Alonso-García et al. (2016, 2019).⁹⁷ Described as *Oxystegus maragniphyllum* by Zander & Eckel (2019) and here accommodated in *Chionoloma* under the new combination *Chionoloma maragniphyllum* (R.H.Zander & Eckel) W.R.Buck & Goffinet comb. nov. ≡ *Oxystegus maragniphyllum* R.H.Zander & Eckel, The Bryologist 122(4): 569. 2019. TYPE: Canada, British Columbia: West Vancouver Island, Ocluelet, 7 May 1969, W.B. Schofield 89947 (holotype, UBC).⁹⁸ See Wyatt et al. (2021b).⁹⁹ See Wyatt & Stoneburner (2021).¹⁰⁰ See Ignatov et al. (2006).¹⁰¹ See Ochyra & Bednarek-Ochyra (1996).¹⁰² See Fedosov et al. (2021).¹⁰³ See Goffinet & Vitt (1998).¹⁰⁴ See Shevock (2000).

- Conardia** H.Rob. (AMBLYSTEGIACEAE)
compacta (Müll.Hal.) H.Rob.
- Conostomum** Sw. (BARTRAMIACEAE)
tetragonum (Hedw.) Lindb.
- Coscinodon** Spreng. (GRIMMIACEAE)
arctolimnius (Steere) Steere
calyptratus (Drumm.) C.E.O.Jensen.
cribrosus (Hedw.) Spruce
hartzii C.E.O.Jensen¹⁰⁵
yukonensis Hastings¹⁰⁶
- Cratoneuron** (Sull.) Spruce (AMBLYSTEGIACEAE)
filicinum (Hedw.) Spruce
- Crossidium** Jur., *nom. cons.* (POTTIACEAE)
aberrans Holz. & E.B.Bartram
crassinervium (De Not.) Jur. var. *crassisnervium*
seriatum H.A.Crum & Steere
squamiferum (Viv.) Jur. var. *squamiferum*
var. *pottioideum* (De Not.) Mönk.
- Crumia** W.B.Schofield (POTTIACEAE)
latifolia (Kindb.) W.B.Schofield
- Cryphaea** F.Weber (CRYPHAEACEAE)
filiformis (Hedw.) Brid.
glomerata Schimp. ex Sull.
nervosa (Hook. & Wilson) Müll.Hal.
ravenelii Austin
- Ctenidium** (Schimp.) Mitt. (CTENIDIACEAE)
schofieldii N.Nishim.
subrectifolium (Brid.) Pedano ex W.R.Buck & B.
H.Allen¹⁰⁷
- Cyclodictyon** Mitt. (PILOTRICHACEAE)
varians (Sull.) Kuntze
- Cynodontium** Bruch & Schimp., *nom. cons.*
(RHABDOWEISIACEAE)
gracilescens (F.Weber & D.Mohr) Schimp.
jenneri (Schimp.) Stirt.
polycarpon (Hedw.) Schimp.
strumiferum (Hedw.) Lindb.
strumulosum Müll.Hal. & Kindb.
tenellum (Schimp.) Limpr.
- Cyrtomnium** Holmen (MNIACEAE)
hymenophylloides (Huebener) T.J.Kop.
hymenophyllum (Bruch & Schimp.) Holmen
- Dacryophyllum** Ireland (HYPNACEAE)
falcifolium Ireland¹⁰⁸
- Daltonia** Hook. & Taylor, *nom. cons.* (DALTONIACEAE)
splachnoides (Sm.) Hook. & Taylor
- Dannorisia** Enroth (NECKERACEAE)
bigelovii (Sull.) Enroth¹⁰⁹
- Dendroalsia** E.Britton (CRYPHAEACEAE)
abietina (Hook.) E.Britton
- Dichelyma** Myrin (FONTINALACEAE)
capillaceum (Dicks.) Myrin
falcatum (Hedw.) Myrin
pallescent Bruch & Schimp.
uncinatum Mitt.
- Dichodontium** Schimp. (AONGSTROEMIACEAE)
olympicum Renauld & Cardot
pellucidum (Hedw.) Schimp.
- Dicranella** (Müll.Hal.) Schimp., *nom. cons.*
(DICRANELLACEAE)
cerviculata (Hedw.) Schimp.
heteromalla (Hedw.) Schimp.
hilariana (Mont.) Mitt.
lindigiana (Hampe) Mitt.
- Dicranellopsis** Bonfim Santos, Siebel & Fedosov¹¹⁰
(DICRANELLOPSIDACEAE)
crispa (Hedw.) Bonfim Santos, Siebel & Fedosov
subulata (Hedw.) Bonfim Santos, Siebel & Fedosov
- Dicranodontium** Bruch & Schimp. (DICRANACEAE)
asperulum (Mitt.) Broth.
denudatum (Brid.) E.Britton
uncinatum (Harv.) A.Jaeger
- Dicranoweisia** Lindb. ex Milde (DICRANACEAE)
cirrata (Hedw.) Lindb. ex Milde
- Dicranum** Hedw. (DICRANACEAE)
acutifolium (Lindb. & Arnell) C.E.O.Jensen
bonjeanii De Not.
brevifolium (Lindb.) Lindb.
condensatum Hedw.
dispersum Engelm¹¹¹
drummondii Müll.Hal.
elongatum Schleich. ex Schwägr.
flagellare Hedw.
flexicaule Brid.¹¹²
fragilifolium Lindb.
fulvum Hook.
fuscescens Turner

¹⁰⁸ The genus and species were established by Ireland (2004).

¹⁰⁹ See Enroth et al. (2019).

¹¹⁰ See Fedosov et al. (2023b).

¹¹¹ See Afonina & Breen (2009).

¹¹² See Tubanova et al. (2010).

¹⁰⁵ See Hastings (1999).

¹⁰⁶ See Hastings (1999).

¹⁰⁷ See Buck & Allen (2004).

groenlandicum Brid.
hakkodense Cardot¹¹³
howellii Renauld & Cardot
leioneuron Kindb.
majus Turner var. *majus*
 var. *orthophyllum* A.Braun ex Milde
montanum Hedw.
muehlenbeckii Bruch & Schimp.
ontariense W.L.Peterson
pallidiseta (J.W.Bailey) Ireland
polysetum Sw.
rhabdocarpum Sull.
scoparium Hedw.
spadiceum J.E.Zetterst.
spurium Hedw.
tauricum Sapjegin
undulatum Schrad. ex Brid.
viride (Sull. & Lesq.) Lindb.

Didymodon Hedw. (POTTIACEAE)

acutus (Brid.) K.Saito
anserinocapitatus (X.J.Li) R.H.Zander¹¹⁴
cordatus Jur.¹¹⁵
ditrichoides (Broth.) X.J.Li & S.He
icmadophilus (Schimp. ex Müll.Hal.) K.Saito
maschalogenia (Renauld & Cardot) Broth.
nigrescens (Mitt.) K.Saito
novae-hispaniae J.A.Jiménez & M.J.Cano¹¹⁶
perobtus Broth.
rigidulus Hedw.
subandreaeoides (Kindb.) R.H.Zander
tectorum (Müll.Hal.) K.Saito

Diobelonella Ochyra¹¹⁷ (AONGSTROEMIAEAE)

palustris (Dicks.) Ochyra

Diphyscium D.Mohr (DIPHYSCEAE)

foliosum (Hedw.) D.Mohr
mucronifolium Mitt. ex Dozy & Molk.¹¹⁸

Discelium Brid. (DISCELIACEAE)

nudum (Dicks.) Brid.

Distichium Bruch & Schimp., *nom. cons.* (DISTICHIACEAE)

capillaceum (Hedw.) Bruch & Schimp.
hagenii Ryan ex H.Philib.
inclinatum (Hedw.) Bruch & Schimp.

Ditrichum Timm ex Hampe, *nom. cons.* (DITRICHACEAE)

ambiguum Best
divaricatum Mitt.¹¹⁹
heteromallum (Hedw.) E.Britton
lineare (Sw.) Lindb.
montanum Leiberg
pallidum (Hedw.) Brockm.
pusillum (Hedw.) Hampe
rhynchostegium Kindb.
schimperi (Lesq.) Kuntze
septentrionale Fedosov, Jan Kučera & Ignatova¹²⁰
tortuloides Grout
zonatum (Brid.) Braithw.¹²¹

Donnellia Austin (SEMATOPHYLLACEAE)

commutata (Müll.Hal.) W.R.Buck

Donrichardia H.A.Crum & L.E.Anderson
 (BRACHYTHECIACEAE)

macroneuron (Grout) H.A.Crum & L.E.Anderson
pringlei (Cardot) Huttunen & Ignatov¹²²

Drepanium (Schimp.) Spruce (AMBLYSTEGIAEAE)

fastigiatum (Brid.) Lange & C.E.O.Jensen¹²³

Drepanocladus (Müll.Hal.) G.Roth, *nom. cons.*
 (AMBLYSTEGIAEAE)

aduncus (Hedw.) Warnst.
angustifolius (Hedenäs) Hedenäs & Rosborg
arcticus (R.S.Williams) Hedenäs
brevifolius (Lindb.) Warnst.
capillifolius (Warnst.) Warnst.¹²⁴
cardotii (Thér.) Hedenäs¹²⁵
latinervis Warnst.¹²⁶
polygamus (Schimp.) Hedenäs
sordidus (Müll.Hal.) Hedenäs
trifarius (F.Weber & D.Mohr) Broth.
turgescens (T.Jensen) Broth.

¹¹³ According to Huang et al. (2024) and Ignatova & Fedosov (2008) specimens from the West Coast of North America considered to belong to *D. viride* are most likely populations of *D. hakkodense*.

¹¹⁴ See Zander & Weber (1997).

¹¹⁵ See Allred et al. (2024).

¹¹⁶ See Jiménez et al. (2022).

¹¹⁷ Established for *Dicranella palustris* (Dicks.) Crundw. ex E.F.Warb. by Ochyra et al. (2003).

¹¹⁸ See Magombo (2003).

¹¹⁹ See Fedosov et al. (2023a).

¹²⁰ See Fedosov et al. (2024).

¹²¹ See Matsui & Iwatsuki (1990).

¹²² See Huttunen et al. (2007).

¹²³ See Schlesak et al. (2018).

¹²⁴ See Saługa et al. (2018); treated as *D. longifolius* earlier by Hedenäs (2014b).

¹²⁵ See Hedenäs (1997).

¹²⁶ See Hedenäs (1998).

Drummondia Hook., *nom. cons.* (DRUMMONDIACEAE)
prorepens (Hedw.) Trevis.

Dryptodon Brid.¹²⁷ (GRIMMIACEAE)
anomalus (Hampe ex Schimp.) Loeske
arcuatifolius (Kindb.) Ochyra & Żarnowiec¹²⁸
fuscoluteus (Hook.) Ochyra & Żarnowiec¹²⁹
hartmanii (Schimp.) Limpr.
leibergii (Paris) Ochyra & Żarnowiec
lisae (De Not.) Loeske¹³⁰
muehlenbeckii (Schimp.) Loeske
patens (Dicks. ex Hedw.) Brid.
torquatus (Hook.) Brid.
trichophyllus (Grev.) Brid.

Eccremidium Wilson (DICRANELLACEAE)
floridanum H.A.Crum

Echinophyllum T.J.O'Brien (THUIDIACEAE)
sachalinensis (Lindb.) T.J.O'Brien¹³¹

Encalypta Hedw. (ENCALYPTACEAE)
affinis R.Hedw. subsp. *affinis*
 subsp. *macounii* (Austin) D.G.Horton
alpina Sm.
brevicolla (Bruch & Schimp.) Ångstr. subsp. *brevicolla*
 subsp. *crumiana* D.G.Horton
brevipes Schljakov
ciliata Hedw.
flowersiana D.G.Horton
longicolla Bruch
mutica I.Hagen
pilifera Funck¹³²
procera Bruch
rhaptocarpa Schwägr.
spathulata Müll.Hal.
texana Magill
vittiana D.G.Horton
vulgaris Hedw.

Entodon Müll.Hal. (ENTODONTACEAE)
beyrichii (Schwägr.) Müll.Hal.
brevisetus (Hook. & Wilson) Lindb.

challengeri (Paris) Cardot
cladorrhizans (Hedw.) Müll.Hal.
concinus (DeNot.) Paris
hampeanus Müll.Hal.
macropodus (Hedw.) Müll.Hal.
schleicheri (Schimp.) Demet.
seductrix (Hedw.) Müll.Hal.
sullivantii (Müll.Hal.) Lindb.

Entodontopsis Broth. (STEREOPHYLLACEAE)
leucostega (Brid.) W.R.Buck & Ireland

Entosthodon Schwägr. (FUNARIACEAE)
americanus (Lindb.) Fife
apiculatopilosus (Cardot) Fife
attenuatus (Dicks.) Bryhn
bolanderi Lesq.
californicus (Sull. & Lesq.) H.A.Crum & L.E.
 Anderson
convexus (Spruce) Brugués
drummondii Sull.
fascicularis (Hedw.) Müll.Hal.
kochii H.A.Crum & L.E.Anderson
muhlenbergii (Turner) Fife
planoconvexus (E.B.Bartram) Grout
rubiginosus (R.S.Williams) Grout
rubrisetus (E.B.Bartram) Grout
serratus (Brid.) Fife
sonorae (Cardot) Steere
tucsonii (E.B.Bartram) Grout
wigginsii Steere

Ephemerum Hampe, *nom. cons.* (POTTIACEAE)
cohaerens (Hedw.) Hampe
crassinervium (Schwägr.) Hampe var. *crassinervium*
 var. *texanum* (Grout) V.S.Bryan & L.E.
 Anderson
recurvifolium (Dicks.) Boulay¹³³
serratum (Schreb. ex Hedw.) Hampe
spinulosum Bruch & Schimp.

Epipterygium Lindb. (MIELICHHOFFIACEAE)
biauratum Hanusch¹³⁴

Erpodium (Brid.) Brid. (ERPODIACEAE)
domingense (Spreng.) Brid.

Eucladium Bruch & Schimp. (POTTIACEAE)
verticillatum (With.) Bruch & Schimp.

¹²⁷ *Dryptodon* was recovered as a clade of ambiguous affinities (Hernández-Maqueda et al. 2008, Larraín et al. 2013) and is here treated sensu Ochyra et al. (2003).

¹²⁸ This name has been proposed as a synonym of either *Grimmia lisae* (Hastings & Greven 2007) or *G. decipiens* (Maier 2010); we propose to retain the name, albeit in *Dryptodon*, pending clarification.

¹²⁹ See Muñoz (1999) and Muñoz & Pando (2000).

¹³⁰ See Streiff (2006).

¹³¹ See O'Brien & Horton (2000).

¹³² See Fedosov (2012).

¹³³ See Snyder (2023).

¹³⁴ This name replaces *E. tozeri* for the North American flora (Hanush et al. 2020).

Eurhynchiastrum Ignatov & Huttunen¹³⁵
(BRACHYTHECIACEAE)

pulchellum (Hedw.) Ignatov & Huttunen var.
pulchellum

var. *barnesii* (Renauld & Cardot) Ignatov

Fabronia Raddi (FABRONIACEAE)

ciliaris (Brid.) Brid. var. *ciliaris*

var. *polycarpa* (Hook.) W.R.Buck

var. *wrightii* (Sull.) W.R.Buck

pusilla Raddi

Fissidens Hedw. (FISSIDENTACEAE)

adanthoides Hedw.

amoenus Müll.Hal.

aphelotaxifolius Pursell

appalachensis R.H.Zander

arcticus Bryhn

asplenioides Hedw.

bryoides Hedw.

bushii (Cardot & Thér.) Cardot & Thér.

closteri Austin

crispus Mont.

curvatus Hornsch.

dubius P.Beauv.

elegans Brid.

exilis Hedw.

fontanus (Bach.Pyl.) Steud.

grandifrons Brid.

hallianus (Sull. & Lesq.) Mitt.

hyalinus Wilson & Hook.

leptophyllus Mont.

littlei (R.S.Williams) Grout

minutulus Sull.

obtusifolius Wilson

osmundioides Hedw.

pallidinervis Mitt.

pauperculus M.Howe

pellucidus Hornsch.

polypodioides Hedw.

santa-clarensis Thér.

scalaris Mitt.

serratus Müll.Hal.

subbasilaris Hedw.

sublimbatus Grout

submarginatus Bruch

taxifolius Hedw.

taylorii Müll.Hal.

ventricosus Lesq.

zollingeri Mont.

Flexitrichum Ignatov & Fedosov¹³⁶ (FLEXITRICHACEAE)

flexicaule (Schwägr.) Ignatov & Fedosov

gracile (Mitt.) Ignatov & Fedosov

Fontinalis Hedw. (FONTINALACEAE)

antipyretica Hedw.

dalecarlica Bruch & Schimp.

howellii Renauld & Cardot

hypnoides Hartm.

neomexicana Sull. & Lesq.

novae-angliae Sull.

redfearnii B.H.Allen¹³⁷

sphagnifolia (Müll.Hal.) Wijk & Margad.

sullivantii Lindb.

welchiana B.H.Allen

Forsstroemia Lindb. (NECKERACEAE)

producta (Hornsch.) Paris

trichomitria (Hedw.) Lindb.

Funaria Hedw. (FUNARIACEAE)

arctica (Berggr.) Kindb.

calvescens Schwägr.

convexa Spruce¹³⁸

flavicans Michx.

hygrometrica Hedw.

microstoma Bruch ex Schimp.

polaris Bryhn

Geheebia Schimp.¹³⁹ (POTTIACEAE)

constricta (Mitt.) R.H.Zander & Caners¹⁴⁰

fallax (Hedw.) R.H.Zander

ferruginea (Schimp. ex Besch.) R.H.Zander

gigantea (Funk) Boulay

leskeoides (K.Saito) R.H.Zander

lurida (Hornsch. ex Spreng.) J.A.Jiménez & M.J.
Cano

maxima (Syed & Crundw.) R.H.Zander

tophacea (Brid.) R.H.Zander

Gertrudiella Broth.¹⁴¹ (POTTIACEAE)

nevadensis (R.H.Zander) J.A.Jiménez & M.J.Cano

Globulinella Steere (POTTIACEAE)

globifera (Hampe) Steere

¹³⁵ See Ignatov & Huttunen (2002).

¹³⁶ See Fedosov et al. (2016b).

¹³⁷ *Fontinalis redfearnii* was described by Allen (1991) and is known from Oklahoma.

¹³⁸ See Toren (2008).

¹³⁹ See Jiménez et al. (2022).

¹⁴⁰ See Zander & Caners (2017).

¹⁴¹ See Jiménez et al. (2022).

Gollania Broth. (HYPNACEAE)*turgens* (Müll.Hal.) Ando**Grimmia** Hedw. (GRIMMIACEAE)*alpestris* (F.Weber & D.Mohr) Schleich.*americana* E.B.Bartram*anodon* Bruch & Schimp.*arizonae* Renauld & Cardot*atrata* Miel. ex Hornsch.*brittoniae* R.S.Williams*caespiticia* (Brid.) Jur.*crinitoleucophaea* Cardot*donniana* Sm.*elator* Bruch ex Bals.-Criv. & De Not.*elongata* Kaulf.*funalis* (Schwägr.) Bruch ex De Not.*hamulosa* Lesq.*incurva* Schwägr.*insolita* J.Muñoz, I.Solano & D.Quandt¹⁴²*laevigata* (Brid.) Brid.*lesherae* Greven*longirostris* Hook.*mariniana* Sayre*mollis* Bruch & Schimp.*montana* Bruch & Schimp.*moxleyi* R.S.Williams*nevadensis* Greven*olneyi* Sull.*orbicularis* Bruch ex Wilson*ovalis* (Hedw.) Lindb.*pilifera* P.Beauv.*plagiopodia* Hedw.*pulvinata* (Hedw.) Sm.*reflexidens* Müll.Hal.*serrana* J.Muñoz, Shevock & D.R.Toren*sessitana* De Not.*shastae* Greven*shevockii* J.Muñoz, I.Solano & D.Quandt¹⁴³*tergestina* Tomm. ex Bruch & Schimp.¹⁴⁴*texicana* Greven¹⁴⁵*toreni* Hastings¹⁴⁶*ungeri* Jur.¹⁴⁷*unicolor* Hook. ex Grev.**Groutiella** Steere (ORTHOTRICHACEAE)*tomentosa* (Hornsch.) Wijk & Margad.*tumidula* (Mitt.) Vitt**Gymnostomiella** M.Fleisch. (POTTIACEAE)*vernica* (Hook. ex Harv.) M.Fleisch.¹⁴⁸**Gymnostomum** Nees & Hornsch., *nom. cons.* (POTTIACEAE)*aeruginosum* Sm.*calcareum* Nees & Hornsch.*viridulum* Brid.**Gyroweis** Schimp., *nom. cons.* (POTTIACEAE)*tenuis* (Hedw.) Schimp.**Hageniella** Broth. (HYPNACEAE)*micans* (Mitt.) B.C.Tan & Y.Jia¹⁴⁹**Hamatocaulis** Hedenäs (CALLIERGONACEAE)*lapponicus* (Norrl.) Hedenäs*vernicosus* (Mitt.) Hedenäs**Haplocladium** (Müll.Hal.) Müll.Hal., *nom. cons.*¹⁵⁰

(LESKEACEAE)

angustifolium (Hampe & Müll.Hal.) Broth.*microphyllum* (Sw. ex Hedw.) Broth.*virginianum* (Brid.) Broth.**Haplodontium** Hampe¹⁵¹ (MNIACEAE)*macrocarpum* (Drumm.) J.R.Spence*tehamense* (Showers) J.R.Spence**Hedwigia** P.Beauv., *nom. cons.* (HEDWIGIACEAE)*ciliata* (Hedw.) Boucher*detonsa* (M.Howe) W.R.Buck & D.H.Norris*emodica* Hampe ex Müll.Hal.¹⁵²*filiformis* (Michx.) P.Beauv.¹⁵³*nivalis* (Müll.Hal.) Mitt.¹⁵⁴*stellata* Hedenäs**Helodium** Warnst., *nom. cons.* (HELODIACEAE)*blandovii* (F.Weber & D.Mohr) Warnst.¹⁴² See Solano et al. (2023).¹⁴³ See Solano et al. (2023).¹⁴⁴ See Allred et al. (2024).¹⁴⁵ See Greven (2010).¹⁴⁶ See Hastings (2008). However, Maier (2010) synonymized this name with *G. tergestina*, but more recently it has been recognized by California botanists (Toren 2015; Rae 2021; McLaughlin 2024).¹⁴⁷ See Muñoz (1999).¹⁴⁸ Pending further studies, we follow Redfearn (1991), Arts (1998) and Allen (2002), versus Zander (2007b), who argued for retaining the name *G. orcuttii* E.B.Bartram for the North American populations.¹⁴⁹ See Tan & Jia (1999).¹⁵⁰ See Wilson (2021).¹⁵¹ See Spence (2005).¹⁵² The species may be present in North America based on herbarium records (Gbif 2024b) although it has not formally been reported from North America.¹⁵³ See De Luna (2022).¹⁵⁴ Reported from the southwestern and south-central United States by Allen (2010); see Gbif.org (2024c).

- elodioides* (Renauld & Cardot) B.H.Allen
paludosum (A.Jaeger) Austin ex C.F.Parker
Henicodidium (Müll.Hal.) Kindb. (PTEROBRYACEAE)
geniculatum (Mitt.) W.R.Buck
Hennediella Paris¹⁵⁵ (POTTIACEAE)
heimii (Hedw.) R.H.Zander
stanfordensis (Steere) Blockeel
Herpetineuron (Müll.Hal.) Cardot (THUIDIACEAE)
toccoae (Sull. & Lesq.) Cardot
Herzogiella Broth. (PLAGIOTHECIACEAE)
seligeri (Brid.) Z.Iwats.
striatella (Brid.) Z.Iwats.
turfacea (Lindb.) Z.Iwats.
Heterocladiella Ignatov & Fedosov¹⁵⁶
 (HETEROCLADIACEAE)
dimorpha (Brid.) Ignatov & Fedosov
procurrens (Mitt.) Ignatov & Fedosov
Heterocladium Schimp. (PTERIGYNANDRACEAE)
macounii Best
Heterophyllum (Schimp.) Müll.Hal. ex Kindb.
 (SEMATOPHYLLACEAE)
nemorosum (W.D.J.Koch ex Brid.) Kindb.
Hilpertia R.H.Zander¹⁵⁷ (POTTIACEAE)
velenovskii (Schiffn.) R.H.Zander
Homalia Brid., *nom. cons.* (NECKERACEAE)
trichomanoides (Hedw.) Brid.
Homaliadelphus Dixon & P.de la Varde (MIYABACEAE)
sharpii (R.S.Williams) Sharp
Homalotheciella (Cardot) Broth. (BRACHYTHECIACEAE)
subcapillata (Hedw.) Broth.
Homalothecium Schimp. (BRACHYTHECIACEAE)
aeneum (Mitt.) E.Lawton
arenarium (Lesq.) E.Lawton
aureum (Spruce) H.Rob.
californicum Hedenäs
fulgens (Mitt. ex Müll.Hal.) A.Jaeger
megaptilum (Sull.) H.Rob.
nevadense (Lesq.) Renauld & Cardot
nuttallii (Wilson) A.Jaeger
sericeum (Hedw.) Schimp.
Homomallium (Schimp.) Loeske (HYPNACEAE)
adnatum (Hedw.) Broth.
incurvatum (Schrad. ex Brid.) Loeske
mexicanum Cardot var. *mexicanum*
 var. *latifolium* Cardot
- Hookeria** Sm., *nom. cons.* (HOOKERIACEAE)
acutifolia Hook. & Grev.
lucens (Hedw.) Sm.
Husnotiella Cardot¹⁵⁸ (POTTIACEAE)
asperifolia (Mitt.) J.A.Jiménez & M.J.Cano
fragilicuspis (Broth) J.A.Jiménez & M.J.Cano
johansenii (R.S.Williams) J.A.Jiménez & M.J.Cano
revoluta Cardot
Hydrogonium (Müll.Hal.) A.Jaeger¹⁵⁹ (POTTIACEAE)
amplexifolium (Mitt.) P.C.Chen
bolleanum (Müll.Hal.) A.Jaeger
consanguineum (Thwaites & Mitt.) Hilp. var.
cancellatum (Müll.Hal.) Jan Kučera
cruegeri (Sond. ex Müll.Hal.) Jan Kučera
gregarium (Mitt.) Jan Kučera
orientale (F.Weber) Jan Kučera
Hygroamblystegium Loeske, *nom. cons.*¹⁶⁰
 (AMBLYSTEGIACEAE)
fluviatile (Hedw.) Loeske
humile (P.Beauv.) Vanderp., Hedenäs & Goffinet
noterophilum (Sull. & Lesq.) Warnst.
tenax (Hedw.) Jenn.
varium (Hedw.) Mönk.
Hygrohypnella Ignatov & Ignatova¹⁶¹ (AMBLYSTEGIACEAE)
ochracea (Turner ex Wilson) Ignatov & Ignatova
polaris (Lindb.) Ignatov & Ignatova
Hygrohypnum Lindb. (AMBLYSTEGIACEAE)
closteri (Austin) Grout
luridum (Hedw.) Jenn.
styriacum (Limpr.) Broth.
Hylocomiadelphus Ochyra & Stebel¹⁶² (HYLOCOMIACEAE)
triquetrus (Hedw.) Ochyra & Stebel
Hylocomiastrum M.Fleisch. ex Broth. (HYLOCOMIACEAE)
pyrenaicum (Spruce) M.Fleisch. ex Broth.
umbratum (Hedw.) M.Fleisch. ex Broth.
Hylocomium Schimp., *nom. cons.* (HYLOCOMIACEAE)
splendens (Hedw.) Schimp.
Hymenoloma Dusén¹⁶³ (HYMENOMATAACEAE)
crispulum (Hedw.) Ochyra
mulahaceni (Höhn.) Ochyra¹⁶⁴

¹⁵⁵ See Cano (2008).¹⁵⁶ See Ignatov et al. (2019a).¹⁵⁷ See Zander (1989).¹⁵⁸ See Jiménez et al. (2022).¹⁵⁹ See Kučera et al. (2013).¹⁶⁰ *Hygroamblystegium* is, albeit not robustly, resolved as a sister group to *Amblystegium* (Vanderpoorten et al. (2002), which holds a single species. The two could be merged into a single genus, as adopted by Anderson et al. (1990).¹⁶¹ See Ignatov & Ignatova (2004).¹⁶² See Ochyra & Stebel (2008) and Ignatov et al. (2019b).¹⁶³ See Ochyra et al. (2003).

