

ANNOTATED CHECKLIST OF HUNGARIAN BRYOPHYTES

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The checklist presented below contains 629 bryophyte taxa in 199 genera, 2 species of hornworts in 2 genera, 141 species and 2 additional subspecies of liverworts in 50 genera and 483 species and 1 additional subspecies of mosses in 147 genera. It is the first inventory of Hungarian bryophytes in twenty years. Not all problems resulting from changes in taxonomy could be resolved yet, but the fields where further research is necessary are pointed out. Separate lists of excluded (46), doubtful (42) and recently added taxa (30) are provided. The annotations comment on taxonomic and nomenclatural changes, quote specimen details or contain otherwise relevant information.

Key words: bryophytes, checklist, Hungary

INTRODUCTION

This is the first attempt to prepare an up-dated checklist of all bryophyte taxa of Hungary, more than twenty years after the publication of the “Handbook of the Hungarian Bryoflora” (ORBÁN and VAJDA 1983). Since then, partly as a result of fieldwork and partly resulting from herbarium revision, several new species have been added to the Hungarian bryoflora. Other taxa, some reported in ORBÁN and VAJDA (1983) and many in numerous other papers as occurring in Hungary, are now considered to be absent from Hungary, due to the application of better descriptions of taxa or to the amendment of various errors, especially with respect to geography. The species concerned are listed in the appendices. A considerable number of taxonomic and nomenclatural changes have accumulated within the last two decades, and thus the need to replace the somewhat out-of-date ORBÁN and VAJDA (1983) by a modern checklist has been increasingly felt. The application of national and international legislation with respect to the conservation of nature must be founded on an inventory of species that reflects the present state. This kind of inventory is also a prerequisite for the preparation of a red data book of bryophytes satisfying modern criteria (IUCN 1994).

One of the most serious problems of an up-dated treatment of Hungarian bryophyte taxa lies in the difficulties of interpretation of old reports, in cases when the concepts of taxa have changed in the meantime. This concerns a considerable proportion of the Hungarian bryoflora. On the other hand, Hungarian bryology, fortunately, is in possession of a large body of herbarium specimens collected by

BOROS and VAJDA during long decades of the last century, and now to a large part housed in the bryophyte collections of Budapest (BP), Eger (EGR) and Szombathely (SZO), with vouchers for almost every one of the records published by these two outstanding personalities of Hungarian 20th century bryology. In principle, therefore, the problems due to progress in taxonomy can be overcome by herbarium revision. However, only few genera or species groups have been studied in this respect up to now (e.g. *Tortula* Sect. *Rurales*: TÓTH (1986, 1987), *Barbula*, *Didymodon*: GALAMBOS (1992), *Grimmia*: MAIER, PAPP and ERZBERGER, unpubl., *Hedwigia*, *Dicranum tauricum* / *viride*, *Ditrichum crispatisimum* / *flexicaule*, *Funaria muhlenbergii* / *pulchella*: ERZBERGER (1996, 1999, 2001, 2002), *Pohlia* Sect. *Pohliella*: ERZBERGER (in press), *Sphagnum*: SZURDOKI (2003)). Especially some large and/or difficult genera like *Bryum*, *Racomitrium* and *Schistidium* are in bad need of revision, and our results with respect to these are far from definite. Fortunately, on the other hand, Hungarian specimens have been included in worldwide or European revisions of some genera, e.g. *Aloina* (DELGADILLO 1975), *Grimmia* (MUÑOZ and PANDO 2000), *Schistidium* (BLOM 1996), *Seligeria* (GOS and OCHYRA 1994) and the species of the *Calliergon-Scorpidium-Drepanocladus* complex (HEDENÄS 2003). This means a substantial contribution to the solution of the problems outlined above.

In order to facilitate future research and as a first step towards a specimen-based Hungarian flora, we quote specimen details (herbarium, inventory number, locality, date and collector) for virtually all taxa that are known from a single locality or a few sites only.

The taxonomy of hornworts and liverworts follows the recently published checklists of GROLLE and LONG (2000) and SÖDERSTRÖM *et al.* (2002). For mosses, no comparable comprehensive modern taxonomic treatment is available, therefore, in general, we follow CORLEY *et al.* (1981) and CORLEY and CRUNDWELL (1991), with the exception of some genera listed below together with the publications on which we rely (Table 1). We have not adopted the more radical changes proposed by ZANDER (1993) in Pottiaceae and HEDENÄS (2003) in Amblystegiaceae and other pleurocarpous mosses, because, contrary to BLOCKEEL and LONG (1998), we feel that perhaps more research is needed to corroborate these concepts. In the interest of nomenclatural stability, we rather followed the more moderate amendments of nomenclature published in several German reference works (LUDWIG *et al.* 1996, KOPERSKI *et al.* 2000, NEBEL and PHILIPPI 2000, 2001).

For the preparation of the checklist, published reports on the occurrence of taxa in Hungary were evaluated from the following main sources, with critical reference to specimens where appropriate: BOROS (1968), ORBÁN and VAJDA

Table 1. Taxonomic references for some moss genera.