Hymenostylium* Brid.**¹⁶⁵ (POTTIACEAE)*annotinum* Mitt. ex Dixon*aurantiacum* Mitt.¹⁶⁶*recurvirostrum* (Hedw.) DixonHyophila* Brid., nom. cons.** (POTTIACEAE)*involuta* (Hook.) A.Jaeger***Hyophiladelphus* (Müll.Hal.) R.H.Zander** (POTTIACEAE)*agrarius* (Hedw.) R.H.Zander¹⁶⁷***Hypnum* Hedw., nom. cons.** (HYPNACEAE)*andoi* A.J.E.Sm.¹⁶⁸*cupressiforme* Hedw. var. *cupressiforme*var. *filiforme* Brid.var. *julaceum* Brid.*jutlandicum* Holmen & E.Warncke*resupinatum* Taylor*subjulaceum* (Molendo) Hedenäs, Schlesak & D. Quandt***Hypopterygium* Brid.** (HYPOPTERYGIACEAE)*flavolimbium* Müll.Hal.*tamarisci* (Sw.) Brid. ex Müll.Hal.***Indusiella* Broth. & Müll.Hal.** (PTYCHOMITRIACEAE)*thianschanica* Broth. & Müll.Hal.***Isopterygiella* Ignatov & Ignatova**¹⁶⁹ (PLAGIOTHECIACEAE)*alpicola* (Lindb.) Ignatov & Ignatova*pulchella* (Hedw.) Ignatov & Ignatova***Isopterygiopsis* Z.Iwats.** (PLAGIOTHECIACEAE)*catagonioides* (Broth.) Ignatov & Ignatova¹⁷⁰*muelleriana* (Schimp.) Z.Iwats.***Isopterygium* Mitt.** (PYLAIADDELPHACEAE)*tenerifolium* Mitt.¹⁷¹*tenerum* (Sw.) Mitt.***Isothecium* Brid.** (LEMBOPHYLLACEAE)*alopecuroides* (Lam. ex Dubois) Isov.***Iwatsukiella* W.R.Buck & H.A.Crum** (PTERIGYNANDRACEAE)*leucotricha* (Mitt.) W.R.Buck & H.A.Crum***Jaegerina* Müll.Hal.** (PTEROBRYACEAE)*scariosa* (Lorentz) Arzeni***Jaffueliobryum* Thér.** (GRIMMIACEAE)*raui* (Austin) Thér.*wrightii* (Sull.) Thér.***Jochenia* Hedenäs, Schlesak & D.Quandt**¹⁷² (JOCHENIACEAE)*pallenscens* (Hedw.) Hedenäs, Schlesak & D.Quandt*protuberans* (Brid.) Jan Kučera & Ignatov¹⁷³***Kiaeria* I.Hagen** (RHABDOWEISIACEAE)*falcata* (Hedw.) I.Hagen¹⁷⁴***Kindbergia* Ochrya**¹⁷⁵ (BRACHYTHECIACEAE)*oregana* (Sull.) Ochrya*praelonga* (Hedw.) Ochrya***Koponeniella* Huttunen & Ignatov**¹⁷⁶ (BRACHYTHECIACEAE)*bolanderi* (Lesq.) Huttunen & Ignatov*graminicolor* (Brid.) Huttunen, Ignatov, M.Li & Y.F.Wang***Lepidopilum* (Brid.) Brid., nom. cons.** (PILOTTRICHACEAE)*polytrichoides* (Hedw.) Brid.***Leptobryum* (Schimp.) Wilson** (MEESIACEAE)*pyriforme* (Hedw.) Wilson***Leptodictyum* (Schimp.) Warnst.** (AMBLYSTEGIACEAE)*riparium* (Hedw.) Warnst.*wallacei* B.H.Allen & Magill¹⁷⁷***Leptodon* D.Mohr, nom. cons.** (LEPTODONTACEAE)*smithii* (Dicks. ex Hedw.) F.Weber & D.Mohr***Leptodontium* (Müll.Hal.) Hampe ex Lindb.** (POTTIACEAE)*excelsum* (Sull.) E.Britton*flexifolium* (With.) Hampe ex Lindb.***Leptohymenium* Schwägr.** (HYLOCOMIACEAE)*sharpii* (H.A.Crum & L.E.Anderson) W.R.Buck & H.A.Crum***Leptopterigynandrum* Müll.Hal.** (TAXIPHYLLACEAE)*austroalpinum* Müll.Hal.*subintegrum* (Mitt.) Broth.¹⁷⁸¹⁶⁴ Reported from North America by Werner et al. (2013).¹⁶⁵ Zander & Hedderson (2016) segregated North American and other species of *Hymenostylium* in their new genus *Ardeuma*. However, the phylogenetic study by Cano et al. (2022) highlighted ambiguous monophyly of this and other related genera, and hence we prefer to retain a conservative, i.e., broader, circumscription of *Hymenostylium*. Hodgetts et al. (2020) rejected recognizing *Ardeuma* on the basis of unpublished data, which may be forthcoming.¹⁶⁶ Reported from North America by Zander & Eckel (2017).¹⁶⁷ See Zander (1995).¹⁶⁸ Potentially doubtful, see Allen (2014).¹⁶⁹ See Ignatova et al. (2020a).¹⁷⁰ See Ignatova et al. (2020a).¹⁷¹ See Buck (1994).¹⁷² *Jochenia* was erected by Schlesak et al. (2018) to accommodate *Hypnum pallenscens*.¹⁷³ See Kučera et al. (2019).¹⁷⁴ See Brinda & Fedosov (2023).¹⁷⁵ See Li et al. (2015).¹⁷⁶ *Koponeniella* was established based on phylogenetic evidence (Huttunen et al. 2015).¹⁷⁷ Described by Allen & Magill (2004) for material from Texas.¹⁷⁸ Reported by He (2005).

Leratia Broth. & Paris (ORTHOTRICHACEAE)*exigua* (Sull.) Goffinet¹⁷⁹**Lescuraea** Schimp.¹⁸⁰ (LESKEACEAE)*arizonae* (R.S.Williams) P.S.Wilson & D.H.Norris*atracha* (Kindb.) E.Lawton*baileyi* (Best & Grout) E.Lawton*incurvata* (Hedw.) E.Lawtonvar. *gigantea* E.Lawtonvar. *tenuiretis* (Culm.) E.Lawton*patens* (Lindb.) Arnell & C.E.O.Jensen*radicosa* (Mitt.) Mönk. var. *radicosa*var. *compacta* (Best) E.Lawtonvar. *denudata* (Kindb.) E.Lawtonvar. *pallida* (Best) E.Lawton*saviana* (De Not.) E.Lawton*saxicola* (Schimp.) Molendo*stenophylla* (Renauld & Cardot) Kindb.*tribulosa* (Shevock & W.R.Buck) W.R.Buck & Goffinet¹⁸¹**Leskea** Hedw. (LESKEACEAE)*australis* Sharp*gracilescens* Hedw.*obscura* Hedw.*polycarpa* Hedw.**Leucobryum** Hampe (LEUCOBRYACEAE)*albidum* (Brid. ex P.Beauv.) Lindb.*antillarum* Schimp. ex Besch.*glaucum* (Hedw.) Ångstr.**Leucodon** Schwägr. (LEUCODONTACEAE)*brachypus* Brid.*julaceus* (Hedw.) Sull.*sciuroides* (Hedw.) Schwägr.¹⁸²**Leucolepis** Lindb. (MNIACEAE)*acanthoneura* (Schwägr.) Lindb.**Lewinskya** F.Lara, Garilleti & Goffinet¹⁸³
(ORTHOTRICHACEAE)*affinis* (Brid.) F.Lara, Garilleti & Goffinet var. *affinis*
var. *bohémica* (Plášek & Sawicki) Plášek¹⁸⁴*arida* Vigalondo, F.Lara & Garilleti¹⁸⁵*bolanderi* (Sull.) F.Lara, Garilleti & Goffinet*elegans* (Schwägr. ex Hook. & Grev.) F.Lara, Garilleti
& Goffinet*fenestrata* (Cardot & Thér.) F.Lara, Garilleti &
Goffinet*holzingeri* (Renauld & Cardot) F.Lara, Garilleti
& Goffinet*keeverae* (H.A.Crum & L.E.Anderson) F.Lara,
Garilleti & Goffinet*laevigata* (J.E.Zetterst.) F.Lara, Garilleti & Goffinet*pacifica* Vigalondo, F.Lara & Garilleti¹⁸⁶*praemorsa* (Venturi) F.Lara, Garilleti & Goffinet*pseudoaffinis* Vigalondo, F.Lara & Garilleti¹⁸⁷*pycnophylla* (Schimp.) F.Lara, Garilleti & Goffinet*pylaisii* (Brid.) F.Lara, Garilleti & Goffinet*rupestris* (Schleich. ex Schwägr.) F.Lara, Garilleti
& Goffinet*shawii* (Wilson) F.Lara, Garilleti & Goffinet¹⁸⁸*sordida* (Sull. & Lesq.) F.Lara, Garilleti &
Goffinet*speciosa* (Nees) F.Lara, Garilleti & Goffinet*spjutii* (D.H.Norris & Vitt) F.Lara, Garilleti &
Goffinet¹⁸⁹*striata* (Hedw.) F.Lara, Garilleti & Goffinet**Limbella** (Müll.Hal.) Renauld & Cardot
(AMBLYSTEGIACEAE)*fryei* (R.S.Williams) Ochyra**Lindbergia** Kindb. (LESKEACEAE)*brachyptera* (Mitt.) Kindb.*mexicana* (Besch.) Cardot**Loeskeobryum** M.Fleisch. ex Broth. (HYLOCOMIACEAE)*brevirostre* (Brid.) M.Fleisch. ex Broth.**Lorentziella** Müll.Hal. ex Besch. (GIGASPERMACEAE)*imbricata* (Mitt.) Broth.¹⁷⁹ See Goffinet et al. (2004)¹⁸⁰ We follow Gardiner et al. (2005) who merged *Pseudoleskea* with *Lescuraea*.¹⁸¹ Described as *Pseudoleskea tribulosa* by Shevock & Buck (2009) and accommodated in *Lescuraea* under the new combination *Lescuraea tribulosa* (Shevock & W.R.Buck) W.R.Buck & Goffinet comb. nov. $\equiv$ *Pseudoleskea tribulosa* Shevock & W.R.Buck, The Bryologist 112(1): 184. 2009. TYPE: U.S.A., California, Mariposa Co.: Yosemite National Park, Hoffmann Creek watershed S of Mt. Hoffmann and N of Tioga Road, 37°49'52"N, 119°30'50"W, 4 Aug. 2006, J.R. Shevock et al. 28987 (holotype, CAS; isotypes, DUKE, H, MO, NY, UC, US, YM).¹⁸² Previously this taxon was known as *L. brachypus* var. *andrewsianus* Crum & Anderson (Stech et al. 2011).¹⁸³ See Lara et al. (2016).¹⁸⁴ Based on a collection, *D. H. Vitt* 24 (MO) from Idaho; but see Vigalondo et al. (2020) who considered this taxon a form of *L. affinis*.¹⁸⁵ See Vigalondo et al. (2020).¹⁸⁶ See Vigalondo et al. (2020).¹⁸⁷ See Vigalondo et al. (2020).¹⁸⁸ See Garilleti et al. (2006b).¹⁸⁹ See Norris & Vitt (1993).

- Luisierella** Thér. & P.de la Varde (TIMMIELLACEAE)
barbula (Schwägr.) Steere
- Lyellia** R.Br. (POLYTRICHACEAE)
aspera (I.Hagen & C.E.O.Jensen) Frye
- Macrocoma** (Hornsch. ex Müll.Hal.) Grout
 (ORTHOTRICHACEAE)
tenuis (Hook. & Grev.) Vitt subsp. *sullivantii*
 (Müll.Hal.) Vitt
- Macromitrium** Brid. (ORTHOTRICHACEAE)
viticulosum (Raddi) Brid.¹⁹⁰
- Meesia** Hedw., *nom. cons.* (MEESIACEAE)
longiseta Hedw.
triquetra (L. ex Jolycl.) Ångstr.
uliginosa Hedw.
- Merceyopsis** Broth. & Dixon (POTTIACEAE)
cataractae (Mitt.) Brinda, Ignatov & Fedosov¹⁹¹
- Metaneckera** Steere (NECKERACEAE)
menziesii (Drumm.) Steere
- Meteorium** Dozy & Molk., *nom. cons.* (METEORACEAE)
nigrescens (Hedw.) Dozy & Molk.¹⁹²
- Microbryum** Schimp.¹⁹³ (POTTIACEAE)
commutatum (Limpr.) Cl.Schneid., Th.Schneid.
 & Mahévas¹⁹⁴
conicum (Schleich. ex Schwägr.) Cl.Schneid.,
 Th.Schneid. & Mahévas¹⁹⁵
davallianum (Sm.) R.H.Zander¹⁹⁶
floerkeanum (F.Weber & D.Mohr) Schimp.
fosbergii (E.B.Bartram) Ros, O.Werner & Rams¹⁹⁷
muticum (Venturi) Cl.Schneid., Th.Schneid. &
 Mahévas¹⁹⁸
starckeanum (Hedw.) R.H.Zander
- Micromitrium** Austin (MICROMITRIACEAE)
megalosporum Austin
synoicum (James) Austin
tenerum (Bruch & Schimp.) Crosby
wrightii (Müll.Hal.) Crosby
- Mielichhoferia** Hornsch. (MIELICHHOFERIACEAE)
elongata (Hoppe & Hornsch. ex Hook.) Hornsch.
mielichhoferiana (Funck) Loeske
shevockii (A.J.Shaw) A.J.Shaw¹⁹⁹

- Mnium** Hedw., *nom. cons.* (MNIACEAE)
arizonicum J.J.Amann
blyttii Bruch & Schimp.
hornum Hedw.
lycopodioides Schwägr.
marginatum (Dicks.) P.Beauv.
spinosum (Voit) Schwägr.
spinulosum Bruch & Schimp.
stellare Hedw.
thomsonii Schimp.
- Molendoa** Lindb. (POTTIACEAE)
handelii (Schiffn.) Brinda & R.H.Zander²⁰⁰
hornschuchiana (Hook.) Lindb. ex Limpr.
sendtneriana (Bruch & Schimp.) Limpr.
- Myrinia** Schimp., *nom. cons.* (MYRINIACEAE)
pulvinata (Wahlenb.) Schimp.
- Myurella** Schimp. (PLAGIOTHECIACEAE)
julacea (Schwägr.) Schimp.
sibirica (Müll.Hal.) Reimers
tenerima (Brid.) Lindb.
- Myuroclada** Besch. (BRACHYTHECIACEAE)
maximowiczii (G.G.Borshch.) Steere & W.B.Schofield
- Neckera** Hedw., *nom. cons.* (NECKERACEAE)
californica Hook. & Arn.²⁰¹
douglasii Hook.
pennata Hedw.
- Neckeropsis** Reichardt (NECKERACEAE)
disticha (Hedw.) Kindb.
undulata (Hedw.) Reichardt
- Neodicladiella** (Nog.) W.R.Buck (METERORIACEAE)
pendula (Sull.) W.R.Buck²⁰²
- Neomacounia** Ireland (NECKERACEAE)
nitida (Lindb.) Ireland
- Nogopterium** Crosby & W.R.Buck (LEUCODONTACEAE)
gracile (Hedw.) Crosby & W.R.Buck²⁰³
- Nyholmia** Holmen & E.Warncke²⁰⁴ (ORTHOTRICHACEAE)
gymnostoma (Bruch ex Brid.) Holmen & E.Warncke
obtusifolia (Brid.) Holmen & E.Warncke
- Octoblepharum** Hedw. (OCTOBLEPHARACEAE)
albidum Hedw.
- Oedipodium** Schwägr. (OEDIPODIACEAE)
griffithianum (Dicks.) Schwägr.

¹⁹⁰ See Valente et al. (2020).¹⁹¹ See Brinda & Fedosov (2023).¹⁹² See Buck (1998).¹⁹³ See Zander (1993).¹⁹⁴ See Mahévas et al. (2016).¹⁹⁵ See Mahévas et al. (2016).¹⁹⁶ See Zander (2007d).¹⁹⁷ See Ros et al. (2005).¹⁹⁸ See Mahévas et al. (2016).¹⁹⁹ See Shaw (2009).²⁰⁰ See Brinda & Zander (2020).²⁰¹ See Olsson et al. (2011).²⁰² See Buck (1994).²⁰³ See Crosby & Buck (2011).²⁰⁴ See Sawicki et al. (2010).

Oligotrichum DC., *nom. cons.* (POLYTRICHACEAE)

- aligerum* Mitt.
falcatum Steere
hercynicum (Hedw.) DC.
parallelum (Mitt.) Kindb.

Oncophorus (Brid.) Brid. (DICRANACEAE)

- integerrimus* Hedenäs²⁰⁵
virens (Hedw.) Brid.

Oreas Brid., *nom. cons.* (DICRANACEAE)

- martiana* (Hoppe & Hornsch.) Brid.

Orthodontium Schwägr. (ORTHODONTIACEAE)

- gracile* (Wilson *ex* Hook.) Schwägr. *ex* Bruch & Schimp.
pellucens (Hook.) Bruch & Schimp.

Ortholimonium Dixon (PLAGIOTHECIACEAE)

- handelii* (Broth.) Schröck & J.T.Wynns²⁰⁶

Orthothecium Schimp., *nom. cons.* (PLAGIOTHECIACEAE)

- acuminatum* Bryhn
chryseon (Schwägr.) Schimp.
intricatum (Hartm.) Schimp.
rufescens (Dicks. *ex* Brid.) Schimp.
strictum Lorentz

Orthotrichum Hedw. (ORTHOTRICHACEAE)

- alpestre* Hornsch. *ex* Bruch & Schimp.
anodon F.Lara, Garilleti & Mazimpaka²⁰⁷
anomalum Hedw.
bartramii R.S.Williams
consimile Mitt.
consobrinum Cardot²⁰⁸
cucullatum F.Lara, R.Medina & Garilleti²⁰⁹
cupulatum Hoffm. *ex* Brid.
cylindrocarpum Lesq.²¹⁰
diaphanum Schrad. *ex* Brid.
euryphyllum Venturi
flowersii Vitt
franciscanum F.Lara, R.Medina & Garilleti²¹¹
hallii Sull. & Lesq.
mazimpakanum Garilleti & F.Lara²¹²
norrisii F.Lara, R.Medina & Garilleti²¹³

²⁰⁵ See Afonina (2020).²⁰⁶ See Wynns & Schröck (2018).²⁰⁷ See Garilleti et al. (2006a).²⁰⁸ See Flagemeier et al. (2021).²⁰⁹ See Medina et al. (2013).²¹⁰ See Medina et al. (2019b).²¹¹ See Medina et al. (2013).²¹² See Garilleti et al. (2011).²¹³ See Medina et al. (2008).

ohioense Sull. & Lesq.

pallens Bruch *ex* Brid. var. *pallens*

var. *crenulatum* Vitt

var. *johnseniae* Vitt

pellucidum Lindb.

pulchellum Brunt.

pumilum Sw.

pusillum Mitt.

rivulare Turner

shevockii Lewinsky-Haapasaari & D.H.Norris²¹⁴

stellatum Brid.

stramineum Hornsch. *ex* Brid.

strangulatum P.Beauv.

underwoodii F.Lara, Garilleti & Mazimpaka²¹⁵

Oxyrrhynchium (Schimp.) Warnst., *nom. cons.*²¹⁶
(BRACHYTHECIACEAE)

hians (Hedw.) Loeske

Ozobryum G.L.Sm.Merr. (POTTIACEAE)

ogalalense G.L.Sm.Merr.²¹⁷

Palamocladium Müll.Hal. (BRACHYTHECIACEAE)

leskeoides (Hook.) E.Britton

Paludella Ehrh. *ex* Brid. (MEESIACEAE)

squarrosa (Hedw.) Brid.

Palustriella Ochyra (AMBLYSTEGIACEAE)

commutata (Hedw.) Ochyra

falcata (Brid.) Hedenäs

Paraleucobryum (Lindb. *ex* Limpr.) Péterfi (DICRANACEAE)

enerve (Thed.) Loeske

longifolium (Ehrh. *ex* Hedw.) Péterfi

sauteri (Bruch & Schimp.) Loeske²¹⁸

Pelekium Mitt., *nom. cons.*²¹⁹ (THUIDIACEAE)

involverens (Hedw.) Touw

minutulum (Hedw.) Touw

pygmaeum (Schimp.) Touw

schistocalyx (Müll.Hal.) Touw

Philonotis Brid. (BARTRAMIACEAE)

americana Dism.²²⁰

breuteloides Shevock & Aguero²²¹

capillaris Lindb.

cernua (Wilson) D.G.Griffin & W.R.Buck²²²

²¹⁴ See Lewinsky-Haapasaari (1998).²¹⁵ See Garilleti et al. (2001).²¹⁶ See Ignatov & Huttunen (2002).²¹⁷ See Merrill (1992).²¹⁸ See Haring (1961) and Allred et al. (2024).²¹⁹ See Touw (2001).²²⁰ See Koponen et al. (2012).²²¹ See Shevock & Aguero (2023).

fontana (Hedw.) Brid.
longiseta (Michx.) E.Britton
marchica (Hedw.) Brid.
minuta (Taylor) A.Jaeger²²³
sphaericarpa (Hedw.) Brid.
tomentella Molendo
uncinata (Schwägr.) Brid.
yezoana Besch. & Cardot

Physcomitrium (Brid.) Brid. (FUNARIACEAE)

californicum E.Britton²²⁴
collenchymatum Gier
hookeri Hampe
immersum Sull.
patens (Hedw.) Mitt.²²⁵
pygmaeum James²²⁶
pyriforme (Hedw.) Brid.
readeri Müll.Hal.²²⁷
serratum (Wilson & Hook.) Müll.Hal.²²⁸

Pilosium (Müll.Hal.) M.Fleisch. (STEREOPHYLLACEAE)

chlorophyllum (Hornsch.) Müll.Hal.²²⁹

Pirella Cardot (PTEROBRYACEAE)

cymbifolia (Sull.) Cardot
pohlii (Schwägr.) Cardot

Plagiobryum Lindb. (BRYACEAE)

demissum (Hook.) Lindb.
zieri (Dicks. ex Hedw.) Lindb.

Plagiomnium T.J.Kop., *nom. cons.* (MNIACEAE)

ciliare (Müll.Hal.) T.J.Kop.
curvatulum (Lindb.) Schljakov²³⁰
cuspidatum (Hedw.) T.J.Kop.
drummondii (Bruch & Schimp.) T.J.Kop.
ellipticum (Brid.) T.J.Kop.
floridanum R.E.Wyatt & Odrzyk.²³¹
insigne (Mitt.) T.J.Kop.
medium (Bruch & Schimp.) T.J.Kop.
rhynchophorum (Harv.) T.J.Kop.²³²

rostratum (Schräd.) T.J.Kop.
undulatum (Hedw.) T.J.Kop.²³³
venustum (Mitt.) T.J.Kop.

Plagiopus Brid. (BARTRAMIACEAE)

oederianus (Sw.) H.A.Crum & L.E.Anderson
serratus Brid.²³⁴

Plagiothecium Schimp. (PLAGIOTHECIACEAE)

berggrenianum Frisvoll
cavifolium (Brid.) Z.Iwats.
curvifolium Schleiph. ex Limpr.²³⁵
denticulatum (Hedw.) Schimp. var. *denticulatum*
 var. *obtusifolium* (Turner) Moore²³⁶
laetum Schimp.
latebricola Schimp.
nemorale (Mitt.) A.Jaeger²³⁷
pacificum J.T.Wynns²³⁸
schofieldii Wolski & W.R.Buck²³⁹
succulentum (Wilson) Lindb.²⁴⁰
sylvaticum (Brid.) Schimp.²⁴¹
talbotii Wolski & W.R.Buck²⁴²
undulatum (Hedw.) Schimp.

Platydictya Berk. (PLAGIOTHECIACEAE)

jungermannioides (Brid.) H.A.Crum

Platygyrium Schimp., *nom. cons.* (PYLAISIADELPHACEAE)

fuscoluteum Cardot
repens (Brid.) Schimp.

Platyhypnum Loeske²⁴³ (AMBLYSTEGIACEAE)

alpestre (Hedw.) Ochyra
alpinum (Lindb.) Loeske
bestii (Renauld & Bryhn) Ochyra
cochlearifolium (Venturi) Ochyra
duriusculum (De Not.) Ochyra
molle (Hedw.) Loeske
norvegicum (Schimp.) Ochyra
smithii (Sw.) Ochyra

Platylomella A.L.Andrews (AMBLYSTEGIACEAE)

lescurii (Sull.) A.L.Andrews

²²² See Griffin & Buck (1989).

²²³ See Jiménez & Toren (2018).