<i>Aloina</i>	DELGADILLO (1975)
<i>Bryum</i>	HODGETTS (2001)
<i>Dichodontium</i>	WERNER (2002)
<i>Ditrichum</i>	FRISVOLL (1985), ERZBERGER (2001)
<i>Drepanocladus aduncus</i> group	HEDENÄS (2003)
<i>Grimmia</i>	GREVEN (1995), MAIER (2002a, b), MAIER and GEISSLER (1995), MUÑOZ (1998a, b), MUÑOZ and PANDO (2000)
<i>Mnium</i>	KOPONEN (1994)
<i>Orthotrichum</i>	LEWINSKY (1993), LEWINSKY-HAAPASAARI (1998), LUDWIG <i>et al.</i> (1996), MAZIMPAKA <i>et al.</i> (2000), VITT (1973)
<i>Plagiothecium</i>	MASTRACCI and SAUER (2001)
<i>Pterygoneurum</i>	CANO <i>et al.</i> (1994), FREY <i>et al.</i> (1990), PÓCS (1999), SEGARRA <i>et al.</i> (1998)
<i>Racomitrium</i>	FRISVOLL (1983), BEDNAREK-OCHYRA (1995)
<i>Schistidium</i>	BLOM (1996, 1998)
<i>Tortula</i>	NEBEL and HEINRICHS (2000), TÓTH (1986, 1987), WERNER and HÉBRARD (1986)
<i>Ulota</i>	SMITH and PROCTOR (1993), ERZBERGER (2003)

(1983), DÜLL (1983, 1984, 1985, 1992), SÖDERSTRÖM *et al.* (2002). Numerous smaller papers with floristical data on Hungarian bryophytes were evaluated as well and are referenced in the annotations.

We have compiled species and – in a few cases – subspecies of bryophytes, but not varieties. Nevertheless, nearly all reports on varieties in BOROS (1968) and ORBÁN and VAJDA (1983) and some other sources are referenced in the annotations.

Each entry begins with the accepted name of the taxon (in bold face), and authorities in standardised abbreviations (BRUMMIT and POWELL 1992). In brackets follow synonyms, if any. In general, only the most important synonyms are given, to facilitate the use of current bryological works. If names in ORBÁN and VAJDA (1983) and BOROS (1968) differ from the accepted name in this checklist, these differing names are always the first synonyms given. In some cases, additional synonyms used in English and German floras (*e.g.* SMITH 1978, 1990, FRAHM and FREY 1992, FREY *et al.* 1995) or even in taxonomic treatments that might become influential in the future (*e.g.* HEDENÄS 2003, ZANDER 1993) are included to facilitate the use of the checklist. It must be emphasised that synonyms are listed here

for practical purposes; they may not comply with the rules of the International Code of Botanical Nomenclature (GREUTER *et al.* 2000), and in some but not all cases this is stated in a note. Annotations highlight nomenclatural, taxonomic or other questions of interest and quote the literature.

We treat the three groups of bryophytes: Anthocerotae, Hepaticae and Musci separately. After the main list – i.e. the checklist proper – we have compiled some separate lists. Appendix 1 contains the taxa excluded from the Hungarian flora (7 hep., 39 musc.), because some kind of error could be clearly demonstrated. Appendix 2 is a list of doubtful species (1 hep., 29 musc.) not included in the main list, because we feel that their inclusion would probably be erroneous, but evidence for this is less clear than for the excluded taxa in App. 1, e.g. doubtful taxa are included here, if no specimen could be located. Taxa in Apps 1 and 2 that appeared in ORBÁN and VAJDA (1983) are marked with an asterisk (3 hep., 16 musc.). Appendix 3 contains taxa that are less doubtful, where our reservations do not warrant exclusion from the main list (6 hep., 6 musc.). We are confident that a large proportion of these taxa is in fact a member of the Hungarian bryoflora. To facilitate comparison with ORBÁN and VAJDA (1983), in Appendix 4 a list of taxa recorded after 1983 is provided (2 hep., 28 musc.). App. 5 is a table of useful synonyms. The decision to place particular taxa in any one of these lists is based on the evidence available at the time of compilation. It is hoped that in a later edition of the checklist these problems will be solved due to progress in herbarium and field research.

* * *

Acknowledgements – We thank the directors and curators of the following herbaria for the arrangement of loans of specimens: B, EGR, JE, SZO. We are especially grateful to E. MAIER, Geneva, for revising a large number of *Grimmia* specimens, to J. KLAWITTER, Berlin, J. KUČERA, České Budejovice and TH. HOMM, ELSFLETH, for the revision of some specimens, and to L. BALOGH, T. PÓCS and E. SZURDOKI for valuable comments. Part of this work was supported by the Institute of Environmental Management, Hungary.

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(Received: 24 August, 2004)

CHECKLIST OF HUNGARIAN BRYOPHYTES

ANTHOCEROTAE

Anthoceros agrestis Paton (*Anthoceros punctatus* auct. non L.; *Anthoceros crispulus* auct. non (Mont.) Douin)

Phaeoceros carolinianus (Michx.) Proskauer (*Anthoceros laevis* auct.). – *Anthoceros laevis* L. is not a synonym of *P. carolinianus*, but was confused with that species earlier.