²²⁴ See Norris & Shevock (2004a,b).

²²⁵ See Medina et al. (2019a).

²²⁶ See Medina et al. (2022).

²²⁷ See Medina et al. (2019a).

²²⁸ See Medina et al. (2019a).

²²⁹ Newly reported from North America based on a collection, A.J. Shaw 8153, on 14 Sep. 1996, from North Carolina (DUKE, NY).

²³⁰ See Wyatt et al. (1993).

²³¹ See Wyatt & Odrzykoski (2012).

²³² See Wyatt et al. (2021a).

²³³ See Joya & McIntosh (2012).

²³⁴ See Habeeb (1950) and Hedenäs (2020) as *P. alpinus*.

²³⁵ See Wolski et al. (2022c).

²³⁶ See Wolski et al. (2022a).

²³⁷ See Wolski et al. (2020).

²³⁸ See Wynns et al. (2018).

²³⁹ See Wolski et al. (2021).

²⁴⁰ See Wolski (2020).

²⁴¹ See Wolski et al. (2024).

²⁴² See Wolski et al. (2022b).

²⁴³ We follow the treatment by Ochyra (2013), supported by Kučera et al. (2019).

Plaubelia Brid.²⁴⁴ (POTTIACEAE)

sprengelii (Schwägr.) R.H.Zander
stomatodonta (Cardot) R.H.Zander

Plenogemma Plášek, Sawicki & Ochyra (ORTHOTRICHACEAE)

phyllantha (Brid.) Sawicki, Plášek & Ochyra²⁴⁵

Pleuridium Rabenh., *nom. cons.* (DITRICHACEAE)

acuminatum Lindb.
mexicanum Cardot²⁴⁶
ravenelii Austin
subulatum (Hedw.) Rabenh.
sullivantii Austin

Pleurochaete Lindb. (POTTIACEAE)

luteola (Besch.) Thér.²⁴⁷

Pleuroziopsis Kindb. ex E.Britton (CLIMACIACEAE)

ruthenica (Weinm.) Kindb. ex E.Britton

Pleurozium Mitt., *nom. cons.* (HYLOCOMIACEAE)

schreberi (Willd. ex Brid.) Mitt.

Pogonatum P.Beauv. (POLYTRICHACEAE)

brachyphyllum (Michx.) P.Beauv.
contortum (Menzies ex Brid.) Lesq.
dentatum (Menzies ex Brid.) Brid.
pensilvanicum (Bartram ex Hedw.) Paris
urnigerum (Hedw.) P.Beauv.

Pohlia Hedw. (MIELICHHOFERACEAE)

andalusica (Höhn.) Broth.
andrewsii A.J.Shaw
annotina (Hedw.) Lindb.
atropurpurea (Wahlenb.) H.Lindb.
beringiensis A.J.Shaw
bolanderi (Lesq.) Broth.
brevinervis Lindb. & Arnell
bulbifera (Warnst.) Warnst.
camptotrachela (Renauld & Cardot) Broth.
cardotii (Renauld) Broth.
columbica (Kindb.) A.L.Andrews
cruda (Hedw.) Lindb.
crudoides (Sull. & Lesq.) Broth.
drummondii (Müll.Hal.) A.L.Andrews
elongata Hedw.
erecta Lindb.
filum (Schimp.) Mårtensson
flexuosa Harv.²⁴⁸
greenii Brid.²⁴⁹

lescuriana (Sull.) Grout

longibracteata Broth.

longicolla (Hedw.) Lindb.

ludwigii (Spreng. ex Schwägr.) Broth.

melanodon (Brid.) A.J.Shaw

nutans (Hedw.) Lindb.

obtusifolia (Vill. ex Brid.) L.F.Koch

pacifica A.J.Shaw

proliger (Kindb. ex Breidl.) Lindb. ex Arnell

rabunbaldensis A.J.Shaw²⁵⁰

robertsonii Shevock & A.J.Shaw²⁵¹

sphagnicola (Bruch & Schimp.) Broth.²⁵²

tundrae A.J.Shaw

vexans (Limpr.) H.Lindb.

wahlenbergii (F.Weber & D.Mohr) A.L.Andrews

Polytrichastrum G.L.Sm.²⁵³ (POLYTRICHACEAE)

alpinum (Hedw.) G.L.Sm.

fragile (Bryhn) Schljakov

lyallii (Mitt.) G.L. Sm

papillatum G.L.Sm.

septentrionale (Sw. ex Brid.) E.I.Ivanova, N.E.

Bell & Ignatov

sexangulare (Flörke ex Brid.) G.L.Sm.

sphaerothecium (Besch.) J.-P.Frahm

Polytrichum Hedw.²⁵⁴ (POLYTRICHACEAE)

appalachianum L.E.Anderson

commune Hedw.

densifolium Wilson ex Mitt.²⁵⁵

formosum Hedw.

hyperboreum R.Br.

jensenii I.Hagen

juniperinum Hedw.

longisetum Sw. ex Brid.

ohioense Renauld & Cardot

pallidisetum Funck

perigoniale Michx.²⁵⁶

piliferum Hedw.

strictum Menzies ex Brid.

swartzii Hartm.

²⁴⁴ See Zander (2021).

²⁴⁵ See Plášek et al. (2015).

²⁴⁶ See Yip et al. (2007).

²⁴⁷ See Eckel (2007) and Wyatt & Stoneburner (2018).

²⁴⁸ See Shaw & Toren (2009).

²⁴⁹ See Guerra (2021).

²⁵⁰ See Shevock & Shaw (2005).

²⁵¹ See Shevock & Shaw (2005).

²⁵² Considered conspecific with *P. nutans* by Shaw (2014) but retained as distinct by Hodgetts et al. (2020).

²⁵³ See Bell & Hyvönen (2010).

²⁵⁴ See Bell & Hyvönen (2010).

²⁵⁵ See Ivanova & Ignatov (2017).

²⁵⁶ Considered a variety of *P. commune* by Merrill (2007) but a distinct species by Kariyawasam (2021).

- Pseudanomodon*** (Limpr.) Ignatov & Fedosov²⁵⁷
(NECKERACEAE)
attenuatus (Hedw.) Ignatov & Fedosov
- Pseudephemerum*** (Lindb.) I.Hagen (DITRICHACEAE)
nitidum (Hedw.) Loeske²⁵⁸
- Pseudisothecium*** Grout²⁵⁹ (LEMBOPHYLLACEAE)
cardotii (Kindb.) Ignatova, Fedosov & Ignatov
cristatum (Hampe) Ignatova, Fedosov & Ignatov
mysuroides (Brid.) Grout
stoloniferum (Brid.) Grout
- Pseudoamblystegium*** Vanderp. & Hedenäs
(AMBLYSTEGIACEAE)
subtile (Hedw.) Vanderp. & Hedenäs²⁶⁰
- Pseudobraunia*** (Lesq. & James) Broth. (HEDWIGIACEAE)
californica (Lesq.) Broth.
- Pseudobryum*** (Kindb.) T.J.Kop. (MNIACEAE)
cinclidioides (Huebener) T.J.Kop.
- Pseudocampylium*** Vanderp. & Hedenäs²⁶¹
(AMBLYSTEGIACEAE)
radicale (P.Beauv.) Vanderp. & Hedenäs
- Pseudocrossidium*** R.S.Williams (POTTIACEAE)
arenicola (Dusén) M.J.Cano²⁶²
hornschuchianum (Schultz) R.H.Zander
obtusulum (Lindb.) H.A.Crum & L.E.Anderson
replicatum (Taylor) R.H.Zander
- Pseudocryphaea*** E.Britton ex Broth. (RUTENBERGIACEAE)
domingensis (Spreng.) W.R.Buck
- Pseudoditrichum*** Steere & Z.Iwats. (PSEUDODITRICHACEAE)
mirabile Steere & Z.Iwats.
- Pseudohygrohypnum*** Kanda²⁶³ (PYLAISIACEAE)
appalachianum Brinda, Fedosov & Ignatova²⁶⁴
eugyrium (Schimp.) Kanda
fauriei (Cardot) Jan Kučera & Ignatov
fertile (Sendtn.) Jan Kučera & Ignatov
neglectum Fedosova & Ignatova
subeugyrium (Renauld & Cardot) Ignatov & Ignatova
- Pseudoleskeella*** Kindb. (LESKEACEAE)
nervosa (Brid.) Nyholm

- rupestris* (Berggr.) Hedenäs & L.Söderstr.²⁶⁵
serpentinensis P.S.Wilson & D.H.Norris
tectorum (Funck ex Brid.) Kindb.
- Pseudoscleropodium*** (Limpr.) M.Fleisch.
(BRACHYTHECIACEAE)
purum (Hedw.) M.Fleisch.
- Pseudostereodon*** (Broth.) M.Fleisch.²⁶⁶ (PYLAISIACEAE)
procerrimus (Molendo) M.Fleisch.
- Pseudotaxiphyllum*** Z.Iwats. (PLAGIOTHECIACEAE)
elegans (Brid.) Z.Iwats.
subfalcatum (Austin) X.Q.Li, Q.Zuo & Y.F.Wang²⁶⁷
- Psilopilum*** Brid. (POLYTRICHACEAE)
cavifolium (Wilson) I.Hagen
laevigatum (Wahlenb.) Lindb.
- Pterigynandrum*** Hedw. (PTERIGYNANDRACEAE)
filiforme Hedw.
- Pterygoneurum*** Jur., *nom. cons.* (POTTIACEAE)
× *kieneri* (Habeeb) W.R.Buck & Goffinet²⁶⁸
× *kozlovii* Laz.²⁶⁹
lamellatum (Lindb.) Jur.
ovatum (Hedw.) Dixon
subsessile (Brid.) Jur.
- Ptilium*** De Not. (PYLAISIACEAE)
crista-castrensis (Hedw.) De Not.
- Ptychomitrium*** Fürnr., *nom. cons.* (PTYCHOMITRIACEAE)
drummondii (Wilson) Sull.
gardneri Lesq.
incurvum (Schwägr.) Spruce
serratum Bruch & Schimp.
sinense (Mitt.) A.Jaeger
- Pulviger*** Plášek, Sawicki & Ochrya²⁷⁰ (ORTHOTRICHACEAE)
howei (Renauld & Cardot) F.Lara, Draper & Garilleti²⁷¹

²⁶⁵ See Hedenäs & Söderström (1991).

²⁶⁶ See Câmara et al. (2018).

²⁶⁷ See Li et al. (2015).

²⁶⁸ *Pterygoneurum* × *kieneri* (Habeeb) W.R.Buck & Goffinet comb. et stat. nov. ≡ *P. subsessile* var. *kieneri* Habeeb, Rhodora 51: 128. 1949. TYPE: U.S.A., Nebraska, Chase Co.: 8 mi W of Champion, 31 Jul. 1941, W. Kiener 10627 p.p. (NEB). See Guerra et al. (1994), who demonstrated that this taxon is a hybrid between *P. ovatum* and *Phascum cuspidatum*. Recognizing this taxon at the species level is treating it like the intergeneric hybrid *Entosthodon* × *hungaricus* (Boros) Loeske (Beike et al. 2014; Patel et al. 2023). This may be the same taxon as *P. ×kozlovii*, but is recognized until additional data are available.

²⁶⁹ See Guerra et al. (1994) for demonstration of the hybrid nature of this taxon.

²⁷⁰ See Plášek et al. (2015).

²⁵⁷ See Ignatov et al. (2019a).

²⁵⁸ See Yip (2002).

²⁵⁹ See Ignatova et al. (2019).

²⁶⁰ See Vanderpoorten & Hedenäs (2009).

²⁶¹ See Vanderpoorten & Hedenäs (2009).

²⁶² See Cano et al. (2016).

²⁶³ See Fedosov et al. (2022).

²⁶⁴ See Fedosov et al. (2022).

- lyellii* (Hook. & Taylor) Plášek, Sawicki & Ochyra
papillosa (Hampe) F.Lara, Draper & Garilleti²⁷²
pringlei (Müll.Hal.) F.Lara, Draper & Garilleti²⁷³
Pylaisiadelphina Cardot²⁷⁴ (PYLAISIADELPHACEAE)
canadensis (W.B.Schofield) W.R.Buck & Goffinet²⁷⁵
henonii (Duby) W.R.Buck
recurvans (Michx.) W.R.Buck
roellii (Renauld & Cardot) W.R.Buck
tenuirostris (Bruch & Schimp. ex Sull.) W.R.Buck
Pylaisia Schimp., nom. cons. (PYLAISIAACEAE)
intricata (Hedw.) Schimp.
polyantha (Hedw.) Schimp.
selwynii Kindb.²⁷⁶
steerei (Ando & Higuchi) Ignatov
Pyramidula Brid. (FUNARIAACEAE)
tetragona (Brid.) Brid.
Pyrrohobryum Mitt. (RHIZOGONIAACEAE)
spiniforme (Hedw.) Mitt.
Racomitrium Brid. (GRIMMIAACEAE)
aciculare (Hedw.) Brid.
aduncoides Bedn.-Ochyra²⁷⁷
afoninae Frisvoll²⁷⁸
affine (Schleich. ex F.Weber & D.Mohr) Lindb.
brevipes Kindb.
brevisetum Lindb.²⁷⁹
canescens (Hedw.) Brid. subsp. *canescens*
subsp. *latifolium* (C.E.O.Jensen) Frisvoll
corrugatum (Bedn.-Ochyra) Larraín & J.Muñoz²⁸⁰
depressum Lesq.
elongatum Ehrh. ex Frisvoll
ericoides (Brid.) Brid.

²⁷¹ See Lara et al. (2020).

²⁷² See Lara et al. (2020).

²⁷³ See Lara et al. (2020).

²⁷⁴ See Buck (1984).

²⁷⁵ Described as *Brotherella canadensis* by Schofield (2006) and accommodated in *Pylaiadiadelphina* under the new combination *Pylaiadiadelphina canadensis* (W.B.Schofield) W.R.Buck & Goffinet comb. nov. ≡ *Brotherella canadensis* W.B.Schofield, J. Hattori Bot. Lab. 100: 355. 2006. TYPE: Canada, British Columbia: just NE of Webster Island, Effingham Inlet, Barclayl Cound, Vancouver Island, 49°05'N, 125°09'W, W.B. Schofield 43474 (holotype, UBC).

²⁷⁶ See Ignatova et al. (2020b).

²⁷⁷ See Bednarek-Ochyra (1999).

²⁷⁸ See Ochyra & Bednarek-Ochyra (2007) under *Bucklandiella*.

²⁷⁹ Currently only known from one unverified collection, *Lyford* (MSC-B-0008248) from Oregon.

²⁸⁰ Described by Bednarek-Ochyra (2004) as *Codriophorus*.

- fasciculare* (Schrad. ex Hedw.) Brid.
heterostichum (Hedw.) Brid.
lanuginosum (Hedw.) Brid.
lawtoniae Ireland
macounii Kindb. subsp. *macounii*
subsp. *alpinum* (E.Lawton) Frisvoll
microcarpon (Hedw.) Brid. fo. *microcarpon*
fo. *afoninae* Frisvoll²⁸¹
molle Cardot²⁸²
muticum (Kindb.) Frisvoll
norrisii Bedn.-Ochyra & Ochyra²⁸³
obesum Frisvoll
occidentale (Renauld & Cardot) Renauld & Cardot
pacificum Ireland & J.R.Spence
panschii (Müll.Hal.) Kindb.
pygmaeum Frisvoll
rysardii Bedn.-Ochyra²⁸⁴
sudeticum (Funck) Bruch & Schimp.
varium (Mitt.) A.Jaeger
venustum Frisvoll
Racopilum P.Beauv. (RACOPILACEAE)
tomentosum (Hedw.) Brid.
RauIELla Reimers (THUIDIACEAE)
praelonga (Schimp. ex Besch.) Wijk & Margad.
scita (P.Beauv.) Reimers
Rectithecium Hedenäs & Huttunen²⁸⁵ (PLAGIOTHECIAACEAE)
piliferum (Sw.) Hedenäs & Huttunen
Redfearnia J.T.Wynns²⁸⁶ (PLAGIOTHECIAACEAE)
homomallifolia (Redf.) J.T.Wynns
Rhabdoweisia Bruch & Schimp. (RHABDOWEISIAACEAE)
crenulata (Mitt.) H.Jameson
crispata (Dicks.) Lindb.
Rhachithecium Broth. ex Le Jol. (RHACHITHECIAACEAE)
perpusillum (Thwaites & Mitt.) Broth.
Rhexophyllum Herzog (POTTIACEAE)
subnigrum (Mitt.) Hilp.
Rhizogemma Bonfim Santos, Siebel & Fedosov
(RHIZOGEMMAACEAE)
staphylina (H.Whitehouse) Bonfim Santos, Siebel
& Fedosov²⁸⁷

²⁸¹ See Ochyra in Ellis et al. (2018).

²⁸² See Bednarek-Ochyra & Ochyra (2007) under *Codriophorus*.

²⁸³ See Bednarek-Ochyra & Ochyra (2000).

²⁸⁴ See Bednarek-Ochyra (2000).

²⁸⁵ See Huttunen et al. (2013).

²⁸⁶ See Wynns (2020).

²⁸⁷ See Whitehouse (2001).

Rhizomnium T.J.Kop. (MNIACEAE)*andrewsianum* (Steere) T.J.Kop.*appalachianum* T.J.Kop.*chlorophyllosum* (Kindb.) T.J.Kop.²⁸⁸*glabrescens* (Kindb.) T.J.Kop.*gracile* T.J.Kop.*magnifolium* (Horik.) T.J.Kop.*nudum* (R.S.Williams) T.J.Kop.*pseudopunctatum* (Bruch & Schimp.) T.J.Kop.*punctatum* (Hedw.) T.J.Kop.**Rhodobryum** (Schimp.) Limpr., *nom. cons.* (BRYACEAE)*ontariense* (Kindb.) Paris*roseum* (Hedw.) Limpr.**Rhynchostegium** Schimp., *nom. cons.* (BRACHYTHECIACEAE)*aquaticum* Spruce²⁸⁹*serrulatum* (Hedw.) Austin**Rhytidiadelphus** (Limpr.) Warnst. (HYLOCOMIACEAE)*japonicus* (Reimers) T.J.Kop.*loreus* (Hedw.) Warnst.*squarrosus* (Hedw.) Warnst.*subpinnatus* (Lindb.) T.J.Kop.**Rhytidiopsis** Broth. (HYLOCOMIACEAE)*robusta* (Hook.) Broth.**Rhytidium** (Sull.) Austin ex C.F.Parker (RHYTIDIACEAE)*rugosum* (Hedw.) Austin ex C.F.Parker**Roaldia** P.E.A.S.Câmara & Carv.-Silva²⁹⁰ (PYLAISACEAE)*revoluta* (Mitt.) P.E.A.S.Câmara & Carv.-Silva**Roellobryon** Ochyra²⁹¹ (ROELLOBRYACEAE)*roellii* (Broth.) Ochyra**Ruficaulis** Bonfim Santos & Fedosov²⁹² (RUFICAULACEAE)*rufescens* (Dicks.) Bonfim Santos & Fedosov**Saelania** Lindb. (SAELANIACEAE)*glaucescens* (Hedw.) Broth.**Sanionia** Loeske (AMBLYSTEGIACEAE)*nivalis* Hedenäs*orthothecioides* (Lindb.) Loeske*symmetrica* (Renauld & Cardot) Wheldon*uncinata* (Hedw.) Loeske**Schistidium** Bruch & Schimp., *nom. cons.* (GRIMMIACEAE)*agassizii* Sull. & Lesq.*ambiguum* Sull.²⁹³*andreaeopsis* (Müll.Hal.) Laz.*apocarpum* (Hedw.) Bruch & Schimp.*atrichum* (Müll.Hal. & Kindb.) W.A.Weber*atrofuscum* (Schimp.) Limpr.*boreale* Poelt*canadense* (Dupr.) Ignatova & H.H.Blom*cinclidodonteum* (Müll.Hal.) B.Bremer*confertum* (Funck) Bruch & Schimp.*crassipilum* H.H.Blom*crassithecium* H.H.Blom ex B.H.Allen²⁹⁴*cryptocarpum* Mogensen & H.H.Blom*dupretii* (Thér.) W.A.Weber*echinatum* Ignatova & H.H. Blom²⁹⁵*flaccidum* (De Not.) Ochyra*flexipile* (Lindb. ex Broth.) G.Roth*frigidum* H.H.Blom*frisvollianum* H.H.Blom*grandirete* H.H.Blom*heterophyllum* (Kindb.) T.T.McIntosh*holmenianum* Steere & Brassard*lancifolium* (Kindb.) H.H.Blom²⁹⁶*liliputanum* (Müll.Hal.) Deguchi*maritimum* (Turner ex R.R.Scott) Bruch & Schimp.*occidentale* (E.Lawton) S.P.Churchill*papillosum* Culm.*poeltii* H.H.Blom*pulchrum* H.H.Blom*relictum* T.T.McIntosh, H.H.Blom & Ignatova²⁹⁷*rivulare* (Brid.) Podp.*robustum* (Nees & Hornsch.) H.H.Blom*sinensiapocarpum* (Müll.Hal.) Ochyra²⁹⁸*splendens* T.T.McIntosh, H.H.Blom, D.R.Toren& Shevock²⁹⁹*squarrosum* T.T.McIntosh, H.H.Blom, D.R.Toren & Shevock³⁰⁰*strictum* (Turner) Loeske ex Mårtensson*subjulaceum* H.H.Blom*tenerum* (J.E.Zetterst.) Nyholm*teretinerve* (Limpr.) Limpr.³⁰¹*trichodon* (Brid.) Poelt*venetum* H.H.Blom²⁸⁸ See Koponen & Sun (2017) and Wyatt et al. (2023).²⁸⁹ See Wynns (2006) and Huttunen & Ignatov (2010).²⁹⁰ See Câmara et al. (2018).²⁹¹ See Ochyra (2011).²⁹² See Fedosov et al. (2023b).²⁹³ See Sullivant (1849) and Allred et al. (2024).²⁹⁴ See Allen (2005).²⁹⁵ See Ignatova et al. (2009).²⁹⁶ Treated as conspecific with *Schistidium apocarpum* by McIntosh (2007) but here resurrected following Ignatova & Blom (2017).²⁹⁷ See McIntosh et al. (2017).²⁹⁸ See Allred et al. (2024).²⁹⁹ See McIntosh et al. (2015).³⁰⁰ See McIntosh et al. (2015).³⁰¹ See Kiebach & Meier (2021).

Schistostega D.Mohr (SCHISTOSTEGACEAE)
pennata (Hedw.) F.Weber & D.Mohr

Schlotheimia Brid. (ORTHOTRICHACEAE)
lancifolia E.B.Bartram
rugifolia (Hook.) Schwägr.

Schoenobryum Dozy & Molk. (CRYPHAEACEAE)
concavifolium (Griff.) Gangulee³⁰²

Schwetschkeopsis Broth. (ANOMODONTACEAE)
fabronia (Schwägr.) Broth.

Sciuro-hypnum (Hampe) Hampe³⁰³ (BRACHYTHECIACEAE)
curtum (Lindb.) Ignatov
glaciale (Schimp.) Ignatov & Huttunen
hylotapetum (N.L.Higinb. & B.L.Higinb.) Ignatov
& Huttunen

latifolium (Kindb.) Ignatov & Huttunen
oedipodium (Mitt.) Ignatov & Huttunen
ornellanum (Molendo) Ignatov & Huttunen
plumosum (Hedw.) Ignatov & Huttunen
populeum (Hedw.) Ignatov & Huttunen
reflexum (Starke) Ignatov & Huttunen
starkei (Brid.) Ignatov & Huttunen
uncinifolium (Broth. & Paris) Ochyra & Żarnowiec

Scleropodium Schimp. (BRACHYTHECIACEAE)
californicum (Lesq.) Kindb.
cespitans (Müll.Hal.) L.F.Koch
julaceum E.Lawton
obtusifolium (Mitt.) Kindb.
occidentale B.E.Carter³⁰⁴
touretii (Brid.) L.F.Koch

Scopelophila (Mitt.) Lindb. (POTTIACEAE)
ligulata (Spruce) Spruce³⁰⁵

Scorpidium (Schimp.) Limpr. (CALLIERGONACEAE)
cossonii (Schimp.) Hedenäs
revolvens (Sw.) Rubens
scorpioides (Hedw.) Limpr.

Scouleria Hook. (SCOULERIACEAE)
aquatica Hook.
marginata E.Britton
siskiyouensis Shevock & D.H.Norris³⁰⁶

Seligeria Bruch. & Schimp. (SELIGERIACEAE)
acutifolia Lindb.

brevifolia (Lindb.) Lindb. & Arnell
calcareia (Hedw.) Bruch & Schimp.
careyana Vitt & W.B.Schofield
donniana (Sm.) Müll.Hal.
oelandica C.E.O.Jensen & Medelius
pusilla (Hedw.) Bruch & Schimp.
tristichoides Kindb.

Sematophyllum Mitt. (SEMATOPHYLLACEAE)
adnatum (Michx.) E.Britton
demissum (Wilson) Mitt.
marylandicum (Müll.Hal.) E.Britton

Serpoleskea (Hampe ex Limpr.) Loeske³⁰⁷
(PYLAISIADELPHACEAE)

confervoides (Brid.) Loeske
minutissima (Sull. & Lesq.) W.R.Buck & B.H.Allen³⁰⁸

Solmsiella Müll.Hal. (ERPODIACEAE)
biseriata (Austin) Steere³⁰⁹

Sphagnum L. (SPHAGNACEAE)
affine Renauld & Cardot
alaskense R.E.Andrus & Janssens
angermanicum Melin
angustifolium (C.E.O.Jensen ex Russow) C.E.O.Jensen
annulatum H.Lindb. ex Warnst.
aongstroemii C.Hartm.
arcticum Flatberg & Frisvoll
austinii Sull.
balticum (Russow) C.E.O.Jensen
beothuk R.E.Andrus
capillifolium (Ehrh.) Hedw.
carolinianum R.E.Andrus
centrale C.E.O.Jensen
compactum DC.
concinnum (Berggr.) Flatberg
contortum Schultz
cribrosum Lindb.
cuspidatum Ehrh. ex Hoffm.
cyclophyllum Sull. & Lesq.
diabolicum A.J.Shaw, Aguero & Nieto-Lugilde
divinum Flatberg & K.Hassel
fallax (H.Klinggr.) H.Klinggr.
fimbriatum Wilson
fitzgeraldii Renauld ex Lesq.

³⁰² See Buck (1994).

³⁰³ See Ignatov & Huttunen (2002).

³⁰⁴ See Carter (2012).

³⁰⁵ Kuznetsova et al. (2023) recognized the genus *Merceya* Schimp. to accommodate *Merceya ligulata* (Spruce) Schimp., but this generic name is superfluous for the earlier *Scopelophila* (Mitt.) Lindb. (Brinda & Fedosov 2023).

³⁰⁶ See Shevock & Norris (2014).

³⁰⁷ See Vanderpoorten & Hedenäs (2009).

³⁰⁸ See Buck & Allen (2017).

³⁰⁹ See Pursell (2017).

flavicomans (Cardot) Warnst.
flexuosum Dozy & Molk.
fuscum (Schimp.) H.Klinggr.
girgensohnii Russow
imbricatum Hornsch. ex Russow
incundum Flatberg & K.Hassel
inexpectatum Flatberg
jensenii H.Lindb.
junghuhnianum Dozy & Molk.
kenaiense R.E.Andrus
lenense H.Lindb.
lescurii Sull.
lindbergii Schimp.
macrophyllum Bernh. ex Brid.
magniae A.J.Shaw, Aguero & Nieto-Lugilde
majus (Russow) C.E.O.Jensen
medium Limpr.
mendocinum Sull. & Lesq.
miyabeaenum Warnst.³¹⁰
microcarpum Warnst.
mirum Flatberg & Thinggaard
mississippiense R.E.Andrus
missouricum Warnst. & Cardot³¹¹
molle Sull.
obtusum Warnst.
oregonense R.E.Andrus
orientale L.I.Savicz
pacificum Flatberg
palustre L.
papillosum Lindb.
perfoliatum L.I.Savicz
perichaetiale Hampe
platyphyllum (Lindb. ex Braithw.) Sull. ex Warnst.
portoricense Hampe
pulchrum (Lindb. ex Braithw.) Warnst.
pylaesii Brid.
quinquefarium (Lindb. ex Braithw.) Warnst.
recurvum P.Beauv.
riparium Ångstr.
rubellum Wilson
rubiginosum Flatberg
russowii Warnst.
splendens Maass
squarrosum Crome
steerei R.E.Andrus

strictum Sull.
subfulvum Sjörs
subnitens Russow & Warnst.
subsecundum Nees
talbotianum R.E.Andrus
tenellum (Brid.) Bory
tenerum Sull. & Lesq. ex Sull.
teres (Schimp.) Ångstr.
torreyanum Sull.
trinitense Müll.Hal.
tundrae Flatberg
warnstorfii Russow
wulfianum Girg.

Splachnobryum Müll.Hal. (POTTIACEAE)
obtusum (Brid.) Müll.Hal.

Splachnum Hedw. (SPLACHNACEAE)
ampullaceum Hedw.
luteum Hedw.
melanocaulon (Wahlenb.) Schwägr.³¹²
pennsylvanicum (Brid.) Grout ex H.A.Crum
rubrum Hedw.
sphaericum Hedw.
vasculosum Hedw.

Stegonia Venturi (POTTIACEAE)
hyalinotricha (Cardot & Thér.) R.H.Zander
latifolia (Schwägr.) Venturi ex Broth.
pilifera (Brid.) H.A.Crum & L.E.Anderson

Stereodon (Brid.) Brid.³¹³ (STEREODONTACEAE)
callichrous (Brid.) Brid.
hamulosus (Schimp.) Lindb.
holmenii (Ando) Ignatov & Ignatova³¹⁴
pratensis (W.D.J.Koch ex Spruce) E.Britton
subimponens (Lesq.) Broth.

Stereophyllum Mitt. (STEREOPHYLLACEAE)
radiculosum (Hook.) Spruce

Streblotrichum P.Beauv.³¹⁵ (POTTIACEAE)
convolutum (Hedw.) P.Beauv. var. *convolutum*
 var. *eustegium* (Cardot & Thér.) W.R.Buck & Goffinet³¹⁶

³¹² See Worley & Iwatzuki (1970).

³¹³ See Kučera et al. (2019).

³¹⁴ Described by Ando as *Hypnum holmenii* (Ando 1994) and transferred to *Stereodon* by Ignatov & Ignatova (2004).

³¹⁵ See Kučera et al. (2013).

³¹⁶ Recognized by Zander (2007a) under *Barbula convoluta* and accommodated here in *Streblotrichum* under the new combination *Streblotrichum convolutum* var. *eustegium* (Cardot & Thér.) W.R.Buck & Goffinet comb. nov. ≡ *Barbula eustegia* Cardot & Thér., Bot. Gaz. 30: 17. 1900. TYPE:

³¹⁰ See Shaw et al. (2015).

³¹¹ See Shaw et al. (2012b).

var. *gallinula* (R.H.Zander) W.R.Buck & Goffinet³¹⁷

Symblepharis Mont. (RHABDOWEISACEAE)

raui (Austin) R.S.Williams ex Broth.³¹⁸

vaginata (Hook. ex Harv.) Wijk & Margad.

Syntrichia Brid.³¹⁹ (POTTIACEAE)

ammonsiana (H.A.Crum & L.E.Anderson) Ochyra

amphidiacea (Müll.Hal.) R.H.Zander³²⁰

bartramii (Steere) R.H.Zander

caninervis Mitt.

cascadensis W.A.Kramer

chisosa (Magill, Delgad. & L.R.Stark) R.H.Zander

coloradensis W.A.Kramer

fragilis (Taylor) Ochyra

hermannii W.A.Kramer

laevipila Brid.

laeviuscula (Kindb.) W.A.Kramer

latifolia (Bruch ex Hartm.) Huebener

leptotricha (Müll.Hal. & Kindb.) W.A.Kramer

lithophila (Dusén) Ochyra & R.H.Zander³²¹

norvegica F.Weber var. *norvegica*

var. *cainii* (H.A.Crum & L.E.Anderson) W.A. Kramer

novomexicana W.A.Kramer

obtusissima (Müll.Hal.) R.H.Zander subsp. *obtusissima*

subsp. *stellaris* W.A.Kramer

subsp. *substellaris* W.A.Kramer

U.S.A., Idaho, Latah Co.: Cedar Creek, 1897, L. F. Henderson (holotype, P).

³¹⁷ Recognized by Zander (2007a) under *Barbula convoluta* and accommodated here in *Streblotrichum* under the new combination *Streblotrichum convolutum* var. *gallinula* (R.H.Zander) W.R.Buck & Goffinet comb. nov. $\equiv$ *Barbula convoluta* Hedw. var. *gallinula* R.H.Zander, Phytologia 44(4): 195. 1979. TYPE: Canada, Northwest Territories, Distr. Mackenzie: Nananni National Park, South Nahanni River, Virginia Falls, 61°38'N, 125°42'W, 3 Sep. 1974, G. Scotter 22433 (holotype, NY; isotype, BUF).

³¹⁸ See Fedosov et al. (2021).

³¹⁹ The genus was typified by Zander (1989). We follow the treatment by Kramer (2023).

³²⁰ The species was resolved as sister to a species of *Streptopogon* Wilson ex Mitt. in Jáuregui-Lazo et al. (2023) consistent with inferences by Gallego et al. (2022). However, in both cases *Streptopogon* is nested within a larger *Syntrichia* clade. We therefore retain *amphidiacea* within *Syntrichia* rather than accepting its transfer to *Streptopogon*, pending further systematic resolution of the complex. However, Kramer (2023) argued for its exclusion from *Syntrichia* and for its recognition within *Tortula* on morphological grounds.

³²¹ See Brooks & Jáuregui-Lazo (2023).

ovata W.A.Kramer subsp. *dendropapillosa* W.A. Kramer

subsp. *subdendropapillosa* W.A.Kramer

pagorum (Milde) J.J.Amann

papillosa (Wilson ex Spruce) Spruce

princeps (De Not.) Mitt.

ruralis (Hedw.) F.Weber & D.Mohr subsp. *ruralis*

subsp. *hirsuta* (Venturi) Düll

subsp. *subpapillosissima* (Bizot & R.B.Pierrot

ex W.A.Kramer) W.A.Kramer

sinensis (Müll.Hal.) Ochyra

subintermedia (Renauld & Cardot) W.A.Kramer

var. *subintermedia*

var. *umatillae* W.A.Kramer

sucrosa Kellman³²²

virescens (De Not.) Ochyra subsp. *virescens*

subsp. *zailiyskialatauensis* W.A.Kramer

Syrrophodon Schwägr. (CALYMPERACEAE)

gaudichaudii Mont.

incompletus Schwägr. var. *incompletus*

ligulatus Mont.

parasiticus (Sw. ex Brid.) Besch.

prolifer Schwägr. var. *scaber* (Mitt.) W.D.Reese

texanus Sull.

Takakia S.Hatt. & Inoue³²³ (TAKAKIACEAE)

ceratophylla (Mitt.) Grolle

lepidozoides S.Hatt. & Inoue

Taxiphyllum M.Fleisch. (TAXIPHYLLACEAE)

alternans (Cardot) Z.Iwats.

cuspidifolium (Cardot) Z.Iwats.

deplanatum (Bruch & Schimp. ex Sull.) M.Fleisch.

taxirameum (Mitt.) M.Fleisch.

Taxithelium Spruce ex Mitt. (PYLAIADIACEAE)

planum (Brid.) Mitt.

Tayloria Hook. (SPLACHNACEAE)

acuminata Hornsch.

froelichiana (Hedw.) Mitt. ex Broth.

hornschuchii (Grev. & Arn.) Broth.

lingulata (Dicks.) Lindb.

serrata (Hedw.) Bruch & Schimp.

splachnoides (Schleich. ex Schwägr.) Hook.

Tetraphis Hedw. (TETRAPHIDACEAE)

geniculata Girg. ex Milde

pellucida Hedw. var. *pellucida*

var. *trachypoda* (Kindb.) Harpel³²⁴

³²² See Kellman (2008).

³²³ See Smith & Davison (1993) and Newton et al. (2000).

³²⁴ See Harpel (2006).

Tetrodontium Schwägr. (TETRAPHIDACEAE)*brownianum* (Dicks.) Schwägr.*ovatum* (Funck) Schwägr.*repandum* (Funck) Schwägr.**Thamnobryum** Nieuwl. (NECKERACEAE)*neckeroides* (Hook.) E.Lawton*subseriatum* (Hook. ex Harv.) Nog. & Z.Iwats.³²⁵**Thelia** Sull. (THELIACEAE)*asprella* (Schimp.) Sull.*hirtella* (Hedw.) Sull.*lescurii* Sull.**Thuidium** Schimp. (THUIDIACEAE)*alleniorum* Austin³²⁶*assimile* (Mitt.) A.Jaeger*delicatulum* (Hedw.) Schimp.*recognitum* (Hedw.) Lindb.*tamariscinum* (Hedw.) Schimp.**Timmia** Hedw., *nom. cons.* (TIMMIACEAE)*austriaca* Hedw.*bavarica* Hessel.*comata* Lindb. & Arnell³²⁷*megapolitana* Hedw.*norvegica* J.E.Zetterst.*sibirica* Lindb. & Arnell**Timmiella** (DeNot.) Limpr. (TIMMIELLACEAE)*anomala* (Bruch & Schimp.) Limpr.*crassinervis* (Hampe) L.F.Koch**Tomentypnum** Loeske³²⁸ (AMBLYSTEGIACEAE)*falcifolium* (Renauld ex Nichols) Tuom.*involutum* (Limpr.) Hedenäs & Ignatov³²⁹*nitens* (Hedw.) Loeske**Tortella** (Müll.Hal.) Limpr., *nom. cons.* (POTTIACEAE)*alpicola* Dixon*arctica* (Arnell) Crundw. & Nyholm³³⁰*×cuspidatissima* (Cardot & Thér.) O.Werner,
Köckinger & Ros³³¹*densa* (Lorentz & Molendo) Crundw. & Nyholm³³²*flavovirens* (Bruch) Broth.*fragilis* (Drumm.) Limpr.*humilis* (Hedw.) Jenn.*inclinata* (R.Hedw.) Limpr.*nitida* (Lindb.) Broth. var. *fragilifolia* (Jur.)
Köckinger & Hedenäs³³³*rigens* Alberts.*spitsbergensis* (Bizot & Thér.) O.Werner, Köckinger
& Ros³³⁴*tortuosa* (Schrad. ex Hedw.) Limpr.**Tortula** Hedw., *nom. cons.* (POTTIACEAE)*acaulon* (With.) R.H.Zander*amplexa* (Lesq.) Steere*atrovirens* (Sm.) Lindb.*bolanderi* (Lesq.) M.Howe*brevipes* (Lesq.) Broth.*brevissima* Schiffn.³³⁵*californica* E.B.Bartram*caucasica* Lindb.*cernua* (Huebener) Lindb.*cuneifolia* (Dicks.) Turner var. *blissii* R.H.Zander*deciduiidentata* (Sharp & Z.Iwats.) R.H.Zander*guelpinii* (Bruch & Schimp.) Broth.*hoppeana* (Schultz) Ochrya*inermis* (Brid.) Mont.*israelis* Bizot & F.Bilewsky³³⁶*laureri* (Schultz) Lindb.*leucostoma* (R.Br.) Hook. & Grev.*lindbergii* Kindb. ex Broth.*mucronifolia* Schwägr.*muralis* Hedw.*nevadensis* (Cardot & Thér.) R.H.Zander*obtusifolia* (Schwägr.) Mathieu*plinthobia* (Sull. & Lesq.) Broth.*porteri* (James) R.H.Zander*protobryoides* R.H.Zander*subulata* Hedw.*systylia* (Schimp.) Lindb.*truncata* (Hedw.) Mitt.*vlassovii* (Laz.) Ros & Herrnst.³³⁷³²⁵ See Mastracci (2003).³²⁶ Described as *T. allenii* but corrected orthographically because the species was named for two Allens (Austin 1880): "It gives me great pleasure to be able to dedicate so fine a species to the Allens, father and son."³²⁷ See Hedenäs (2011).³²⁸ For justification for placement in Amblystegiaceae versus Brachytheciaceae see Hedenäs et al. (2020) and references therein.³²⁹ See Hedenäs et al. (2020).³³⁰ See Werner et al. (2014).³³¹ See Werner et al. (2014).³³² See Köckinger et al. (2018).³³³ See Köckinger & Hedenäs (2021).³³⁴ See Werner et al. (2014).³³⁵ See Kellman (2012).³³⁶ See GBIF.org (2024d).³³⁷ See Ros & Herrnstadt (2010).

- Trachycystis** Lindb. (MNIACEAE)
flagellaris (Sull. & Lesq.) Lindb.
- Trachyxiphium** W.R.Buck (PILOTRICHACEAE)
hypnaceum (Müll.Hal.) W.R.Buck
- Trematodon** Michx. (BRUCHIACEAE)
ambiguus (Hedw.) Hornsch.
asanoi Tuzibe
brevicollis Hornsch.
laetevirens Hakeliet & J.-P.Frahm³³⁸
longicollis Michx.
montanus Belland & Brassard
- Trichodon** Schimp. (DITRICHACEAE)
cylindricus (Hedw.) Schimp.
oblongus Lindb.³³⁹
- Trichostomopsis** Cardot³⁴⁰ (POTTIACEAE)
australasiae (Hook. & Grev.) H.Rob.
umbrosa (Müll.Hal.) H.Rob.³⁴¹
- Trichostomum** Bruch, *nom. cons.* (POTTIACEAE)
brachydontium Bruch
crispulum Bruch
planifolium (Dixon) R.H.Zander
portoricense H.A.Crum & Steere
- Tripterocladium** (Müll.Hal.) A.Jaeger (LEMBOPHYLLACEAE)
leucocladulum (Müll.Hal.) A.Jaeger
- Triquetrella** Müll.Hal. (POTTIACEAE)
californica (Lesq.) Grout
- Trochophyllohypnum** Jan Kučera & Ignatov³⁴²
 (PYLAISIADELPHACEAE)
circinale (Hook.) Jan Kučera & Ignatov
- Tuerckheimia** Broth. (POTTIACEAE)
svihlae (E.B.Bartram) R.H.Zander
- Ulota** D.Mohr (ORTHOTRICHACEAE)
barclayi Mitt.
coarctata (P.Beauv.) Hammar
crispa (Hedw.) Brid.
crispula Bruch³⁴³
curvifolia (Wahlenb.) Sw.
drummondii (Hook. & Grev.) Brid.
hutchinsiae (Sm.) Hammar var. *hutchinsiae*
 var. *rufescens* (E.Britton) Dixon
intermedia Schimp.³⁴⁴
- longifolia* Dixon & Sakurai³⁴⁵
megalospora Venturi
obtusiuscula Müll.Hal. & Kindb.
reptans Mitt.³⁴⁶
- Venturiella** Müll.Hal. (ERPODIACEAE)
acrifolia (Pursell) Pursell³⁴⁷
sinensis (Venturi) Müll.Hal. subsp. *angustiannulata*
 (D.G.Griffin & Sharp) Pursell
- Vesicularia** (Müll.Hal.) Müll.Hal., *nom. cons.*
 (HYPNACEAE)
vesicularis (Schwägr.) Broth.
- Vinealobryum** R.H.Zander³⁴⁸ (POTTIACEAE)
brachyphyllum (Sull.) R.H.Zander
californicum (J.A.Jiménez, D.R.Toren & Shevock)
 R.H.Zander³⁴⁹
eckeliae (R.H.Zander) R.H.Zander
insulanum (De Not.) R.H.Zander
nicholsonii (Culm.) R.H.Zander
norrisii (R.H.Zander) J.A.Jiménez & M.J.Cano³⁵⁰
rubiginosum (Mitt.) J.A.Jiménez & M.J.Cano³⁵¹
vineale (Brid.) R.H.Zander
- Voitia** Hornsch.³⁵² (SPLACHNACEAE)
angustata (Hedw.) W.R.Buck & Goffinet³⁵³
hyperborea Grev. & Arn.
mnioides (Hedw.) W.R.Buck & Goffinet³⁵⁴
nivalis Hornsch.
pallida (I.Hagen) W.R.Buck & Goffinet³⁵⁵

³⁴⁵ Based on western North American (Alaska, British Columbia and Washington) specimens held in NY annotated as such by R. Caparrós in 2012.

³⁴⁶ The occurrence of this species, originally described from Japan, was considered doubtful by Vitt (2014), although he acknowledged that it may be present. Hence, we prefer to retain it for now.

³⁴⁷ See Pursell (2017).

³⁴⁸ See Zander (2013).

³⁴⁹ See Jiménez et al. (2014).

³⁵⁰ See Jiménez et al. (2022).

³⁵¹ See Jiménez et al. (2022).

³⁵² Phylogenetic inferences resolve *Voitia* within *Tetraplodon* (Lewis et al. 2014; 2017); *Voitia* being an earlier name (Hornschuch 1818), *Tetrapodon* (Bruch & Schimper 1844) is considered a synonym.

³⁵³ *Voitia angustata* (Hedw.) W.R.Buck & Goffinet comb. nov. ≡ *Splachnum angustatum* Hedw., Sp. Musc. Frond. 51–52. 1801. Holotype, G00040316.

³⁵⁴ *Voitia mnioides* (Hedw.) W.R.Buck & Goffinet comb. nov. ≡ *Splachnum mnioides* Hedw., Sp. Musc. Frond. 51. 1801. Holotype, G00040318.

³⁵⁵ *Voitia pallida* (I.Hagen) W.R.Buck & Goffinet comb. nov. ≡ *Tetraplodon pallidus* I.Hagen, Kongel. Norske Vidensk.

³³⁸ See Stehn & Kofranek (2014).

³³⁹ See Fedosov et al. (2024).

³⁴⁰ See Jiménez et al. (2005, 2022).

³⁴¹ See Robinson (1970).

³⁴² See Kučera et al. (2019).

³⁴³ See Caparrós et al. (2016).

³⁴⁴ See Caparrós et al. (2016).

paradoxa (R.Br.) W.R.Buck & Goffinet³⁵⁶
urceolata (Hedw.) W.R.Buck & Goffinet³⁵⁷

Warnstorfia Loeske (CALLIERGONACEAE)

badia (Hartm.) W.R.Buck & Goffinet³⁵⁸
exannulata (Schimp.) Loeske³⁵⁹
fluitans (Hedw.) Loeske
pseudosarmentosa (Cardot & Thér.) Tuom. & T.J.Kop.
pseudostraminea (Müll.Hal.) Tuom. & T.J.Kop.
sarmentosa (Wahlenb.) Tuom. & T.J.Kop.
straminea (Dicks. ex Brid.) W.R.Buck & Goffinet³⁶⁰
 var. *straminea*
 var. *patens* (Lindb.) W.R.Buck & Goffinet³⁶¹
trichophylla (Warnst.) Tuom. & T.J.Kop.
tundrae (Arnell) Loeske
wickesiae (Grout) W.R.Buck & Goffinet³⁶²

Weissia Hedw. (POTTIACEAE)

Selsk. Skr. (Trondheim) 1893:75–76. 1894. TYPE: Norway and Sweden, *I. Hagen* (s).

³⁵⁶ *Voitia paradoxa* (R.Br.) W.R.Buck & Goffinet comb. nov. ≡ *Splachnum paradoxum* R.Br., Chlor. Melvill. 44–45. 1823. TYPE: Canada: inter Fort Enterprise et mare arcticum, D. Richardson (BM).

³⁵⁷ *Voitia urceolata* (Hedw.) W.R.Buck & Goffinet comb. nov. ≡ *Splachnum urceolatum* Hedw., Sp. Musc. Frond. 52. 1801. Holotype, G00040320.

³⁵⁸ Previously treated as *Loeskypnum badium* (Anderson et al. 1990; Hedenäs 2014a) and here accommodated within *Warnstorfia* under the new combination *Warnstorfia badia* (Hartm.) W.R.Buck & Goffinet comb. nov. ≡ *Hypnum badium* Hartm., Handb. Skan. Fl. (ed. 5) 332. 1849. TYPE: Sweden: Hn. Lul. lpm. Ananas, 23 Jun. 1848, C.J. Hartman (holotype, UPS).

³⁵⁹ See Hedenäs (2006).

³⁶⁰ Previously treated as *Straminergon straminea* (Dicks. ex Brid.) Hedenäs (Hedenäs 2014a) and here accommodated within *Warnstorfia* under the new combination *Warnstorfia straminea* (Dicks. ex Brid.) W.R.Buck & Goffinet comb. nov. ≡ *Hypnum stramineum* Dicks. ex Brid., Muscol. Recent. 2(2): 172. 1801. TYPE: ‘3, stramineum’ on a sheet with ‘Hypnum’ species in herb. Dickson (holotype, BM).

³⁶¹ Previously recognized as *Calliergon stramineum* var. *patens* (Lindb.) G.Roth (Allen 2014) and here accommodated within *Warnstorfia* under the combination *Warnstorfia straminea* var. *patens* (Lindb.) W.R.Buck & Goffinet comb. nov. ≡ *Amblystegium stramineum* var. *patens* Lindb., Musci Scand. 34. 1879. TYPE: Finland: Helsingfors, S.O. Lindberg (holotype, H).

³⁶² Previously treated as *Loeskypnum wickesiae* (Anderson et al. 1990; Hedenäs 2014a) and here accommodated within *Warnstorfia* under the combination *Warnstorfia wickesiae* (Grout) W.R.Buck & Goffinet comb. nov. ≡ *Calliergon wickesiae* Grout, Moss Fl. N. Amer. 1(4): 250. 1939. TYPE: Canada, Labrador, 1938, Wickes (holotype, DUKE).

armata (Thér. & Trab.) Fedosov³⁶³

brachycarpa (Nees & Hornsch.) Jur.

controversa Hedw.

inoperculata (H.A.Crum) H.A.Crum, Steere & L.E.Anderson

jamaicensis (Mitt.) Grout

ligulifolia (E.B.Bartram) Grout

ludoviciana (Sull.) W.D.Reese & B.A.E.Lemmon

muhlenbergiana (Sw.) W.D.Reese & B.A.E.Lemmon

occidentalis (H.A.Crum) A.H.Stoneb.

phascopsis R.H.Zander

sharpii L.E.Anderson & B.A.E.Lemmon

Wijkia H.A.Crum (PYLAIADIACEAE)

carlottae (W.B.Schofield) H.A.Crum

Zanderella J.A.Jiménez & M.J.Cano³⁶⁴ (POTTIACEAE)

purpurea (Müll.Hal.) J.A.Jiménez & M.J.Cano

Zelometeorium Manuel (BRACHYTHECIACEAE)

patulum (Hedw.) Manuel

Zygodon Hook. & Taylor (ORTHOTRICHACEAE)

conoideus (Dicks.) Hook. & Taylor

dentatus (Limpr.) Breidl. ex Gams

gracilis Wilson

reinwardtii (Hornsch.) A.Braun

rupestris Schimp. ex Lorentz

viridissimus (Dicks.) Brid.

SYNONYMS AND EXCLUDED TAXA

Aloina aloides (W.D.J.Koch ex Schultz) Kindb. var. *ambigua* (Bruch & Schimp.) Limpr. ≡ *A. ambigua* (Bruch & Schimp.) Limpr.

Alsia californica (Hook. & Arn.) Sull. ≡ *Neckera californica* Hook. & Arn.

Amblystegium radicale (P.Beauv.) Schimp. ≡ *Pseudocampyllum radicale* (P.Beauv.) Vanderp. & Hedenäs

Amblystegium serpens (Hedw.) Schimp. var. *juratzkanum* (Schimp.) Rau & Herv. = *A. serpens* (Hedw.) Schimp.

Amblystegium varium (Hedw.) Lindb. ≡ *Hygroamblystegium varium* (Hedw.) Mönk.

Anacolia menziesii (Turner) Paris var. *baueri* (Hampe) Flowers ≡ *A. baueri* (Hampe) Paris

Andraea obovata Thed. = *A. alpina* Hedw.

³⁶³ See Herid et al. (2019).

³⁶⁴ See Jiménez et al. (2022).

- Andreaea rothii* F.Weber & D.Mohr var. *papillosa* Müll.Hal. = *A. rothii* F.Weber & D.Mohr subsp. *falcata* (Schimp.) Lindb.
- Anoetangium handelii* Schiffn. ≡ *Molendoa handelii* (Schiffn.) Brinda & R.H.Zander
- Anoetangium incurvans* (Schimp. ex Besch.) E.B. Bartram = *Molendoa sendtneriana* (Bruch & Schimp.) Limpr.
- Anoetangium tenuinerve* (Limpr.) Paris = *Molendoa sendtneriana* (Bruch & Schimp.) Limpr.
- Anomobryum apiculatum* (Schwägr.) D.Bell & Holyoak ≡ *Bryum apiculatum* Schwägr.
- Anomobryum filiforme* (Dicks.) Husn. = *A. julaceum* (Schr. ex G.Gaertn., B.Mey. & Scherb.) Schimp.
- Anomobryum leptostomoides* Schimp. = *A. concinnum* (Spruce) A.Jaeger
- Anomodon attenuatus* (Hedw.) Huebener ≡ *Pseudanomodon attenuatus* (Hedw.) Ignatov & Fedosov
- Anomodon longifolius* (Schleich. ex Brid.) Hartm. ≡ *Anomodontella longifolia* (Schleich. ex Brid.) Ignatov & Fedosov
- Anomodon rostratus* (Hedw.) Schimp. ≡ *Claopodium rostratum* (Hedw.) Ignatov
- Anomodontopsis rugelii* (Müll.Hal.) Ignatov & Fedosov ≡ *Anomodon rugelii* (Müll.Hal.) Keissl.
- Antitrichia curtispindula* (Hedw.) Brid. var. *gigantea* Sull. & Lesq. ≡ *A. gigantea* (Sull. & Lesq.) Kindb.
- Aphanorhegma serratum* (Wilson & Hook.) Sull. ≡ *Physcomitrium serratum* (Wilson & Hook.) Müll.Hal.
- Ardeuma annotinum* (Mitt. ex Dixon) R.H.Zander & Brinda ≡ *Hymenostylium annotinum* Mitt. ex Dixon
- Ardeuma aurantiacum* (Mitt.) R.H.Zander & Hedd. ≡ *Hymenostylium aurantiacum* Mitt.
- Ardeuma insigne* (Dixon) R.H.Zander & Hedd. = *Hymenostylium annotinum* Mitt. ex Dixon
- Ardeuma recurvirostrum* (Hedw.) R.H.Zander & Hedd. ≡ *Hymenostylium recurvirostrum* (Hedw.) Dixon
- Arrhenopterum heterostichum* Hedw. ≡ *Aulacomnium heterostichum* (Hedw.) Bruch & Schimp.
- Astomum ludovicianum* (Sull.) Sull. ≡ *Weissia ludoviciana* (Sull.) W.D.Reese & B.A.E.Lemmon
- Astomum muhlenbergianum* (Sw.) Grout ≡ *Weissia muhlenbergiana* (Sw.) W.D.Reese & B.A.E.Lemmon
- Astomum occidentale* Flowers ≡ *Weissia occidentalis* (Flowers) A.H.Stoneb.
- Astomum phascoides* (Drumm.) Grout ≡ *Weissia phascopsis* R.H.Zander
- Atractyllocarpus flagellaceus* (Müll.Hal.) R.S.Williams ≡ *Campylopodia flagellacea* (Müll.Hal.) J.-P. Frahm & Iso.
- Atrichum haussknechtii* Jur. & Milde = *A. flavisetum* Mitt.
- Atrichum oerstedianum* (Müll.Hal.) Mitt. - excluded
- Atrichum oerstedianum sensu auct. Amer. non* (Müll. Hal) Mitt. = *A. crispulum* Schimp. ex Besch.³⁶⁵
- Barbella pendula* (Sull.) M.Fleisch. ≡ *Neodictyella pendula* (Sull.) W.R.Buck
- Barbula agraria* Hedw. ≡ *Hyophradellus agrarius* (Hedw.) R.H.Zander
- Barbula amplexifolia* (Mitt.) A.Jaeger ≡ *Hydrogonium amplexifolium* (Mitt.) P.C.Chen
- Barbula bolleana* (Müll.Hal.) Broth. ≡ *Hydrogonium bolleanum* (Müll.Hal.) A.Jaeger
- Barbula cancellata* Müll.Hal. ≡ *Hydrogonium consanguineum* (Thwaites & Mitt.) Hilp. var. *cancellatum* (Müll.Hal.) Jan Kučera
- Barbula convoluta* Hedw. var. *convoluta* ≡ *Streblotrichum convolutum* (Hedw.) P.Beauv.
- Barbula convoluta* Hedw. var. *eustegia* (Cardot & Thér.) R.H.Zander ≡ *Streblotrichum convolutum* (Hedw.) P.Beauv. var. *eustegium* (Cardot & Thér.) W.R.Buck & Goffinet
- Barbula convoluta* Hedw. var. *gallinula* R.H.Zander ≡ *Streblotrichum convolutum* (Hedw.) P.Beauv. var. *gallinula* (R.H.Zander) W.R.Buck & Goffinet
- Barbula coreensis* (Cardot) K.Saito = *Hydrogonium amplexifolium* (Mitt.) P.C.Chen
- Barbula cruegeri* Sond. ex Müll.Hal. ≡ *Hydrogonium cruegeri* (Sond. ex Müll.Hal.) Jan Kučera
- Barbula ehrenbergii* (Lorentz) M.Fleisch. = *Hydrogonium bolleanum* (Müll.Hal.) A.Jaeger
- Barbula eustegia* Cardot & Thér. ≡ *Streblotrichum convolutum* (Hedw.) P.Beauv. var. *eustegium* (Cardot & Thér.) W.R.Buck & Goffinet
- Barbula indica* Brid. ex Broth. = *Hydrogonium orientale* (F.Weber) Jan Kučera
- Barbula indica* Brid. ex Broth. var. *gregaria* (Mitt.) R.H.Zander ≡ *Hydrogonium gregarium* (Mitt.) Jan Kučera
- Bartramia glauca* Lorentz = *B. potosica* Mont.
- Bartramia microstoma* Mitt. - excluded
- Bartramia microstoma sensu auct. Amer. non* Mitt. = *B. brevifolia* Brid.³⁶⁶

³⁶⁵ See Merrill & Ireland (2007).

Bartramidula wilsonii Bruch & Schimp. = *Philonotis cernua* (Wilson) D.G.Griffin & W.R.Buck³⁶⁷
Brachymenium klotzschii (Schwägr.) Paris - excluded
Brachymenium klotzschii sensu auct. Amer. non (Schwägr.) Paris = *B. macrocarpum* Cardot³⁶⁸
Brachythecium biventrosus (Müll.Hal.) A.Jaeger = *B. acuminatum* (Hedw.) Austin
Brachythecium bolanderi (Lesq.) A.Jaeger ≡ *Koponeniella bolanderi* (Lesq.) Huttunen & Ignatov
Brachythecium calcareum Kindb. = *B. campestre* (Müll.Hal.) Schimp.
Brachythecium collinum (Schleich. ex Müll.Hal.) Schimp. ≡ *Brachytheciastrum collinum* (Schleich. ex Müll.Hal.) Ignatov & Huttunen
Brachythecium delicatulum Flowers ≡ *Brachytheciastrum delicatulum* (Flowers) Ignatov
Brachythecium digastrum Müll.Hal. & Kindb. = *B. laetum* (Brid.) Schimp.
Brachythecium edentatum R.S.Williams = *Drepanocladus aduncus* (Hedw.) Warnst.³⁶⁹
Brachythecium fendleri (Sull.) A.Jaeger ≡ *Brachytheciastrum fendleri* (Sull.) Ochrya & Żarnowiec
Brachythecium glaciale Schimp. ≡ *Sciuro-hypnum glaciale* (Schimp.) Ignatov & Huttunen
Brachythecium groenlandicum (C.E.O.Jensen) Schljakov = *B. tauriscorum* Molendo & Lorentz
Brachythecium holzingeri (Grout) Grout = *Sciuro-hypnum oedipodium* (Mitt.) Ignatov & Huttunen
Brachythecium hylotapetum B.L.Higinb. & N.L.Higinb. ≡ *Sciuro-hypnum hylotapetum* (B.L.Higinb. & N. L.Higinb.) Ignatov & Huttunen
Brachythecium latifolium Kindb. ≡ *Sciuro-hypnum latifolium* (Kindb.) Ignatov & Huttunen
Brachythecium leibergii Grout ≡ *Brachytheciastrum leibergii* (Grout) Ignatov & Huttunen
Brachythecium mildeanum (Schimp.) Schimp. ex Milde – excluded³⁷⁰
Brachythecium nelsonii Grout = *Sciuro-hypnum latifolium* (Kindb.) Ignatov & Huttunen
Brachythecium oedipodium (Mitt.) A.Jaeger ≡ *Sciuro-hypnum oedipodium* (Mitt.) Ignatov & Huttunen

Brachythecium oxycladon (Brid.) A.Jaeger = *B. acuminatum* (Hedw.) Austin
Brachythecium oxycladon sensu auct. Amer. non (Brid.) A.Jaeger = *B. laetum* (Brid.) Schimp.³⁷¹
Brachythecium plumosum (Hedw.) Schimp. ≡ *Sciuro-hypnum plumosum* (Hedw.) Ignatov & Huttunen
Brachythecium populeum (Hedw.) Schimp. ≡ *Sciuro-hypnum populeum* (Hedw.) Ignatov & Huttunen
Brachythecium reflexum (Starke) Schimp. ≡ *Sciuro-hypnum reflexum* (Starke) Ignatov & Huttunen
Brachythecium rotaceum De Not. = *B. capillaceum* (F.Weber & D.Mohr) Giacom.
Brachythecium starkei (Brid.) Schimp. ≡ *Sciuro-hypnum starkei* (Brid.) Ignatov & Huttunen
Brachythecium stereopoma (Spruce ex Mitt.) A. Jaeger = *B. ruderae* (Brid.) W.R.Buck
Brachythecium trachypodium (Brid.) Schimp. ≡ *Brachytheciastrum trachypodium* (Brid.) Ignatov & Huttunen
Brachythecium velutinum (Hedw.) Schimp. ≡ *Brachytheciastrum velutinum* (Hedw.) Ignatov & Huttunen
Brotherella canadensis W.B.Schofield ≡ *Pylaisiadelphina canadensis* (W.B.Schofield) W.R.Buck & Goffinet
Brotherella henonii (Duby) M.Fleisch. ≡ *Pylaisiadelphina henonii* (Duby) W.R.Buck
Brotherella recurvans (Michx.) M.Fleisch. ≡ *Pylaisiadelphina recurvans* (Michx.) W.R.Buck
Brotherella roellii (Renauld & Cardot) M.Fleisch. ≡ *Pylaisiadelphina roellii* (Renauld & Cardot) W.R. Buck
Bryhnia graminicolor (Brid.) Grout ≡ *Koponeniella graminicolor* (Brid.) Huttunen, Ignatov, Min Li & Y.F.Wang
Bryhnia hultenii E.B.Bartram ≡ *Brachythecium novae-angliae* (Sull. & Lesq.) Austin subsp. *hultenii* (E.B. Bartram) Huttunen
Bryhnia novae-angliae (Sull. & Lesq.) Grout ≡ *Brachythecium novae-angliae* (Sull. & Lesq.) Austin
Bryochenea sachalinensis (Lindb.) C.Gao & K.C. Chang ≡ *Echinophyllum sachalinense* (Lindb.) T.J.O'Brien
Bryoerythrophyllum recurvum (Griff.) K.Saito ≡ *Bellibarbula recurva* (Griff.) R.H.Zander

³⁶⁶ See Griffin (2014).

³⁶⁷ See Griffin & Buck (1989).

³⁶⁸ See Spence (2014).

³⁶⁹ See Żarnowiec (2001).

³⁷⁰ See Ignatov (2014).

³⁷¹ See Robinson & Ignatov (1997).

Bryohaplocladium angustifolium (Hampe & Müll. Hal.) R.Watan. & Z.Iwats. $\equiv$ *Haplocladium angustifolium* (Hampe & Müll.Hal.) Broth.
Bryohaplocladium microphyllum (Sw. ex Hedw.) R. Watan. & Z.Iwats. $\equiv$ *Haplocladium microphyllum* (Sw. ex Hedw.) Broth.
Bryohaplocladium virginianum (Brid.) R.Watan. & Z.Iwats. $\equiv$ *Haplocladium virginianum* (Brid.) Broth.
Bryum axel-blyttii H.Philb. = *B. calophyllum* R.Br.³⁷²
Bryum badium (Brid.) Bruch ex Milde = *B. imbricatulum* Müll.Hal.
Bryum barnesii J.B.Wood ex Schimp. = *B. dichotomum* Hedw.
Bryum capillare Hedw. var. *ferchelii* (Funck ex Brid.) Bruch & Schimp. = *B. elegans* Nees ex Brid.
Bryum gemmascens Kindb. = *B. sanguilentum* Renauld & Cardot
Bryum laevifilum Syed = *B. moravicum* Podp.
Bryum lisae De Not. var. *cuspidatum* (Bruch & Schimp.) Margad. = *B. creberrimum* Taylor
Bryum longisetum Blandow ex Schwägr. var. *labradorensis* (H.Philib.) C.E.O.Jensen = *B. longisetum* Blandow ex Schwägr. var. *longisetum*
Bryum porsildii (I.Hagen) C.J.Cox & Hedd. = *Haplodontium macrocarpum* (Drumm.) J.R.Spence
Bryum pyriferum Crundw. & H.Whitehouse = *B. valparaisense* Thér.³⁷³
Bryum renauldii Röhl - excluded³⁷⁴
Bryum stirtonii Schimp. = *B. elegans* Nees ex Brid.
Buckiella undulata (Hedw.) Ireland $\equiv$ *Plagiothecium undulatum* (Hedw.) Schimp.
Bucklandiella affinis (Schleich. ex F.Weber & D. Mohr) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium affine* (Schleich. ex F.Weber & D.Mohr) Lindb.
Bucklandiella afoninae (Frisvoll) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium afoninae* Frisvoll
Bucklandiella brevipes (Kindb.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium brevipes* Kindb.
Bucklandiella heterosticha (Hedw.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium heterostichum* (Hedw.) Brid.
Bucklandiella lawtoniae (Ireland) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium lawtoniae* Ireland

Bucklandiella macounii (Kindb.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium macounii* Kindb.
Bucklandiella macounii (Kindb.) Bedn.-Ochyra & Ochyra subsp. *alpina* (E.Lawton) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium macounii* Kindb. subsp. *alpinum* (E.Lawton) Frisvoll
Bucklandiella microcarpos (Hedw.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium microcarpon* (Hedw.) Brid.
Bucklandiella obesa (Frisvoll) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium obesum* Frisvoll
Bucklandiella occidentalis (Renauld & Cardot) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium occidentale* (Renauld & Cardot) Renauld & Cardot
Bucklandiella pacifica (Ireland & J.R.Spence) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium pacificum* Ireland & J.R.Spence
Bucklandiella sudetica (Funck) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium sudeticum* (Funck) Bruch & Schimp.
Bucklandiella venusta (Frisvoll) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium venustum* Frisvoll
Calliargon cordifolium (Hedw.) Kindb. subsp. *orbicularicordatum* (Renauld & Cardot) Grout $\equiv$ *C. orbicularicordatum* (Renauld & Cardot) Broth.
Calliargon macounii Kindb. = *C. richardsonii* (Mitt.) Kindb. ex G.Roth
Calliargon obtusifolium Karczm. = *C. richardsonii* (Mitt.) Kindb. ex G.Roth
Calliargon stramineum (Dicks. ex Brid.) Kindb. $\equiv$ *Warnstorfia straminea* (Dicks. ex Brid.) W.R. Buck & Goffinet
Calliargon stramineum (Dicks. ex Brid.) Kindb. var. *patens* (Lindb.) G.Roth $\equiv$ *Warnstorfia straminea* (Dicks. ex Brid.) W.R.Buck & Goffinet var. *patens* (Lindb.) W.R.Buck & Goffinet
Calliargon trifarium (F.Weber & D.Mohr) Kindb. $\equiv$ *Drepanocladus trifarius* (F.Weber & D.Mohr) Broth.
Campyliadelphus chrysophyllus (Brid.) Kanda $\equiv$ *Campylium chrysophyllum* (Brid.) Lange
Campylium halleri (Hedw.) Lindb. $\equiv$ *Campylophyllum halleri* (Hedw.) M.Fleisch.
Campylium hispidulum (Brid.) Mitt. $\equiv$ *Campylophyllopsis hispidula* (Brid.) Ochyra
Campylium polygamum (Schimp.) Lange & C.E.O. Jensen $\equiv$ *Drepanocladus polygamus* (Schimp.) Hedenäs

³⁷² See Holyoak (2004).³⁷³ See Arts et al. (1995).³⁷⁴ See Toren et al. (2024).

- Campylium radicale* (P.Beauv.) Grout $\equiv$ *Pseudocampylium radicale* (P.Beauv.) Vanderp. & Hedenäs
- Campylium stellatum* (Hedw.) Lange & C.E.O. Jensen var. *arcticum* (R.S.Williams) L.I.Savicz $\equiv$ *Drepanocladus arcticus* (R.S.Williams) Hedenäs
- Campylium stellatum* (Hedw.) Lange & C.E.O. Jensen var. *protensum* (Brid.) Bryhn $\equiv$ *C. protensum* (Brid.) Kindb.
- Campylophyllum hispidulum* (Brid.) Hedenäs $\equiv$ *Campylophyllopsis hispidula* (Brid.) Ochyra
- Campylophyllum sommerfeltii* (Myrin) Hedenäs $\equiv$ *Campylophyllopsis sommerfeltii* (Myrin) Ochyra
- Campylopus aureus* Bosch & Sande Lac. = *C. schmidii* (Müll.Hal.) A.Jaeger
- Campylopus japonicus* Broth. = *C. sinensis* (Müll. Hal.) J.-P.Frahm
- Campylopus paradoxus* Wilson = *C. flexuosus* (Hedw.) Brid.
- Campylopus schwarzii* Schimp. = *C. gracilis* (Mitt.) A.Jaeger
- Campylopus subporodictyon* (Broth.) B.H.Allen & Ireland $\equiv$ *Atractylorcarpus subporodictyon* (Broth.) Bonfim Santos & M.Stech
- Campylopus zygodonticarpus* (Müll.Hal.) Paris – excluded³⁷⁵
- Ceratodon purpureus* (Hedw.) Brid. subsp. *conicus* (Hampe ex Müll.Hal.) Dixon $\equiv$ *C. $\times$ conicus* (Hampe ex Müll.Hal.) Lindb.
- Ceratodon purpureus* (Hedw.) Brid. var. *rotundifolius* Berggr. = *C. heterophyllum* Kindb.
- Ceratodon purpureus* (Hedw.) Brid. subsp. *stenocarpus* (Bruch & Schimp.) Dixon $\equiv$ *C. stenocarpus* Bruch & Schimp.
- Cirriphyllum brandegeei* (Austin) Grout $\equiv$ *Brachythecium brandegeei* (Austin) H.Rob.
- Cirriphyllum cirrosum* (Schwägr.) Grout $\equiv$ *Brachythecium cirrosum* (Schwägr.) Schimp.
- Codriophorus acicularis* (Hedw.) P.Beauv. $\equiv$ *Racomitrium aciculare* (Hedw.) Brid.
- Codriophorus aduncoides* (Bedn.-Ochyra) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium aduncoides* Bedn.-Ochyra
- Codriophorus brevisetus* (Lindb.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium brevisetum* Lindb.
- Codriophorus corrugatus* Bedn.-Ochyra $\equiv$ *Racomitrium corrugatum* (Bedn.-Ochyra) Larraín & J.Muñoz
- Codriophorus depressus* (Lesq.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium depressum* Lesq.
- Codriophorus fascicularis* (Schr. ex Hedw.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium fasciculare* (Schr. ex Hedw.) Brid.
- Codriophorus mollis* (Cardot) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium molle* Cardot
- Codriophorus norrisii* (Bedn.-Ochyra & Ochyra) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium norrisii* Bedn.-Ochyra & Ochyra
- Codriophorus rysardii* (Bedn.-Ochyra) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium rysardii* Bedn.-Ochyra
- Codriophorus varius* (Mitt.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium varium* (Mitt.) A.Jaeger
- Cratoneuron arcticum* Steere = *Hygroamblystegium varium* (Hedw.) Mönk.³⁷⁶
- Crossidium rosei* R.S.Williams - excluded³⁷⁷
- Crumia deciduidentata* Sharp & Z.Iwats. $\equiv$ *Tortula deciduidentata* (Sharp & Z.Iwats.) R.H.Zander
- Ctenidium malacodes* Mitt. - excluded
- Ctenidium malacodes sensu auct. Amer. non* Mitt. = *C. subrectifolium* (Brid.) G.Pedano ex W.R.Buck & B.H.Allen³⁷⁸
- Ctenidium molluscum* (Hedw.) Mitt. - excluded
- Ctenidium molluscum sensu auct. Amer. non* (Hedw.) Mitt. = *C. subrectifolium* (Brid.) G.Pedano ex W.R.Buck & B.H.Allen³⁷⁹
- Cynodontium alpestre* (Wahlenb.) Milde $\equiv$ *Cnestrum alpestre* (Wahlenb.) Nyholm
- Cynodontium glaucescens* (Lindb. & Arnell) Kindb. $\equiv$ *Cnestrum glaucescens* (Lindb. & Arnell) Holmen ex Mogensen & Steere
- Cynodontium schisti* (F.Weber & D.Mohr) Lindb. $\equiv$ *Cnestrum schisti* (F.Weber & D.Mohr) I.Hagen
- Cyrto-hypnum involvens* (Hedw.) W.R.Buck & H.A.Crum $\equiv$ *Pelekium involvens* (Hedw.) Touw
- Cyrto-hypnum minutulum* (Hedw.) W.R.Buck & H.A.Crum $\equiv$ *Pelekium minutulum* (Hedw.) Touw
- Cyrto-hypnum pygmaeum* (Schimp.) W.R.Buck & H.A.Crum $\equiv$ *Pelekium pygmaeum* (Schimp.) Touw

³⁷⁵ See Frahm (2007).

³⁷⁶ See Ochyra (1989) for synonymy as *Pseudoleskea chilensis* (Lor.) Ochyra = *Hygroamblyamblystegium varium*.

³⁷⁷ See Delgadillo (1996).

³⁷⁸ See Buck & Allen (2004).

³⁷⁹ See Buck & Allen (2004).

Cyrto-hypnum schistocalyx (Müll.Hal.) W.R.Buck & H.A.Crum $\equiv$ *Pelekium schistocalyx* (Müll.Hal.) Touw
Desmatodon cernuus (Huebener) Bruch & Schimp. $\equiv$ *Tortula cernua* (Huebener) Lindb.
Desmatodon convolutus (Brid.) Grout = *Tortula atrovirens* (Sm.) Lindb.
Desmatodon guepinii Bruch & Schimp. $\equiv$ *Tortula guepinii* (Bruch & Schimp.) Broth.
Desmatodon heimii (Hedw.) Mitt. $\equiv$ *Hennediella heimii* (Hedw.) R.H.Zander
Desmatodon heimii (Hedw.) Mitt. var. *arcticus* (Lindb.) H.A.Crum = *Hennediella heimii* (Hedw.) R.H.Zander
Desmatodon latifolius (Hedw.) Brid. = *Tortula hopeana* (Schultz) Ochyra³⁸⁰
Desmatodon laureri (Schultz) Bruch & Schimp. $\equiv$ *Tortula laureri* (Schultz) Lindb.
Desmatodon leucostoma (R.Br.) Berggr. $\equiv$ *Tortula leucostoma* (R.Br.) Hook. & Grev.
Desmatodon obtusifolius (Schwägr.) Schimp. $\equiv$ *Tortula obtusifolia* (Schwägr.) Mathieu
Desmatodon plinthobius Sull. & Lesq. $\equiv$ *Tortula plinthobia* (Sull. & Lesq.) Austin
Desmatodon porteri James $\equiv$ *Tortula porteri* (James) Broth.
Desmatodon randii (Kenn.) Laz. = *Tortula cernua* (Huebener) Lindb.
Desmatodon systylius Schimp. $\equiv$ *Tortula systylia* (Schimp.) Lindb.
Dicranella crispa (Hedw.) Schimp. $\equiv$ *Dicranellopsis crispa* (Hedw.) Bonfim Santos, Siebel & Fedosov
Dicranella grevilleana (Brid.) Schimp. $\equiv$ *Aongstroemia grevilleana* (Brid.) Müll.Hal.
Dicranella howei Renauld & Cardot $\equiv$ *Calcidicranella howei* (Renauld & Cardot) Bonfim Santos, Fedosov & Jan Kučera
Dicranella pacifica W.B.Schofield $\equiv$ *Calcidicranella pacifica* (W.B.Schofield) Jan Kučera & Fedosov
Dicranella palustris (Dicks.) Crundw. ex E.F.Warb. $\equiv$ *Diobelonella palustris* (Dicks.) Ochyra
Dicranella rufescens (With.) Schimp. $\equiv$ *Ruficaulis rufescens* (With.) Bonfim Santos & Fedosov
Dicranella schreberiana (Hedw.) Dixon $\equiv$ *Aongstroemia schreberiana* (Hedw.) Bonfim Santos & Fedosov

Dicranella schreberiana (Hedw.) Dixon var. *robusta* (Schimp. ex Braithw.) H.A.Crum & L.E. Anderson = *Aongstroemia canadensis* (Mitt.) Siebel & Fedosov
Dicranella staphylina H.Whitehouse $\equiv$ *Rhizogemma staphylina* (H.Whitehouse) Bonfim Santos, Siebel & Fedosov.
Dicranella stickinensis Grout = *Dicranellopsis subulata* (Hedw.) Bonfim Santos, Siebel & Fedosov
Dicranella subulata (Hedw.) Schimp. $\equiv$ *Dicranellopsis subulata* (Hedw.) Bonfim Santos, Siebel & Fedosov
Dicranella varia (Hedw.) Schimp. $\equiv$ *Calcidicranella varia* (Hedw.) Bonfim Santos, Fedosov & Jan Kučera
Dicranodontium subporodictyon Broth. $\equiv$ *Atractyllocarpus subporodictyon* (Broth.) Bonfim Santos & M.Stech
Dicranoweisia crispula (Hedw.) Milde $\equiv$ *Hymenoloma crispulum* (Hedw.) Ochyra
Dicranum angustum Lindb. = *D. spadiceum* J.E.Zetterst.
Dicranum fuscescens Turner var. *flexicaule* (Brid.) Wilson $\equiv$ *D. flexicaule* Brid.
Dicranum latifolium J.J.Amann = *D. scoparium* Hedw.
Didymodon asperifolius (Mitt.) H.A.Crum, Steere & L.E.Anderson $\equiv$ *Husnotiella asperifolia* (Mitt.) J. A.Jiménez & M.J.Cano
Didymodon australasiae (Hook. & Grev.) R.H. Zander $\equiv$ *Trichostomopsis australasiae* (Hook. & Grev.) H.Rob.
Didymodon bistratosus Hébrard & R.B.Pierrot = *Zanderella purpurea* (Müll.Hal.) J.A.Jiménez & M.J.Cano
Didymodon brachyphyllus (Sull.) R.H.Zander $\equiv$ *Vinealobryum brachyphyllum* (Sull.) R.H. Zander
Didymodon californicus J.A. Jiménez, D.R. Toren & Shevock $\equiv$ *Vinealobryum californicum* (J.A. Jiménez, D.R. Toren & Shevock) R.H. Zander
Didymodon constrictus (Mitt.) K.Saito $\equiv$ *Geheebia constricta* (Mitt.) R.H.Zander & Caners
Didymodon eckeliae R.H.Zander $\equiv$ *Vinealobryum eckeliae* (R.H.Zander) R.H.Zander
Didymodon fallax (Hedw.) R.H.Zander $\equiv$ *Geheebia fallax* (Hedw.) R.H.Zander
Didymodon fallax (Hedw.) R.H.Zander var. *reflexus* (Brid.) R.H.Zander = *Geheebia ferruginea* (Schimp. ex Besch.) R.H.Zander
Didymodon ferrugineus (Schimp. ex Besch.) M.O. Hill $\equiv$ *Geheebia ferruginea* (Schimp. ex Besch.) R.H.Zander

³⁸⁰ See Ochyra (2004).

- Didymodon fragiliscuspis* Broth. $\equiv$ *Husnotiella fragiliscuspis* (Broth.) J.A.Jiménez & M.J.Cano
- Didymodon giganteus* (Funck) Jur. $\equiv$ *Geheebia gigantea* (Funck) Boulay
- Didymodon johansenii* (R.S.Williams) H.A.Crum $\equiv$ *Husnotiella johansenii* (R.S.Williams) J.A.Jiménez & M.J.Cano
- Didymodon leskeoides* K.Saito $\equiv$ *Geheebia leskeoides* (K.Saito) R.H.Zander
- Didymodon maximus* (Syed & Crundw.) M.O.Hill $\equiv$ *Geheebia maxima* (Syed & Crundw.) R.H.Zander
- Didymodon michiganensis* (Steere) K.Saito = *D. maschalogenia* (Renauld & Cardot) Broth.
- Didymodon murrayae* Otnyukova = *Husnotiella fragiliscuspis* (Broth.) J.A.Jiménez & M.J.Cano
- Didymodon nevadensis* R.H.Zander $\equiv$ *Gertrudiella nevadensis* (R.H.Zander) J.A.Jiménez & M.J.Cano
- Didymodon nicholsonii* Culm. $\equiv$ *Vinealobryum nicholsonii* (Culm.) R.H.Zander
- Didymodon norrisii* R.H.Zander $\equiv$ *Vinealobryum norrisii* (R.H.Zander) J.A.Jiménez & M.J.Cano
- Didymodon reedii* H.Rob. = *D. tectorum* (Müll.Hal.) K.Saito
- Didymodon revolutus* (Cardot) R.S.Williams $\equiv$ *Husnotiella revoluta* Cardot
- Didymodon rigidulus* Hedw. var. *ditrichoides* (Broth.) R.H.Zander $\equiv$ *D. ditrichoides* (Broth.) X.J.Li & S. He
- Didymodon rigidulus* Hedw. var. *gracilis* (Hook. & Grev.) R.H.Zander = *D. acutus* (Brid.) K.Saito
- Didymodon rigidulus* Hedw. var. *icmadophilus* (Schimp. ex Müll.Hal.) R.H.Zander $\equiv$ *D. icmadophilus* (Schimp. ex Müll.Hal.) K.Saito
- Didymodon rigidulus* Hedw. var. *subulatus* (Thér. & E.B.Bartram) R.H.Zander $\equiv$ *D. novae-hispaniae* J.A.Jiménez & M.J.Cano
- Didymodon tophaceus* (Brid.) Lisa $\equiv$ *Geheebia tophacea* (Brid.) R.H.Zander
- Didymodon umbrosus* (Müll.Hal.) R.H.Zander $\equiv$ *Trichostomopsis umbrosa* (Müll.Hal.) H.Rob.
- Didymodon vinealis* (Brid.) R.H.Zander $\equiv$ *Vinealobryum vineale* (Brid.) R.H.Zander
- Didymodon vinealis* (Brid.) R.H.Zander var. *brachyphyllus* (Sull.) R.H.Zander $\equiv$ *Vinealobryum brachyphyllum* (Sull.) R.H.Zander
- Didymodon vinealis* (Brid.) R.H.Zander var. *flaccidus* (Bruch & Schimp.) R.H.Zander = *Vinealobryum insulanum* (De Not.) R.H.Zander
- Didymodon vinealis* (Brid.) R.H.Zander var. *luridus* (Hornsch. ex Spreng.) R.H.Zander $\equiv$ *Geheebia lurida* (Hornsch. ex Spreng.) J. A.Jiménez & M.J.Cano
- Didymodon vinealis* (Brid.) R.H.Zander var. *nicholsonii* (Culm.) R.H.Zander $\equiv$ *Vinealobryum nicholsonii* (Culm.) R.H.Zander
- Didymodon vinealis* (Brid.) R.H.Zander var. *rubiginosus* (Mitt.) R.H.Zander $\equiv$ *Vinealobryum rubiginosum* (Mitt.) J.A.Jiménez & M.J.Cano
- Dilutineuron brevisetum* (Lindb.) Bedn.-Ochyra, Sawicki, Ochyra, Szczecińska & Plášek $\equiv$ *Racomitrium brevisetum* Lindb.
- Dilutineuron corrugatum* (Bedn.-Ochyra) Bedn.-Ochyra, Sawicki, Ochyra, Szczecińska & Plášek $\equiv$ *Racomitrium corrugatum* (Bedn.-Ochyra) Larraín & J.Muñoz
- Dilutineuron fasciculare* (Schrad. ex Hedw.) Bedn.-Ochyra, Sawicki, Ochyra, Szczecińska & Plášek $\equiv$ *Racomitrium fasciculare* (Schrad. ex Hedw.) Brid.
- Diphyscium cumberlandianum* Harvill = *D. mucronifolium* Mitt. ex Dozy & Molk.
- Distichium capillaceum* (Hedw.) Bruch & Schimp. var. *curvatum* Flowers = *D. capillaceum* (Hedw.) Bruch & Schimp.³⁸¹
- Ditrichum flexicaule* (Schwägr.) Brockm. $\equiv$ *Flexitrichum flexicaule* (Schwägr.) Ignatov & Fedosov
- Ditrichum gracile* (Mitt.) Kuntze $\equiv$ *Flexitrichum gracile* (Mitt.) Ignatov & Fedosov
- Ditrichum zonatum* (Brid.) Braithw. var. *scabrifolium* Dixon = *D. zonatum* (Brid.) Braithw.
- Drepanocladus aduncus* (Hedw.) Warnst. var. *kneiffii* (Schimp.) Grout = *D. aduncus* (Hedw.) Warnst.
- Drepanocladus aduncus* (Hedw.) Warnst. var. *polycarpus* (Blandow ex Voit) G.Roth = *D. aduncus* (Hedw.) Warnst.³⁸²
- Drepanocladus crassicosatus* Janssens = *D. capillifolius* (Warnst.) Warnst.
- Drepanocladus longifolius* (Wilson ex Mitt.) Broth. ex Paris - excluded, see *D. capillifolius* (Warnst.) Warnst.³⁸³
- Drepanocladus pseudosarmentosus* (Cardot & Thér.) Perss. $\equiv$ *Warnstorfia pseudosarmentosa* (Cardot & Thér.) Tuom. & T.J.Kop.

³⁸¹ See Hedenäs (2021).³⁸² See Hedenäs (2008b).³⁸³ See Saługa et al. (2018).

- Drepanocladus sendtneri* (Schimp. ex H.Müll.) Warnst. – excluded³⁸⁴
- Drepanocladus simplicissimus* Warnst. = *D. aduncus* (Hedw.) Warnst.³⁸⁵
- Dryptodon incurvus* Schwägr. = *Grimmia elatior* Bruch ex Bals.-Criv. & De Not.
- Encalypta affinis* R.Hedw. var. *macounii* (Austin) H. A.Crum & L.E.Anderson ≡ *E. affinis* R.Hedw. subsp. *macounii* (Austin) D.G.Horton
- Encalypta brevicolla* (Bruch & Schimp.) Ångstr. var. *crumiana* (D.G.Horton) H.A.Crum & L.E. Anderson ≡ *E. brevicolla* (Bruch & Schimp.) Ångstr. subsp. *crumiana* D.G.Horton
- Encalypta intermedia* Jur. = *E. pilifera* Funck
- Encalypta microstoma* Bals.-Criv. & De Not. - excluded³⁸⁶
- Encalypta sibirica* (Weinm.) Warnst. - excluded³⁸⁷
- Entodon compressus* (Hedw.) Müll.Hal. = *E. challenger* (Paris) Cardot
- Epipterygium tozeri* (Grev.) Lindb. - excluded
- Epipterygium tozeri sensu auct. Amer. non* (Grev.) Lindb. = *E. biauratum* Hanusch³⁸⁸
- Erpodium acrifolium* Pursell ≡ *Venturiella acrifolia* (Pursell) Pursell
- Erpodium biseriatum* (Austin) Austin ≡ *Solmsiella biseriata* (Austin) Steere
- Eurhynchium hians* (Hedw.) Sande Lac. ≡ *Oxyrrhynchium hians* (Hedw.) Loeske
- Eurhynchium oreganum* (Sull.) A.Jaeger ≡ *Kindbergia oregana* (Sull.) Ochyra
- Eurhynchium praelongum* (Hedw.) Schimp. ≡ *Kindbergia praelonga* (Hedw.) Ochyra
- Eurhynchium praelongum* (Hedw.) Schimp. var. *stokesii* (Turner) Dixon = *Kindbergia praelonga* (Hedw.) Ochyra
- Eurhynchium pringlei* (Cardot) H.A.Crum & L.E. Anderson ≡ *Donrichardsia pringlei* (Cardot) Huttunen & Ignatov
- Eurhynchium pulchellum* (Hedw.) Jenn. ≡ *Eurhynchiastrium pulchellum* (Hedw.) Ignatov & Huttunen
- Eurhynchium pulchellum* (Hedw.) Jenn. var. *barnesii* (Renauld & Cardot) H.A.Crum, Steere & L.E. Anderson ≡ *Eurhynchiastrium pulchellum* (Hedw.) Ignatov & Huttunen var. *barnesii* (Renauld & Cardot) Ignatov
- Fissidens allenianus* Brugg.-Nann. & Pursell = *F. santa-clarensis* Thér.
- Fissidens clebschii* Steere = *F. taxifolius* Hedw.
- Fissidens garberi* Lesq. & James = *F. pallidinervis* Mitt.
- Fissidens hallii* Austin = *F. amoenus* Müll.Hal.
- Fissidens kochii* H.A.Crum & L.E.Anderson = *F. submarginatus* Bruch
- Fissidens limbatus* Sull. = *F. crispus* Mont.
- Fissidens microcladus* Thwaites & Mitt. – excluded³⁸⁹
- Fissidens milobakeri* L.F.Koch = *F. curvatus* Hornsch.
- Fissidens minutus* Thwaites & Mitt. = *F. pallidinervis* Mitt.
- Fissidens neonii* (E.B.Bartram) Grout = *F. scalaris* Mitt.
- Fissidens obtusifolius* Wilson var. *apiculatus* Grout = *F. sublimbatus* Grout
- Fissidens obtusifolius* Wilson var. *kansanus* Renauld & Cardot = *F. obtusifolius* Wilson
- Fissidens obtusifolius* Wilson var. *marginatus* Flowers = *F. obtusifolius* Wilson
- Fissidens papillosus* Sande Lac. = *F. serratus* Müll. Hal.
- Fissidens radicans* Mont. - excluded
- Fissidens ravenelii* Sull. = *F. elegans* Brid.
- Fissidens reesei* H.A.Crum & L.E.Anderson = *F. leptophyllus* Mont.
- Fontinalis antipyretica* Hedw. var. *gigantea* (Sull.) Sull. = *F. antipyretica* Hedw.
- Fontinalis antipyretica* Hedw. var. *oreganensis* Renauld & Cardot = *F. antipyretica* Hedw.
- Fontinalis filiformis* Sull. & Lesq. = *F. sullivantii* Lindb.
- Fontinalis flaccida* Renauld & Cardot = *F. sullivantii* Lindb.
- Fontinalis hypnoides* Hartm. var. *duriae* (Schimp.) Husn. = *F. hypnoides* Hartm.
- Fontinalis langloisii* Cardot = *F. sullivantii* Lindb.
- Fontinalis macmillanii* Cardot = *F. hypnoides* Hartm.
- Fontinalis missourica* Cardot = *F. sullivantii* Lindb.
- Fontinalis novae-angliae* Sull. var. *cymbifolia* (Austin) W.H.Welch = *F. novae-angliae* Sull.

³⁸⁴ See Hedenäs (2014b).³⁸⁵ See Hedenäs (2008b).³⁸⁶ See Horton (1983).³⁸⁷ See Magill (2006).³⁸⁸ See Hanusch et al. (2020).³⁸⁹ See Pursell & Vital (1986), under *F. gardneri*, of which it is a synonym.

- Fontinalis novae-angliae* Sull. var. *lorenziae* Cardot = *F. novae-angliae* Sull.
- Frisvollia varia* (Mitt.) Sawicki, Szczecińska, Bedn.-Ochyra & Ochyra ≡ *Racomitrium varium* (Mitt.) A.Jaeger
- Funaria americana* Lindb. ≡ *Entosthodon americanus* (Lindb.) Fife
- Funaria apiculatopilosa* Cardot ≡ *Entosthodon apiculatopilosus* (Cardot) Fife
- Funaria groutiana* Fife = *F. arctica* (Berggr.) Kindb.
- Funaria muhlenbergii* Turner ≡ *Entosthodon muhlenbergii* (Turner) Fife
- Funaria serrata* Brid. ≡ *Entosthodon serratus* (Brid.) Fife
- Gemmabryum apiculatum* (Schwägr.) J.R.Spence & H.P.Ramsay ≡ *Bryum apiculatum* Schwägr.
- Gemmabryum badium* (Brid.) J.R.Spence = *Bryum imbricatulum* Müll.Hal.
- Gemmabryum barnesii* (J.B.Wood ex Schimp.) J.R.Spence = *Bryum dichotomum* Hedw.
- Gemmabryum brassicoides* J.R.Spence & Kellman ≡ *Bryum brassicoides* (J.R.Spence & Kellman) W.R.Buck & Goffinet
- Gemmabryum caespiticium* (Hedw.) J.R.Spence ≡ *Bryum caespiticium* Hedw.
- Gemmabryum californicum* (Sull.) J.R.Spence ≡ *Bryum californicum* Sull.
- Gemmabryum coronatum* (Schwägr.) J.R.Spence ≡ *Bryum coronatum* Schwägr.
- Gemmabryum demaretianum* (Arts) J.R.Spence ≡ *Bryum demaretianum* Arts
- Gemmabryum dichotomum* (Hedw.) J.R.Spence ≡ *Bryum dichotomum* Hedw.
- Gemmabryum exile* (Dozy & Molk.) J.R.Spence & H.P.Ramsay ≡ *Brachymenium exile* (Dozy & Molk.) Bosch & Sande Lac.
- Gemmabryum gemmiferum* (R.Wilczek & Demaret) J.R.Spence ≡ *Bryum gemmiferum* R.Wilczek & Demaret
- Gemmabryum gemmilucens* (R.Wilczek & Demaret) J.R.Spence ≡ *Bryum gemmilucens* R.Wilczek & Demaret
- Gemmabryum klinggraeffii* (Schimp.) J.R.Spence ≡ *Bryum klinggraeffii* Schimp.
- Gemmabryum kunzei* (Hornsch.) J.R.Spence ≡ *Bryum kunzei* Hornsch.
- Gemmabryum radiculosum* (Brid.) J.R.Spence & H.P.Ramsay ≡ *Bryum radiculosum* Brid.
- Gemmabryum ruderae* (Crundw. & Nyholm) J.R.Spence ≡ *Bryum ruderae* Crundw. & Nyholm
- Gemmabryum subapiculatum* (Hampe) J.R.Spence ≡ *Bryum subapiculatum* Hampe
- Gemmabryum tenuisetum* (Limpr.) J.R.Spence & H.P.Ramsay ≡ *Bryum tenuisetum* Limpr.
- Gemmabryum valparaisense* (Thér.) J.R.Spence ≡ *Bryum valparaisense* Thér.
- Gemmabryum vinosum* J.R.Spence & Kellman ≡ *Bryum vinosum* (J.R.Spence & Kellman) W.R.Buck & Goffinet
- Gemmabryum violaceum* (Crundw. & Nyholm) J.R.Spence ≡ *Bryum violaceum* Crundw. & Nyholm
- Grimmia affinis* Hornsch. = *G. longirostris* Hook.
- Grimmia anomala* Hampe ex Schimp. ≡ *Dryptodon anomalus* (Hampe ex Schimp.) Loeske
- Grimmia arcuatifolia* Kindb. ≡ *Dryptodon arcuatifolius* (Kindb.) Ochyra & Żarnowiec
- Grimmia bernoullii* Müll.Hal. = *G. ovalis* (Hedw.) Lindb.³⁹⁰
- Grimmia brevirostris* R.S.Williams = *G. hamulosa* Lesq.
- Grimmia fuscolutea* Hook. ≡ *Dryptodon fuscoluteus* (Hook.) Ochyra & Żarnowiec
- Grimmia hartmanii* Schimp. ≡ *Dryptodon hartmanii* (Schimp.) Limpr.
- Grimmia hermannii* H.A.Crum = *Dryptodon muehlenbeckii* (Schimp.) Loeske
- Grimmia leibergii* Paris ≡ *Dryptodon leibergii* (Paris) Ochyra & Żarnowiec
- Grimmia lisae* De Not. ≡ *Dryptodon lisae* (De Not.) Loeske
- Grimmia muehlenbeckii* Schimp. ≡ *Dryptodon muehlenbeckii* (Schimp.) Loeske
- Grimmia poecilostoma* Cardot & Seville = *G. crinito-leucophaea* Cardot
- Grimmia pulvinata* (Hedw.) Sm. var. *africana* (Hedw.) Hook.f. & Wilson = *G. pulvinata* (Hedw.) Sm.
- Grimmia ramondii* (DC.) Margad. = *Dryptodon patens* (Dicks. ex Hedw.) Brid.
- Grimmia tenerrima* Renauld & Cardot = *G. sessitana* De Not.
- Grimmia teretinervis* Limpr. ≡ *Schistidium teretinerve* (Limpr.) Limpr.

³⁹⁰ The species was reported from the United States by Weber et al. (2003) but then considered conspecific with *G. ovalis* by Muñoz (1999).

Grimmia torngakiana Brassard & Hedd. = *G. incurva* Schwägr.
Grimmia torquata Hook. ≡ *Dryptodon torquatus* (Hook.) Brid.
Grimmia torquata Hook. var. *flettii* (Holz.) Vaar. = *Dryptodon torquatus* (Hook.) Brid.³⁹¹
Grimmia trichophylla Grev. ≡ *Dryptodon trichophyllus* (Grev.) Brid.
Gymnostomiella orcuttii E.B.Bartram = *G. vernicosa* (Hook. ex Harv.) M.Fleisch.
Gyroweisia reflexa (Brid.) Schimp. - excluded³⁹²
Haplohymenium triste (Ces.) Kindb. ≡ *Anomodon tristis* (Ces.) Sull.
Hedwigia ciliata (Hedw.) Boucher fo. *detonsa* (M. Howe) G.N.Jones ≡ *H. detonsa* (M.Howe) W.R. Buck & D.H.Norris
Hedwigia ciliata (Hedw.) Boucher var. *leucophaea* Bruch & Schimp. = *H. emodica* Hampe ex Müll. Hal.
Hedwigia nemoralis Ignatova, Ignatov & Fedosov³⁹³ = *H. filiformis* (Michx.) P.Beauv.
Helodium blandowii (F.Weber & D.Mohr) Warnst. ≡ *H. blandovii* (F.Weber & D.Mohr) Warnst.
Helodium blandovii (F.Weber & D.Mohr) Warnst. var. *elodioides* (Renauld & Cardot) H.A.Crum, Steere & L.E.Anderson ≡ *H. elodioides* (Renauld & Cardot) B.H.Allen
Herzogiella adscendens (Lindb.) Z.Iwats. & W.B. Schofield ≡ *Aquilonium adscendens* (Lindb.) Hedenäs, Schlesak & D.Quandt
Heterocladium dimorphum (Brid.) Schimp. ≡ *Heterocladiella dimorpha* (Brid.) Ignatov & Fedosov
Heterocladium procurrens (Mitt.) A.Jaeger ≡ *Heterocladiella procurrens* (Mitt.) Ignatov & Fedosov
Heterophyllum affine (Hook.) M.Fleisch. = *H. nemorosum* (W.D.J.Koch ex Brid.) Kindb.
Homalothecium pinnatifidum (Sull. & Lesq.) E. Lawton = *H. aureum* (Spruce) H.Rob.
Hygroamblystegium tenax (Hedw.) Jenn. var. *spinifolium* (Schimp.) Jenn ≡ *Cratoneuron filicinum* (Hedw.) Spruce³⁹⁴

³⁹¹ See Muñoz & Pando (2000). Note that Maier (2010) placed this var. in synonymy with *G. elongata*.

³⁹² First reported by Conard (1945) and confirmed by Manierre (1998) but excluded by Zander (2007c).

³⁹³ See Ignatova et al. (2016).

Hygrohypnum alpestre (Hedw.) Loeske ≡ *Platyhypnum alpestre* (Hedw.) Ochyra
Hygrohypnum alpinum (Lindb.) Loeske ≡ *Platyhypnum alpinum* (Lindb.) Loeske
Hygrohypnum bestii (Renauld & Bryhn) Holz. ≡ *Platyhypnum bestii* (Renauld & Bryhn) Ochyra
Hygrohypnum cochleariifolium (Venturi) Broth. ≡ *Platyhypnum cochleariifolium* (Venturi) Ochyra
Hygrohypnum duriusculum (De Not.) D.W.Jamieson ≡ *Platyhypnum duriusculum* (De Not.) Ochyra
Hygrohypnum eugyrium (Schimp.) Loeske ≡ *Pseudohygrohypnum eugyrium* (Schimp.) Kanda
Hygrohypnum micans (Mitt.) Broth. ≡ *Hageniella micans* (Mitt.) B.C.Tan & Y.Jia
Hygrohypnum molle (Hedw.) Loeske ≡ *Platyhypnum molle* (Hedw.) Loeske
Hygrohypnum montanum (Lindb.) Broth. ≡ *Campylophyllum montanum* (Lindb.) B.H. Allen
Hygrohypnum norvegicum (Schimp.) J.J.Amann ≡ *Platyhypnum norvegicum* (Schimp.) Ochyra
Hygrohypnum ochraceum (Turner ex Wilson) Loeske ≡ *Hygrohypnella ochracea* (Turner ex Wilson) Ignatov & Ignatova
Hygrohypnum polare (Lindb.) Loeske ≡ *Hygrohypnella polaris* (Lindb.) Ignatov & Ignatova
Hygrohypnum smithii (Sw.) Broth. ≡ *Platyhypnum smithii* (Sw.) Ochyra
Hygrohypnum subeugyrium (Renauld & Cardot) Broth. ≡ *Pseudohygrohypnum subeugyrium* (Renauld & Cardot) Ignatov & Ignatova
Hymenostylium insigne (Dixon) Podp. = *H. annotinum* Mitt. ex Dixon
Hymenostylium recurvirostrum (Hedw.) Dixon var. *insigne* (Dixon) E.B.Bartram = *H. annotinum* Mitt. ex Dixon
Hypnum bambergeri Schimp. ≡ *Campylium bambergeri* (Schimp.) Hedenäs, Schlesak & D.Quandt
Hypnum callichroum Brid. ≡ *Stereodon callichroum* (Brid.) Brid.
Hypnum circinale Hook. ≡ *Trochophyllohypnum circinale* (Hook.) Jan Kučera & Ignatov
Hypnum cupressiforme Hedw. var. *lacunosum* Brid. = *H. cupressiforme* Hedw. var. *cupressiforme*
Hypnum cupressiforme Hedw. var. *resupinatum* (Taylor) Schimp. ≡ *H. resupinatum* Taylor

³⁹⁴ See Hedenäs (2003).

- Hypnum cupressiforme* Hedw. var. *subjulaceum* Molendo $\equiv$ *H. subjulaceum* (Molendo) Hedenäs, Schlesak & D.Quandt
- Hypnum curvifolium* Hedw. $\equiv$ *Calliergonella curvifolia* (Hedw.) B.H.Allen
- Hypnum dieckii* Renauld & Cardot $\equiv$ *Calliergonellopsis dieckii* (Renauld & Cardot) Jan Kučera & Ignatov
- Hypnum fujiyamae* (Broth.) Paris $\equiv$ *Callicladium fujiyamae* (Broth.) Jan Kučera & Ignatov
- Hypnum geminum* (Mitt.) Lesq. & James = *Isopterygiella pulchella* (Hedw.) Ignatov & Ignatova
- Hypnum hamulosum* Schimp. $\equiv$ *Stereodon hamulosus* (Schimp.) Lindb.
- Hypnum holmenii* Ando $\equiv$ *Stereodon holmenii* (Ando) Ignatov & Ignatova
- Hypnum imponens* Hedw. $\equiv$ *Callicladium imponens* (Hedw.) Hedenäs, Schlesak & D.Quandt
- Hypnum lindbergii* Mitt. $\equiv$ *Calliergonella lindbergii* (Mitt.) Hedenäs
- Hypnum mammillatum* (Brid.) Lindb. $\equiv$ *H. andoi* A.J.E.Sm.
- Hypnum pallescens* (Hedw.) P. Beauv. $\equiv$ *Jochenia pallescens* (Hedw.) Hedenäs, Schlesak & D. Quandt
- Hypnum pallescens* (Hedw.) P. Beauv. var. *protuberans* (Brid.) Austin $\equiv$ *Jochenia protuberans* (Brid.) Jan Kučera & Ignatov
- Hypnum plicatum* (Lindb.) A.Jaeger $\equiv$ *Aquilonium plicatum* (Lindb.) Hedenäs, Schlesak & D.Quandt
- Hypnum pratense* W.D.J.Koch ex Spruce $\equiv$ *Stereodon pratensis* (W.D.J.Koch ex Spruce) E.Britton.
- Hypnum procerrimum* Molendo $\equiv$ *Pseudostereodon procerrimus* (Molendo) M.Fleisch.
- Hypnum recurvatum* (Lindb. & Arnell) Kindb. = *Drepanium fastigiatum* (Brid.) Lange & C.E.O. Jensen
- Hypnum revolutum* (Mitt.) Lindb. $\equiv$ *Roaldia revoluta* (Mitt.) P.E.A.S.Câmara & Carv.-Silva
- Hypnum subimponens* Lesq. $\equiv$ *Stereodon subimponens* (Lesq.) Broth.
- Hypnum vaucheri* Lesq. $\equiv$ *Buckia vaucheri* (Lesq.) D.Ríos, M.T.Gallego & J.Guerra
- Hypopterygium fauriei* Besch. = *H. flavolimbatum* Müll.Hal.
- Hypopterygium tamariscinum sensu auct. Amer. non* (Hedw.) Brid. = *H. tamarisci* (Sm.) Müll.Hal.
- Imbribryum alpinum* (Huds. ex With.) N.Pedersen $\equiv$ *Bryum alpinum* Huds. ex With.
- Imbribryum gemmiparum* (De Not.) J.R.Spence $\equiv$ *Bryum gemmiparum* De Not.
- Imbribryum microchaeton* (Hampe) J.R.Spence $\equiv$ *Bryum microchaeton* Hampe
- Imbribryum mildeanum* (Jur.) J.R.Spence $\equiv$ *Bryum mildeanum* Jur.
- Imbribryum miniatum* (Lesq.) J.R.Spence $\equiv$ *Bryum miniatum* Lesq.
- Imbribryum muehlenbeckii* (Bruch & Schimp.) N. Pedersen $\equiv$ *Bryum muehlenbeckii* Bruch & Schimp.
- Imbribryum torenii* J.R.Spence & Shevock $\equiv$ *Bryum torenii* (J.R.Spence & Shevock) W.R.Buck & Goffinet
- Isopterygiopsis alpicola* (Lindb.) Hedenäs $\equiv$ *Isopterygiella alpicola* (Lindb.) Ignatov & Ignatova
- Isopterygiopsis pulchella* (Hedw.) Z.Iwats. $\equiv$ *Isopterygiella pulchella* (Hedw.) Ignatov & Ignatova
- Isothecium cardotii* Kindb. $\equiv$ *Pseudisothecium cardotii* (Kindb.) Ignatova, Fedosov & Ignatov
- Isothecium cristatum* (Hampe) H.Rob. $\equiv$ *Pseudisothecium cristatum* (Hampe) Ignatova, Fedosov & Ignatov
- Isothecium myosuroides* Brid. $\equiv$ *Pseudisothecium myosuroides* (Brid.) Grout
- Isothecium stoloniferum* Brid. $\equiv$ *Pseudisothecium stoloniferum* (Brid.) Grout
- Kiaeria blyttii* (Bruch & Schimp.) Broth. $\equiv$ *Arctoa blyttii* (Bruch & Schimp.) Loeske
- Kiaeria falcata* (Hedw.) I.Hagen $\equiv$ *Pseudoblindia falcata* (Hedw.) Fedosov, M.Stech & Ignatov
- Kiaeria glacialis* (Berggr.) I.Hagen $\equiv$ *Arctoa glacialis* (Berggr.) Fedosov, Jan Kučera & M.Stech
- Kiaeria starkei* (F.Weber & D.Mohr) I.Hagen $\equiv$ *Arctoa starkei* (F.Weber & D.Mohr) Loeske
- Leptodictyum humile* (P.Beauv.) Ochyra $\equiv$ *Hygroamblystegium humile* (P.Beauv.) Vanderp., Hedenäs & Goffinet
- Leptodontium viticulosoides* (P.Beauv.) Wijk & Margad. var. *sulphureum* (Müll.Hal.) R.H.Zander = *L. excelsum* (Sull.) E.Britton
- Leptostomopsis nivea* (Besch.) J.R.Spence $\equiv$ *Brachymenium niveum* Besch.
- Leptostomopsis systylia* (Müll.Hal.) J.R.Spence $\equiv$ *Brachymenium systylium* (Müll.Hal.) A.Jaeger
- Lescurea arizonae* (R.S.Williams) P.S.Wilson & D. H.Norris $\equiv$ *Pseudoleskeella arizonae* (R.S.Williams) E.Lawton

- Leskea angustata* Taylor - excluded³⁹⁵
Leskeella nervosa (Brid.) Loeske $\equiv$ *Pseudoleskeella nervosa* (Brid.) Nyholm
Leucodon andrewsianus (H.A.Crum & L.E.Anderson) W.D.Reese & L.E.Anderson = *L. sciuroides* (Hedw.) Schwägr.
Leucodon brachypus Brid. var. *andrewsianus* H.A.Crum & L.E.Anderson = *L. sciuroides* (Hedw.) Schwägr.
Limprichtia cossonii (Schimp.) L.E.Anderson, H.A.Crum & W.R.Buck $\equiv$ *Scorpidium cossonii* (Schimp.) Hedenäs
Limprichtia revolvens (Sw.) Loeske $\equiv$ *Scorpidium revolvens* (Sw.) Rubers
Loeskypnum badium (Hartm.) H.K.G.Paul $\equiv$ *Warnstorfia badia* (Hartm.) W.R.Buck & Goffinet
Loeskypnum wickesiae (Grout) Tuom. $\equiv$ *Warnstorfia wickesiae* (Grout) W.R.Buck & Goffinet
Macrocoma sullivantii (Müll.Hal.) Grout $\equiv$ *M. tenuis* (Hook. & Grev.) Vitt subsp. *sullivantii* (Müll.Hal.) Vitt
Macromitrium richardii Schwägr. = *M. viticulosum* (Raddi) Brid.³⁹⁶
Meiotrichum lyallii (Mitt.) G.L.Sm.Merr. $\equiv$ *Polytrichastrum lyallii* (Mitt.) G.L.Sm.³⁹⁷
Microbryum davallianum (Sm.) R.H.Zander var. *commutatum* (Limpr.) R.H.Zander $\equiv$ *M. commutatum* (Limpr.) Cl.Schneid., Th.Schneid. & Mahévas
Microbryum davallianum (Sm.) R.H.Zander var. *conicum* (Schleich. ex Schwägr.) R.H.Zander $\equiv$ *M. conicum* (Schleich. ex Schwägr.) Cl.Schneid., Th.Schneid. & Mahévas
Microbryum starckeanum (Hedw.) R.H.Zander var. *brachyodus* (Bruch & Schimp.) R.H.Zander = *M. muticum* (Venturi) Cl.Schneid., Th.Schneid. & Mahévas
Microbryum starckeanum (Hedw.) R.H.Zander var. *fosbergii* (E.B.Bartram) R.H.Zander $\equiv$ *M. fosbergii* (E.B.Bartram) Ros, O.Werner & Rams
Microbryum vlassovii (Laz.) R.H.Zander $\equiv$ *Tortula vlassovii* (Laz.) Ros & Herrnst.
Micromitrium austinii Austin = *M. tenerum* (Bruch & Schimp.) Crosby
Mielichhoferia macrocarpa (Drumm.) Bruch & Schimp. $\equiv$ *Haplodontium macrocarpum* (Drumm.) J.R.Spence
Mielichhoferia tehamensis Showers $\equiv$ *Haplodontium tehamense* (Showers) J.R.Spence
Monocryphaea ravenelii (Austin) P.Rao $\equiv$ *Cryphaea ravenelii* Austin
Neckera bessi (Łobarz.) Jur. $\equiv$ *Alleniella bessi* (Łobarz.) S.Olsson, Enroth & D.Quandt
Neckera complanata (Hedw.) Huebener $\equiv$ *Alleniella complanata* (Hedw.) S.Olsson, Enroth & D.Quandt
Neohyophila sprengelii (Schwägr.) H.A.Crum $\equiv$ *Plaubelia sprengelii* (Schwägr.) R.H.Zander
Neohyophila stomatodonta (Cardot) H.A.Crum $\equiv$ *Plaubelia stomatodonta* (Cardot) R.H.Zander
Neotrichostomum crispulum (Bruch) R.H.Zander $\equiv$ *Trichostomum crispulum* Bruch
Niphotrichum canescens (Hedw.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium canescens* (Hedw.) Brid.
Niphotrichum canescens (Hedw.) Bedn.-Ochyra & Ochyra subsp. *latifolium* (C.E.O.Jensen) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium canescens* (Hedw.) Brid. subsp. *latifolium* (C.E.O.Jensen) Frisvoll
Niphotrichum elongatum (Ehrh. ex Frisvoll) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium elongatum* Ehrh. ex Frisvoll
Niphotrichum ericoides (Brid.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium ericoides* (Brid.) Brid.
Niphotrichum muticum (Kindb.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium muticum* (Kindb.) Frisvoll
Niphotrichum panschii (Müll.Hal.) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium panschii* (Müll.Hal.) Kindb.
Niphotrichum pygmaeum (Frisvoll) Bedn.-Ochyra & Ochyra $\equiv$ *Racomitrium pygmaeum* Frisvoll
Oncophorus raui (Austin) Grout $\equiv$ *Symblepharis raui* (Austin) R.S.Williams ex Broth.
Oncophorus wahlenbergii Brid. $\equiv$ *Brideliella wahlenbergii* (Brid.) Fedosov, M.Stech & Ignatov
Orthothecium chryseon (Schwägr.) Schimp. var. *cochleariifolium* (Lindb.) Limpr. = *O. chryseon* (Schwägr.) Schimp.³⁹⁸
Orthothecium diminutivum (Grout) H.A.Crum, Steere & L.E.Anderson = *Isopterygiella pulchella* (Hedw.) Ignatov & Ignatova

³⁹⁵ See Allen (2018) sub *Leskeadelphus*.³⁹⁶ See Valente et al. (2020).³⁹⁷ See Bell & Hyvönen (2010).³⁹⁸ See Ignatov et al. (2020).

Orthotrichum affine Brid. $\equiv$ *Lewinskya affinis* (Brid.) F.Lara, Garilleti & Goffinet var. *affinis*
Orthotrichum affine Brid. var. *bohemicum* Plášek & Sawicki $\equiv$ *Lewinskya affinis* (Brid.) F.Lara, Garilleti & Goffinet var. *bohémica* (Plášek & Sawicki) Plášek
Orthotrichum bolanderi Sull. $\equiv$ *Lewinskya bolanderi* (Sull.) F.Lara, Garilleti & Goffinet
Orthotrichum elegans Schwägr. ex Hook. & Grev. $\equiv$ *Lewinskya elegans* (Schwägr. ex Hook. & Grev.) F.Lara, Garilleti & Goffinet
Orthotrichum epapillosum E.Lawton & F.J.Herm. = *O. euryphyllum* Venturi³⁹⁹
Orthotrichum exiguum Sull. $\equiv$ *Leratia exigua* (Sull.) Goffinet
Orthotrichum fenestratum Cardot & Thér. $\equiv$ *Lewinskya fenestrata* (Cardot & Thér.) F.Lara, Garilleti & Goffinet
Orthotrichum gymnostomum Bruch ex Brid. $\equiv$ *Nyholmiella gymnostoma* (Bruch ex Brid.) Holmen & E.Warncke
Orthotrichum holzingeri Renaud & Cardot $\equiv$ *Lewinskya holzingeri* (Renaud & Cardot) F.Lara, Garilleti & Goffinet
Orthotrichum keeverae H.A.Crum & L.E.Anderson $\equiv$ *Lewinskya keeverae* (H.A.Crum & L.E.Anderson) F.Lara, Garilleti & Goffinet
Orthotrichum kellmanii D.H.Norris, Shevock & Goffinet = *Orthotrichum shevockii* Lewinsky-Haapasaari & D.H.Norris⁴⁰⁰
Orthotrichum laevigatum J.E.Zetterst. $\equiv$ *Lewinskya laevigata* (J.E.Zetterst.) F.Lara, Garilleti & Goffinet
Orthotrichum lyellii Hook. & Taylor $\equiv$ *Pulviger a lyellii* (Hook. & Taylor) Plášek, Sawicki & Ochyra
Orthotrichum lyellii Hook. & Taylor var. *howei* Renaud & Cardot $\equiv$ *Pulviger a howei* (Renaud & Cardot) F.Lara, Draper & Garilleti
Orthotrichum obtusifolium Brid. $\equiv$ *Nyholmiella obtusifolia* (Brid.) Holmen & E.Warncke
Orthotrichum papillosum Hampe $\equiv$ *Pulviger a papillosa* (Hampe) F.Lara, Draper & Garilleti
Orthotrichum praemorsum Venturi $\equiv$ *Lewinskya praemorsa* (Venturi) F.Lara, Garilleti & Goffinet

Orthotrichum pycnophyllum Schimp. $\equiv$ *Lewinskya pycnophylla* (Schimp.) F.Lara, Garilleti & Goffinet
Orthotrichum pylaisii Brid. $\equiv$ *Lewinskya pylaisii* (Brid.) F.Lara, Garilleti & Goffinet
Orthotrichum rupestre Schleich. ex Schwägr. $\equiv$ *Lewinskya rupestris* (Schleich. ex Schwägr.) F.Lara, Garilleti & Goffinet
Orthotrichum shawii Wilson $\equiv$ *Lewinskya shawii* (Wilson) F.Lara, Garilleti & Goffinet
Orthotrichum sordidum Sull. & Lesq. $\equiv$ *Lewinskya sordida* (Sull. & Lesq.) F.Lara, Garilleti & Goffinet
Orthotrichum speciosum Nees $\equiv$ *Lewinskya speciosa* (Nees) F.Lara, Garilleti & Goffinet
Orthotrichum spjutii D.H.Norris & Vitt $\equiv$ *Lewinskya spjutii* (D.H.Norris & Vitt) F.Lara, Garilleti & Goffinet
Orthotrichum striatum Hedw. $\equiv$ *Lewinskya striata* (Hedw.) F.Lara, Garilleti & Goffinet
Orthotrichum tenellum Bruch ex Brid. - excluded
Oxystegus daldinianus (De Not.) Köckinger, O. Werner & Ros $\equiv$ *Chionoloma daldinianum* (De Not.) M.Alonso, M.J.Cano & J.A.Jiménez
Oxystegus maragniphyllus R.H.Zander & Eckel $\equiv$ *Chionoloma maragniphyllum* (R.H.Zander & Eckel) W.R.Buck & Goffinet
Oxystegus spiralis (Grout) H.A.Crum & L.E.Anderson = *Chionoloma stenocarpum* (Thér.) M.Alonso, M.J.Cano & J.A.Jiménez
Oxystegus tenuirostris (Hook. & Taylor) A.J.E.Sm. $\equiv$ *Chionoloma tenuirostre* (Hook. & Taylor) M.Alonso, M.J.Cano & J.A.Jiménez
Palustriella commutata (Hedw.) Ochyra - excluded⁴⁰¹
Papillaria nigrescens (Sw. ex Hedw.) A.Jaeger $\equiv$ *Meteorium nigrescens* (Sw. ex Hedw.) Dozy & Molk.
Paraleptodontium recurvifolium (Taylor) D.G.Long $\equiv$ *Chionoloma recurvifolium* (Taylor) M.Alonso, M.J.Cano & J.A.Jiménez
Phascum cuspidatum Schreb. ex Hedw. = *Tortula acaulon* (With.) R.H.Zander
Phascum floerkeanum F.Weber & D.Mohr $\equiv$ *Microbryum floerkeanum* (F.Weber & D.Mohr) Schimp.
Phascum hyalinotrichum Cardot & Thér. $\equiv$ *Stegonia hyalinotricha* (Cardot & Thér.) R.H.Zander

³⁹⁹ See Lewinsky-Haapasaari & Norris (1998).

⁴⁰⁰ See Vigalondo et al. (2019).

⁴⁰¹ See Hedenäs (2014c).

Phascum vlassovii Laz. $\equiv$ *Tortula vlassovii* (Laz.) Ros & Herrnst.
Philonotis fontana (Hedw.) Brid. var. *americana* (Dism.) Flowers $\equiv$ *P. americana* Dism.
Philonotis fontana (Hedw.) Brid. var. *caespitosa* (Jur.) Schimp. = *P. fontana* (Hedw.) Brid.⁴⁰²
Philonotis fontana (Hedw.) Brid. var. *pumila* (Turner) Brid. = *P. tomentella* Molendo
Philonotis glaucescens (Hornsch.) Broth. = *P. uncinata* (Schwägr.) Brid.
Philonotis gracillima Ångstr. = *P. uncinata* (Schwägr.) Brid.
Philonotis muhlenbergii (Schwägr.) Brid. = *P. marchica* (Hedw.) Brid.
Physcomitrella patens (Hedw.) Bruch & Schimp. $\equiv$ *Physcomitrium patens* (Hedw.) Mitt.
Physcomitrella readeri (Müll.Hal.) I.G.Stone & G.A. M.Scott $\equiv$ *Physcomitrium readeri* Müll.Hal.
Physcomitridium readeri (Müll.Hal.) G.Roth $\equiv$ *Physcomitrium readeri* Müll.Hal.
Physcomitrium washingtoniense H.A.Crum & L.E. Anderson = *P. pyriforme* (Hedw.) Brid.
Plagiobryoides brachyneura (Kindb.) J.R.Spence $\equiv$ *Bryum brachyneuron* Kindb.
Plagiobryoides cellularis (Hook.) J.R.Spence $\equiv$ *Bryum cellulare* Hook.
Plagiobryoides incrassatolimbata (Cardot) J.R.Spence $\equiv$ *Bryum incrassatolimbatum* Cardot
Plagiobryoides renauldii (Röll) J.R.Spence $\equiv$ *Bryum renauldii* Röll - excluded⁴⁰³
Plagiobryoides vinosula (Cardot) J.R.Spence $\equiv$ *Brachymenium vinosulum* Cardot
Plagiomnium affine (Blandow) T.J.Kop. - excluded⁴⁰⁴
Plagiomnium carolinianum (L.E.Anderson) T.J. Kop. = *P. rhynchophorum* (Harv.) T.J.Kop.
Plagiomnium medium (Bruch & Schimp.) T.J.Kop. var. *curvatulum* (Lindb.) H.A.Crum & L.E. Anderson $\equiv$ *P. curvatulum* (Lindb.) Schljakov
Plagiopus alpinus (Schwägr.) Hedenäs = *P. serratus* Brid.
Plagiopus oederi (Brid.) Limpr. var. *alpinus* (Schwägr.) Dalla Torre & Sarnth. = *P. serratus* Brid.
Plagiothecium handelii Broth. $\equiv$ *Ortholimnobia handelii* (Broth.) Schröck & J.T.Wynns

⁴⁰² See Hodgetts et al. (2020).⁴⁰³ See Toren et al. (2024).⁴⁰⁴ See McIntosh & Newmaster (2014).

Plagiothecium platyphyllum Mönk. = *P. sylvaticum* (Brid.) Schimp.
Plagiobryum austriacum (Köckinger, Holyoak & Suanjak) J.R.Spence & Brinda $\equiv$ *Bryum austriacum* Köckinger, Holyoak & Suanjak
Platydictya confervoides (Brid.) H.A.Crum $\equiv$ *Serpoleskea confervoides* (Brid.) Loeske
Platydictya minutissima (Sull. & Lesq.) H.A.Crum $\equiv$ *Serpoleskea minutissima* (Sull. & Lesq.) W.R. Buck & B.H.Allen
Platydictya subtilis (Hedw.) H.A.Crum $\equiv$ *Pseudoamblystegium subtile* (Hedw.) Vanderp. & Hedenäs
Platyhypnidium pringlei (Cardot) Broth. $\equiv$ *Donrichardsia pringlei* (Cardot) Huttunen & Ignatov
Platyhypnidium riparioides sensu auct. Amer. non (Hedw.) Dixon = *Rhynchostegium aquaticum* Spruce
Plaubelia sprengelii (Schwägr.) R.H.Zander var. *stomatodonta* (Cardot) R.H.Zander $\equiv$ *P. stomatodonta* (Cardot) R.H.Zander
Pleuridium californicum Grout = *P. acuminatum* Lindb.⁴⁰⁵
Pleuridium palustre (Bruch & Schimp.) Bruch & Schimp. $\equiv$ *Cleistocarpidium palustre* (Bruch & Schimp.) Ochrya & Bedn.-Ochrya
Pleurochaete squarrosa (Brid.) Lindb. - excluded
Pohlia bolanderi (Lesq.) Broth. var. *seriata* A.J.Shaw = *P. bolanderi* (Lesq.) Broth.
Pohlia elongata Hedw. var. *greenii* (Brid.) A.J.Shaw = *P. greenii* Brid.
Polytrichastrum alpinum (Hedw.) G.L.Sm. var. *fragile* (Bryhn) D.G.Long $\equiv$ *P. fragile* (Bryhn) Schljakov
Polytrichastrum appalachianum (L.E.Anderson) G.L. Sm.Merr. $\equiv$ *Polytrichum appalachianum* L.E. Anderson
Polytrichastrum formosum (Hedw.) G.L.Sm. $\equiv$ *Polytrichum formosum* Hedw.
Polytrichastrum formosum (Hedw.) G.L.Sm. var. *densifolium* (Wilson ex Mitt.) Z.Iwats. & Nog. $\equiv$ *Polytrichum densifolium* Wilson ex Mitt.⁴⁰⁶
Polytrichastrum longisetum (Sw. ex Brid.) G.L.Sm. $\equiv$ *Polytrichum longisetum* Sw. ex Brid.
Polytrichastrum ohioense (Renauld & Cardot) G.L. Sm. $\equiv$ *Polytrichum ohioense* Renauld & Cardot

⁴⁰⁵ See Yip (2000).⁴⁰⁶ See Ivanova & Ignatov (2017).

- Polytrichastrum pallidisetum* (Funck) G.L.Sm. ≡ *Polytrichum pallidisetum* Funck
- Polytrichastrum sexangulare* (Flörke ex Brid.) G.L.Sm. var. *vulcanicum* (C.E.O.Jensen) G.L.Sm. Merr. = *P. sphaerothecium* (Besch.) J.-P.Frahm⁴⁰⁷
- Polytrichum commune* Hedw. var. *jensenii* (I.Hagen) Mönk. ex Frye ≡ *P. jensenii* I.Hagen
- Polytrichum commune* Hedw. var. *perigoniale* (Michx.) Hampe ≡ *P. perigoniale* Michx.
- Polytrichum formosum* Hedw. var. *densifolium* (Wilson ex Mitt.) Osada ≡ *P. densifolium* Wilson ex Mitt.
- Polytrichum lyallii* (Mitt.) Kindb. ≡ *Polytrichastrum lyallii* (Mitt.) G.L.Sm.
- Polytrichum papillatum* (G.L.Sm.) L.E.Anderson, H.A.Crum & W.R.Buck ≡ *Polytrichastrum papillatum* G.L.Sm.
- Polytrichum sphaerothecium* (Besch.) Müll.Hal. ≡ *Polytrichastrum sphaerothecium* (Besch.) J.-P.Frahm
- Porotrichum bigelovii* (Sull.) Kindb. ≡ *Dannorisia bigelovii* (Sull.) Enroth⁴⁰⁸
- Porotrichum vancouveriense* (Kindb.) H.A.Crum ≡ *Bryolawtonia vancouveriensis* (Kindb.) D.H.Norris & Enroth
- Pottia arizonica* Wareham = *Microbryum starckeianum* (Hedw.) R.H.Zander
- Pottia arizonica* Wareham var. *mucronulata* Wareham = *Microbryum muticum* (Venturi) Cl.Schneid., Th.Schneid. & Mahévas
- Pottia bryoides* (Dicks.) Mitt. ≡ *Tortula protobryoides* R.H.Zander
- Pottia davalliana* (Sm.) C.E.O.Jensen ≡ *Microbryum davallianum* (Sm.) R.H.Zander
- Pottia intermedia* (Turner) Fürnr. = *Tortula caucasica* Lindb.
- Pottia lanceolata* (Hedw.) Müll.Hal. = *Tortula lindbergii* Kindb. ex Broth.
- Pottia nevadensis* Cardot & Thér. ≡ *Tortula nevadensis* (Cardot & Thér.) R.H.Zander
- Pottia starckeanum* (Hedw.) Müll.Hal. ≡ *Microbryum starckeanum* (Hedw.) R.H.Zander
- Pottia truncata* (Hedw.) Bruch & Schimp. ≡ *Tortula truncata* (Hedw.) Mitt.
- Pottia wilsonii* (Hook.) Bruch & Schimp. ≡ *Tortula wilsonii* (Hook.) R.H.Zander - excluded⁴⁰⁹
- Pseudoblindia* Fedosov, M.Stech & Ignatov = *Kiaeria* I.Hagen⁴¹⁰
- Pseudoblindia falcata* (Hedw.) Fedosov, M.Stech & Ignatov ≡ *Kiaeria falcata* (Hedw.) I.Hagen
- Pseudocalliergon angustifolium* Hedenäs ≡ *Drepanocladus angustifolius* (Hedenäs) Hedenäs & Rosborg
- Pseudocalliergon brevifolium* (Lindb.) Hedenäs ≡ *Drepanocladus brevifolius* (Lindb.) Warnst.
- Pseudocalliergon trifarium* (F.Weber & D.Mohr) Loeske ≡ *Drepanocladus trifarius* (F.Weber & D.Mohr) Broth.
- Pseudocalliergon turgescens* (T.Jensen) Loeske ≡ *Drepanocladus turgescens* (T.Jensen) Broth.
- Pseudocrossidium aureum* (E.B.Bartram) R.H.Zander = *P. arenicola* (Dusén) M.J.Cano
- Pseudocrossidium crinitum* (Schultz) R.H.Zander - excluded⁴¹¹
- Pseudocrossidium revolutum* (Brid.) R.H.Zander - excluded⁴¹²
- Pseudocrossidium revolutum* (Brid.) R.H.Zander var. *obtusulum* (Lindb.) B.C.Tan, R.H.Zander & T.Taylor ≡ *P. obtusulum* (Lindb.) H.A.Crum & L.E.Anderson
- Pseudoleskea atricha* (Kindb.) Kindb. ≡ *Lescuraea atricha* (Kindb.) E.Lawton
- Pseudoleskea baileyi* Best & Grout ≡ *Lescuraea baileyi* (Best & Grout) E.Lawton
- Pseudoleskea incurvata* (Hedw.) Loeske ≡ *Lescuraea incurvata* (Hedw.) E.Lawton
- Pseudoleskea incurvata* (Hedw.) Loeske var. *gigantea* (E.Lawton) H.A.Crum, Steere & L.E.Anderson ≡ *Lescuraea incurvata* (Hedw.) E.Lawton var. *gigantea* E.Lawton
- Pseudoleskea incurvata* (Hedw.) Loeske var. *tenuiretis* (Culm.) H.A.Crum, Steere & L.E.Anderson ≡ *Lescuraea incurvata* (Hedw.) E.Lawton var. *tenuiretis* (Culm.) E.Lawton
- Pseudoleskea patens* (Lindb.) Kindb. ≡ *Lescuraea patens* (Lindb.) Arnell & C.E.O.Jensen
- Pseudoleskea radicata* (Mitt.) Macoun & Kindb. var. *radicata* ≡ *Lescuraea radicata* (Mitt.) Mönk. var. *radicata*

⁴⁰⁷ See Ivanova & Ignatov (2017).⁴⁰⁸ See Enroth et al. (2019).⁴⁰⁹ See Zander (2007f).⁴¹⁰ See Brinda & Fedosov (2023).⁴¹¹ See Cano et al. (2016).⁴¹² See Zander (2007e).

Pseudoleskea radicata (Mitt.) Macoun & Kindb. var. *compacta* Best $\equiv$ *Lescuraea radicata* (Mitt.) Mönk. var. *compacta* (Best) E.Lawton

Pseudoleskea radicata (Mitt.) Macoun & Kindb. var. *denudata* (Kindb.) Wijk & Margad. $\equiv$ *Lescuraea radicata* (Mitt.) Mönk. var. *denudata* (Kindb.) E.Lawton

Pseudoleskea radicata (Mitt.) Macoun & Kindb. var. *pallida* (Best) H.A.Crum, Steere & L.E.Anderson $\equiv$ *Lescuraea radicata* (Mitt.) Mönk. var. *pallida* (Best) E.Lawton

Pseudoleskea saviana (DeNot.) Latzel $\equiv$ *Lescuraea saviana* (De Not.) E.Lawton

Pseudoleskea stenophylla Renauld & Cardot $\equiv$ *Lescuraea stenophylla* (Renauld & Cardot) Kindb.

Pseudoleskea tribulosa Shevock & W.R.Buck $\equiv$ *Lescuraea tribulosa* (Shevock & W.R.Buck) W.R. Buck & Goffinet

Pseudoleskeella sibirica (Arnell) P.S.Wilson & D.H. Norris = *P. rupestris* (Berggr.) Hedenäs & L. Söderstr.

Pseudosymblypharis angustata (Mitt.) Hilp. $\equiv$ *Chionoloma angustatum* (Mitt.) M.Menzel

Pseudotaxiphyllum distichaceum (Mitt.) Z.Iwats. $\equiv$ *Longiella distichacea* (Mitt.) J.T.Wynns - excluded⁴¹³

Pseudotaxiphyllum distichaceum sensu auct. Amer. non (Mitt.) Z.Iwats. = *P. subfalcatum* (Austin) X.Q.Li, Q.Zuo & Y.F.Wang

Pseudotaxiphyllum homomallifolium (Redf.) Ireland $\equiv$ *Redfearnia homomallifolia* (Redf.) J.T.Wynns

Pterogonium gracile (Hedw.) Sm. $\equiv$ *Nogopterium gracile* (Hedw.) Crosby & W.R.Buck

Pterygoneurum californicum H.A.Crum = *P. subsessile* (Brid.) Jur.

Ptychomitrium leibergii Best = *P. sinense* (Mitt.) A. Jaeger

Ptychostomum acutiforme (Limpr. ex Ryan) J.R. Spence $\equiv$ *Bryum acutiforme* Limpr. ex Ryan.

Ptychostomum archangelicum (Bruch & Schimp.) J. R.Spence $\equiv$ *Bryum archangelicum* Bruch & Schimp.

Ptychostomum arcticum (R.Br.) J.R.Spence $\equiv$ *Bryum arcticum* R.Br.

Ptychostomum austriacum (Köckinger, Holyoak & Suanjak) D.Bell & Holyoak $\equiv$ *Bryum austriacum* Köckinger, Holyoak & Suanjak

Ptychostomum axel-blyttii (H.Philb.) J.R.Spence = *Bryum calophyllum* R.Br.

Ptychostomum badium (Brid.) J.R.Spence = *Bryum imbricatum* Müll.Hal.

Ptychostomum bimum (Schreb.) J.R.Spence $\equiv$ *Bryum bimum* (Schreb.) Turner

Ptychostomum calophyllum (R.Br.) J.R.Spence $\equiv$ *Bryum calophyllum* R.Br.

Ptychostomum cernuum (Hedw.) Hornsch. = *Bryum uliginosum* (Brid.) Bruch & Schimp.

Ptychostomum compactum Hornsch. = *Bryum algovicum* Sendtn. ex Müll.Hal.

Ptychostomum creberrimum (Taylor) J.R.Spence & H.P.Ramsay $\equiv$ *Bryum creberrimum* Taylor

Ptychostomum cryophilum (Mårtensson) J.R.Spence $\equiv$ *Bryum cryophilum* Mårtensson

Ptychostomum cyclophyllum (Schwägr.) J.R.Spence $\equiv$ *Bryum cyclophyllum* Schwägr.

Ptychostomum inclinatum (Sw. ex Brid.) J.R.Spence = *Bryum amblyodon* Müll.Hal.

Ptychostomum intermedium (Brid.) J.R.Spence $\equiv$ *Bryum intermedium* (Brid.) Turton

Ptychostomum knowltonii (Barnes) J.R.Spence $\equiv$ *Bryum knowltonii* Barnes

Ptychostomum lonchocaulon (Müll.Hal.) J.R.Spence $\equiv$ *Bryum lonchocaulon* Müll.Hal.

Ptychostomum longisetum (Blandow ex Schwägr.) J.R. Spence $\equiv$ *Bryum longisetum* Blandow ex Schwägr.

Ptychostomum marratii (Hook. & Wilson) J.R. Spence $\equiv$ *Bryum marratii* Hook. & Wilson

Ptychostomum meesioides (Kindb.) J.R.Spence $\equiv$ *Bryum meesioides* Kindb.

Ptychostomum neodamense (Itzigs.) J.R.Spence $\equiv$ *Bryum neodamense* Itzigs.

Ptychostomum nitidulum (Lindb.) J.R.Spence $\equiv$ *Bryum nitidulum* Lindb.

Ptychostomum pacificum J.R.Spence & Shevock $\equiv$ *Bryum pacificum* (J.R.Spence & Shevock) W.R. Buck & Goffinet

Ptychostomum pallens (Sw.) J.R.Spence $\equiv$ *Bryum pallens* Sw.

Ptychostomum pallescens (Schleich. ex Schwägr.) J.R. Spence $\equiv$ *Bryum pallescens* Schleich. ex Schwägr.

Ptychostomum pendulum Hornsch. = *Bryum algovicum* Sendtn. ex Müll.Hal.

Ptychostomum pseudotriquetrum (Hedw.) J.R.Spence & H.P.Ramsay ex Holyoak & N.Pedersen $\equiv$

⁴¹³ See Li et al. (2015) and Wynns (2020).

Bryum pseudotriquetrum (Hedw.) G.Gaertn., B. Meyer & Scherb.
Ptychostomum reedii (H.Rob.) J.R.Spence $\equiv$ *Bryum reedii* H.Rob.
Ptychostomum rutilans (Brid.) J.R.Spence $\equiv$ *Bryum rutilans* Brid.
Ptychostomum salinum (I.Hagen ex Limpr.) J.R. Spence $\equiv$ *Bryum salinum* I.Hagen ex Limpr.
Ptychostomum schleicheri (Schwägr.) J.R.Spence $\equiv$ *Bryum schleicheri* Schwägr.
Ptychostomum subneodamense (Kindb.) J.R.Spence $\equiv$ *Bryum subneodamense* Kindb.
Ptychostomum turbinatum (Hedw.) J.R.Spence $\equiv$ *Bryum turbinatum* (Hedw.) Turner
Ptychostomum warneum (Schwägr. ex Steud.) J.R. Spence $\equiv$ *Bryum warneum* (Schwägr. ex Steud.) Brid.
Ptychostomum weigeli (Biehler) J.R.Spence $\equiv$ *Bryum weigeli* Biehler
Ptychostomum wrightii (Sull.) J.R.Spence $\equiv$ *Bryum wrightii* Sull.
Pylaisia condensata (Mitt.) A.Jaeger - excluded⁴¹⁴
Pylaisiella intricata (Hedw.) Grout $\equiv$ *Pylaisia intricata* (Hedw.) Schimp.
Pylaisiella polyantha (Hedw.) Grout $\equiv$ *Pylaisia polyantha* (Hedw.) Schimp.
Pylaisiella selwynii (Kindb.) H.A.Crum, Steere & L. E.Anderson $\equiv$ *Pylaisia selwynii* Kindb.
Pylaisiella steerei Ando & Higuchi $\equiv$ *Pylaisia steerei* (Ando & Higuchi) Ignatov
Racomitrium aquaticum (Brid. ex Schrad.) Brid. - excluded
Racomitrium aquaticum sensu auct. Amer. non (Brid. ex Schrad.) Brid. = *R. rysardii* Bedn.-Ochyra⁴¹⁵
Rhynchostegium riparioides sensu auct. Amer. non (Hedw.) Cardot = *R. aquaticum* Spruce
Rhytidiadelphus triquetrus (Hedw.) Warnst. $\equiv$ *Hylocomiadelphus triquetrus* (Hedw.) Ochyra & Stebel
Roellia roellii (Broth.) A.L.Andrews ex H.A.Crum $\equiv$ *Roellobryon roellii* (Broth.) Ochyra
Rosulabryum andersonii (H.A.Crum) J.R.Spence $\equiv$ *Brachymenium andersonii* H.A.Crum

Rosulabryum andicola (Hook.) Ochyra $\equiv$ *Bryum andicola* Hook.
Rosulabryum biforme (R.S.Williams) J.R.Spence $\equiv$ *Bryum biforme* R.S.Williams
Rosulabryum bornholmense (Wink. & R.Ruthe) J.R. Spence $\equiv$ *Bryum bornholmense* Wink. & R. Ruthe
Rosulabryum canariense (Brid.) Ochyra $\equiv$ *Bryum canariense* Brid.
Rosulabryum capillare (Hedw.) J.R.Spence $\equiv$ *Bryum capillare* Hedw.
Rosulabryum elegans (Nees ex Brid.) Ochyra $\equiv$ *Bryum elegans* Nees ex Brid.
Rosulabryum erythroloma (Kindb.) J.R.Spence $\equiv$ *Bryum erythroloma* (Kindb.) Syed
Rosulabryum flaccidum (Brid.) J.R.Spence $\equiv$ *Bryum flaccidum* Brid.
Rosulabryum gemmascens (Kindb.) J.R.Spence = *Bryum sanguilentum* Renauld & Cardot
Rosulabryum laevifilum (Syed) Ochyra = *Bryum moravicum* Podp.
Rosulabryum pseudocapillare (Besch.) Ochyra $\equiv$ *Bryum pseudocapillare* Besch.
Rosulabryum rubens (Mitt.) J.R.Spence $\equiv$ *Bryum rubens* Mitt.
Rosulabryum sanguilentum (Renauld & Cardot) J.R. Spence & Brinda $\equiv$ *Bryum sanguilentum* Renauld & Cardot
Rosulabryum torquescens (Bruch & Schimp.) J.R. Spence $\equiv$ *Bryum torquescens* Bruch & Schimp.
Sanionia georgicouncinata (Müll.Hal.) Ochyra & Hedenäs - excluded
Sanionia georgicouncinata sensu auct. Amer. non (Müll.Hal.) Ochyra & Hedenäs = *S. nivalis* Hedenäs⁴¹⁶
Sanionia uncinata (Hedw.) Loeske var. *symmetrica* (Renauld & Cardot) H.A.Crum & L.E.Anderson $\equiv$ *S. symmetrica* (Renauld & Cardot) Wheldon
Sarmentypnum exannulatum (Schimp.) Hedenäs $\equiv$ *Warnstorfia exannulata* (Schimp.) Loeske
Sarmentypnum pseudosarmentosum (Cardot & Thér.) Hedenäs $\equiv$ *Warnstorfia pseudosarmentosa* (Cardot & Thér.) Tuom. & T.J.Kop.
Sarmentypnum sarmentosum (Wahlenb.) Tuom. & T.J.Kop. $\equiv$ *Warnstorfia sarmentosa* (Wahlenb.) Hedenäs

⁴¹⁴ See Ignatova et al. (2020b).

⁴¹⁵ See Bednarek-Ochyra (2000).

⁴¹⁶ See Hedenäs (2012).

Sarmentypnum trichophyllum (Warnst.) Hedenäs = *Warnstorfia trichophylla* (Warnst.) Tuom. & T.J. Kop.
Sarmentypnum tundrae (Arnell) Hedenäs = *Warnstorfia tundrae* (Arnell) Loeske
Schistidium apocarpum (Hedw.) Bruch & Schimp. subsp. *canadense* (Dupr.) H.H.Blom ex B.H. Allen & Pursell = *S. canadense* (Dupr.) Ignatova & H.H.Blom
Schofieldiella micans (Mitt.) W.R.Buck = *Hageniella micans* (Mitt.) B.C.Tan & Y.Jia
Scleropodium cespitans (Müll.Hal.) L.F.Koch var. *sublaeve* (Renauld & Cardot) Wijk & Margad. = *S. cespitans* (Müll.Hal.) L.F.Koch⁴¹⁷
Scleropodium touretii (Brid.) L.F.Koch var. *colpo-phyllum* (Sull.) E.Lawton ex H.A.Crum = *S. touretii* (Brid.) L.F.Koch
Scopelophila cataractae (Mitt.) Broth. = *Merceyopsis cataractae* (Mitt.) Brinda, Ignatov & Fedosov
Sematophyllum subpinnatum (Brid.) E.Britton = *Brittonodoxa subpinnata* (Brid.) W.R.Buck, P.E. A.S.Câmara & Carv.-Silva
Sphagnum andrusii (H.A.Crum) Flatberg = *S. miyabe-
 anum* Warnst.
Sphagnum atlanticum R.E.Andrus = *S. torreyanum* Sull.⁴¹⁸
Sphagnum bartlettianum Warnst. = *S. rubellum* Wilson⁴¹⁹
Sphagnum bergianum R.E.Andrus = *S. subfulvum* Sjörs⁴²⁰
Sphagnum brevifolium (Lindb.) Röhl = *S. fallax* (H. Klinggr.) H.Klinggr.⁴²¹
Sphagnum crispum R.E.Andrus = *S. subsecundum* Nees
Sphagnum denticulatum Brid. - excluded
Sphagnum fimbriatum Wilson subsp. *concinnum* (Berggr.) Flatberg & Frisvoll = *S. concinnum* (Berggr.) Flatberg⁴²²
Sphagnum henryense Warnst. = *S. palustre* L.⁴²³
Sphagnum inundatum Russow - excluded⁴²⁴

Sphagnum isoviitae Flatberg = *S. fallax* (H.Klinggr.) H.Klinggr.⁴²⁵
Sphagnum macrophyllum Brid. var. *burinense* Maass = *S. macrophyllum* Brid.
Sphagnum macrophyllum Brid. var. *floridanum* Austin = *S. cribrosum* Lindb.
Sphagnum majus (Russow) C.E.O.Jensen ssp. *norvegicum* Flatberg = *S. majus* (Russow) C.E.O.Jensen
Sphagnum mcqueenii R.E.Andrus = *S. torreyanum* Sull.
Sphagnum nitidum Warnst. = *S. subfulvum* Sjörs
Sphagnum rubroflexuosum R.E.Andrus = *S. flexuosum* Dozy & Molk.⁴²⁶
Sphagnum schofieldii H.A.Crum = *S. quinquefarium* (Lindb. ex Braithw.) Warnst.
Sphagnum sitchense R.E.Andrus = *S. capillifolium* (Ehrh.) Hedw.⁴²⁷
Sphagnum subobesum Warnst. = *S. miyabe-
 anum* Warnst.⁴²⁸
Sphagnum subsecundum Nees var. *andrusii* H.A. Crum = *S. miyabe-
 anum* Warnst.
Sphagnum subtile (Russow) Warnst. = *S. capillifolium* (Ehrh.) Hedw.⁴²⁹
Sphagnum viride Flatberg = *S. cuspidatum* Ehrh. ex Hoffm.⁴³⁰
Sphagnum wilfii H.A.Crum = *S. rubellum* Wilson⁴³¹
Splachnum luteum Hedw. var. *melanocaulon* Wahlenb. = *Splachnum melanocaulon* (Wahlenb.) Schwägr.
Steerecleus serrulatus (Hedw.) H.Rob. = *Rhynchostegium serrulatum* (Hedw.) Austin
Straminergon stramineum (Dicks. ex Brid.) Hedenäs = *Warnstorfia straminea* (Dicks. ex Brid.) W.R. Buck & Goffinet
Streptopogon amphidiaceus (Müll.Hal.) M.T.Gallego & M.J.Cano = *Syntrichia amphidiacea* (Müll. Hal.) R.H.Zander
Syntrichia cainii (H.A.Crum & L.E.Anderson) R.H. Zander = *S. norvegica* F.Weber var. *cainii* (H.A. Crum & L.E.Anderson) W.A.Kramer
Syntrichia papillosissima (Copp.) Loeske = *S. ruralis* (Hedw.) F.Weber & D.Mohr subsp. *hirsuta* (Venturi) Düll

⁴¹⁷ See Carter (2014).⁴¹⁸ See Shaw et al. (2009).⁴¹⁹ See Imwattana et al. (2024).⁴²⁰ See Shaw et al. (2009).⁴²¹ See Duffy et al. (2020).⁴²² See Shaw et al. (2012a).⁴²³ See Karlin et al. (2010).⁴²⁴ See Shaw et al. (2012b).⁴²⁵ See Duffy et al. (2020).⁴²⁶ See Duffy et al. (2020).⁴²⁷ See Imwattana et al. (2024).⁴²⁸ See Shaw et al. (2015).⁴²⁹ See Imwattana et al. (2024).⁴³⁰ See Robinson et al. (2024).⁴³¹ See Imwattana et al. (2024).

- Tetraplodon angustatus* (Hedw.) Bruch & Schimp. = *Voitia angustata* (Hedw.) W.R.Buck & Goffinet
Tetraplodon mnioides (Hedw.) Bruch & Schimp. = *Voitia mnioides* (Hedw.) W.R.Buck & Goffinet
Tetraplodon pallidus I.Hagen = *Voitia pallida* (I.Hagen) W.R.Buck & Goffinet
Tetraplodon paradoxus (R.Br.) I.Hagen = *Voitia paradoxa* (R.Br.) W.R.Buck & Goffinet
Tetraplodon urceolatus (Hedw.) Bruch & Schimp. = *Voitia urceolata* (Hedw.) W.R.Buck & Goffinet
Tetrodontium brownianum (Dicks.) Schwägr. var. *ovatum* (Funck) Wijk & Margad. = *T. ovatum* (Funck) Schwägr.
Thamnobryum alleghaniense (Müll.Hal.) Nieuwl. = *T. subserratum* (Hook. ex Harv.) Nog. & Z. Iwats.
Thuidium delicatulum (Hedw.) Schimp. var. *radicans* (Kindb.) H.A.Crum, Steere & L.E.Anderson = *T. assimile* (Mitt.) A.Jaeger
Thuidium philibertii Limpr. = *T. assimile* (Mitt.) A. Jaeger
Timmia megapolitana Hedw. var. *bavarica* (Hessl.) Brid. = *T. bavarica* Hessl.
Timmia norvegica J.E.Zetterst. var. *excurrens* Bryhn = *T. comata* Lindb. & Arnell
Torrentaria riparioides (Hedw.) Ochyra – excluded
Tortella inclinata (R.Hedw.) Limpr. var. *densa* (Lorentz & Molendo) Limpr. = *T. densa* (Lorentz & Molendo) Crundw. & Nyholm
Tortella tortelloides (S.W.Greene) H.Rob. = *T. alpicola* Dixon
Tortella tortuosa (Hedw.) Limpr. var. *arctica* (Arnell) Broth. = *T. arctica* (Arnell) Crundw. & Nyholm
Tortella tortuosa (Hedw.) Limpr. var. *fragilifolia* (Jur.) Limpr. = *T. nidita* (Lindb.) Broth. var. *fragilifolia* (Jur.) Köckinger & Hedenäs
Tortula ammonsiana H.A.Crum & L.E.Anderson = *Syntrichia ammonsiana* (H.A.Crum & L.E.Anderson) Ochyra
Tortula amphidiacea (Müll.Hal.) Broth. = *Syntrichia amphidiacea* (Müll.Hal.) R.H.Zander
Tortula bartramii Steere = *Syntrichia bartramii* (Steere) R.H.Zander
Tortula cainii H.A.Crum & L.E.Anderson = *Syntrichia norvegica* F.Weber var. *cainii* (H.A.Crum & L.E.Anderson) W.A.Kramer
Tortula caninervis (Mitt.) Broth. = *Syntrichia caninervis* Mitt.
Tortula chisosa Magill, Delgad. & L.R.Stark = *Syntrichia chisosa* (Magill, Delgad. & L.R.Stark) R.H.Zander
Tortula fragilis Taylor = *Syntrichia fragilis* (Taylor) Ochyra
Tortula laevipila (Brid.) Schwägr. = *Syntrichia laevipila* Brid.
Tortula laevipila (Brid.) Schwägr. var. *meridionalis* (Schimp.) Wijk & Margad. = *Syntrichia laevipila* Brid.⁴³²
Tortula lanceola R.H.Zander = *T. lindbergii* Kindb. ex Broth.
Tortula latifolia Bruch ex Hartm. = *Syntrichia latifolia* (Bruch ex Hartm.) Huebener
Tortula modica R.H.Zander = *T. caucasica* Lindb.
Tortula norvegica (F.Weber) Wahlenb. ex Lindb. = *Syntrichia norvegica* F.Weber
Tortula obtusissima (Müll.Hal.) Mitt. = *Syntrichia obtusissima* (Müll.Hal.) R.H.Zander
Tortula pagorum (Milde) De Not. = *Syntrichia pagorum* (Milde) J.J.Amann
Tortula papillosa Wilson ex Spruce = *Syntrichia papillosa* (Wilson ex Spruce) Spruce
Tortula princeps De Not. = *Syntrichia princeps* (De Not.) Mitt.
Tortula rhizophylla (Sakurai) Z.Iwats. & K.Saito = *Chenia leptophylla* (Müll.Hal.) R.H.Zander
Tortula ruralis (Hedw.) G.Gaertn., B.Mey. & Scherb. = *Syntrichia ruralis* (Hedw.) F.Weber & D.Mohr
Tortula scotteri R.H.Zander & Steere = *Hilpertia velenovskyi* (Schiffn.) R.H.Zander
Tortula sinensis (Müll.Hal.) Broth. = *Syntrichia sinensis* (Müll.Hal.) Ochyra
Tortula stanfordensis Steere = *Hennediella stanfordensis* (Steere) Blockeel
Tortula virescens (De Not.) De Not. = *Syntrichia virescens* (De Not.) Boros
Trachybryum megaptilum (Sull.) W.B.Schofield = *Homalothecium megaptilum* (Sull.) H.Rob.
Trachyxiphium heteroicum (Cardot) W.R.Buck = *T. hypnaceum* (Müll.Hal.) W.R.Buck
Trematodon boasii W.B.Schofield = *T. asanoi* Tuzibe
Trichodon cylindricus (Hedw.) Schimp. var. *oblongus* (Lindb.) Podp. = *Trichodon oblongus* Lindb.
Trichostomopsis brevifolia E.B.Bartram = *T. australasiae* (Grev. & Hook.) H.Rob.

⁴³² See Gallego et al. (2004).

- Trichostomum arcticum* Kaal. = *Tortella spitsbergen-sis* (Bizot & Thér.) O.Werner, Köckinger & Ros
Trichostomum brittonianum R.H.Zander - excluded⁴³³
Trichostomum molariforme R.H.Zander = *T. portoricense* H.A.Crum & Steere
Trichostomum recurvifolium (Taylor) R.H.Zander ≡ *Chionoloma recurvifolium* (Taylor) M.Alonso, M.J.Cano & J.A.Jiménez
Trichostomum spirale Grout = *Chionoloma stenocarpum* (Thér.) M.Alonso, M.J.Cano & J.A.Jiménez
Trichostomum tenuirostre (Hook. & Taylor) Lindb. ≡ *Chionoloma tenuirostre* (Hook. & Taylor) M. Alonso, M.J.Cano & J.A.Jiménez
Trichostomum tenuirostre (Hook. & Taylor) Lindb. var. *gemmiparum* (Schimp.) R.H.Zander = *Chionoloma orthodontum* (Müll.Hal.) M.Alonso, M.J.Cano & J.A.Jiménez⁴³⁴
Tuerckheimia angustifolia (K.Saito) R.H.Zander = *T. svihlae* (E.B.Bartram) R.H.Zander
Ulota japonica (Sull. & Lesq.) Mitt. - excluded⁴³⁵
Ulota phyllantha Brid. ≡ *Plenogemma phyllantha* (Brid.) Sawicki, Plášek & Ochrya
Venturiella sinensis (Venturi) Müll.Hal. var. *angustiannulata* D.G.Griffin & Sharp ≡ *V. sinensis* (Venturi) Müll.Hal. subsp. *angustiannulata* (D. G.Griffin & Sharp) Pursell
Vinealobryum murrayae (Otnyukova) R.H.Zander = *Husnotiella fragilicuspis* (Broth.) J.A.Jiménez & M.J.Cano
Weissia andersoniana R.H.Zander = *W. ligulifolia* (E.B.Bartram) Grout
Weissia condensa (Voit) Lindb. - excluded⁴³⁶
Weissia flavescens (E.Britton) W.D.Reese = *Trichostomum brittonianum* R.H.Zander - excluded
Weissia glauca E.B.Bartram = *W. ligulifolia* (E.B. Bartram) Grout
Weissia hedwigii H.A.Crum = *W. brachycarpa* (Nees & Hornsch.) Jur.
Zygodon apiculatus Redf. = *Z. rupestris* Schimp. ex Lorentz
Zygodon menziesii (Schwägr.) Arn. ≡ *Codonoblepharon menziesii* Schwägr.
Zygodon viridissimus (Dicks.) Brid. var. *dentatus* Limpr. ≡ *Z. dentatus* (Limpr.) Breidl. ex Gams

⁴³³ See Zander (2007g).⁴³⁴ See Alonso-García et al. (2019).⁴³⁵ See Vitt (2014).⁴³⁶ See Zander (1993, 2007h).

Zygodon viridissimus (Dicks.) Brid. var. *rupestris* Lindb. ex C.Hartm. ≡ *Z. rupestris* Schimp. ex Lorentz

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Supplementary documents online:

Supplementary Table S1. Alphabetical list of genera, species, subspecies, varieties and forms of mosses from the continental United States and Canada and their familial affiliations.

Supplementary Table S2. Alphabetical list of families of mosses from the continental United States and Canada and their generic inclusions.

Supplementary Table S3. Alphabetical list of families of mosses from the continental United States and Canada and their ordinal affiliations.

Supplementary Table S4. Alphabetical list of orders of mosses from the continental United States and Canada and their familial inclusions.