HEPATICAE

Anastrophyllum hellerianum (Lindenb.) R. M. Schust. – ÓDOR (2000).

Anastrophyllum michauxii (F. Weber) H. Buch (*Sphenolobus michauxii* (F. Weber) Steph.)

Anastrophyllum minutum (Schreb.) R. M. Schust. (*Sphenolobus minutus* (Schreb.) Steph.)

Aneura pinguis (L.) Dumort. (*Riccardia pinguis* (L.) Gray)

Apometzgeria pubescens (Schrank) Kuwah. (*Metzgeria pubescens* (Schrank) Raddi)

Asterella saccata (Wahlenb.) A. Evans (*Fimbriaria saccata* (Wahlenb.) Nees; *Fimbriaria fragrans* Nees)

Athalamia hyalina (Sommerf.) S. Hatt. (*Clevea hyalina* (Sommerf.) Lindb.)

Barbilophozia barbata (Schreb.) Loeske. – BOROS (1968) mentions "var. *biloba* Schiffn." (= fo. *bilobata* Schiffn.), probably a modification without taxonomic value.

Barbilophozia floerkei (F. Weber et D. Mohr) Loeske. – Specimens BP 48261/H and SZO. Comit. Vas. Borostyánkő. Nedves lejtőkön, szerpentin talajon. 19.05.1905. leg. and det. V. Piers, rev. A. Latzel.

Bazzania trilobata (L.) Gray

Blasia pusilla L.

Blepharostoma trichophyllum (L.) Dumort. – subsp. *trichophyllum*.

Calypogeia azurea Stotler et Crotz (*Calypogeia trichomanis* auct.). – The distinction between *C. azurea* and *C. muelleriana* has not always been made, therefore old reports or specimens of *C. "trichomanis"* cannot automatically be named *C. azurea*; old specimens may be impossible to name, when the blue pigment of oilbodies has disintegrated, because taxa vary a great deal morphologically (PATON 1999); the characters given in the key in ORBÁN and VAJDA (1983) are not always reliable.

Calypogeia fissa (L.) Raddi

Calypogeia integristipula Steph. (*Calypogeia meylanii* H. Buch). – known from a single locality; specimen: BP 29710/H Ózdi Dombvidék. Inter pag. Tarnalelesz et Borsodszentgyörgy. Ad terram Fagetorum vallis Futyó, secus vias 21.10.1974 leg. T. Pócs, det. L. Vajda.

Calypogeia muelleriana (Schiffn.) Müll. Frib.

Calypogeia neesiana (C. Massal. et Carestia) Müll. Frib.

Calypogeia suecica (Arnell et J. Perss.) Müll. Frib.

Cephalozia bicuspidata (L.) Dumort. (*Cephalozia lammersiana* (Huebener) F. Lees). – taxonomy controversial, *C. bicuspidata* var. *lammersiana* is not recognised in PATON (1999) or BLOCKEEL and LONG (1998), here placed into synonymy with *C. bicuspidata* due to difficulties in differentiation (KOPERSKI *et al.* 2000), but recognized as species (BOROS (1968), ORBÁN and VAJDA (1983)), subspecies or variety by other authors (e.g. DAMSHOLT 2002)

Cephalozia catenulata (Huebener) Lindb.

Cephalozia lacinulata J. B. Jack ex Spruce. – DÜLL (1983), Ann. 24: “*C. lacinulata* is reported from three localities near the Hungarian–Austrian border. One of these is in Hungary now (“oberer Walkgraben”, leg. Latzel). Because the collector was a good taxonomist, Vajda and Rajczy regard this species as a member of the Hungarian flora though no specimen has been seen.” The specimen in BP (9256/H Com. Castriferrei Hámortó: Im unteren Gössbachtal unter Ceph. pleniceps alt. ca. 380 m, Substr. Moderholz, 12.05.1896, leg. A. Latzel) was collected in Austria near the Hungarian border (cf. KIRÁLY 1996).

Cephalozia lunulifolia (Dumort.) Dumort. (*Cephalozia media* Lindb.)

Cephalozia macrostachya Kaal. – var. *macrostachya*; known from a single locality; specimen: BP 9268/H Com. Castriferrei. Im oberen Walkgraben zwischen Kőszeg und Hámortó alt. ca. 590 m, Substr. Moorboden, 18.05.1905, leg. A. Latzel; the collection site is near the Austrian border but still in Hungary.

Cephalozia pleniceps (Austin) Lindb.

Cephaloziella divaricata (Sm.) Schiffn. (*Cephaloziella starkei* (Funck) Schiffn.)

Cephaloziella hampeana (Nees) Schiffn. – BOROS (1968) mentions var. *erosa* (Warnst.) Müll. Frib., but this is generally included in the synonymy of *C. hampeana*.

Cephaloziella integerrima (Lindb.) Warnst.

Cephaloziella rubella (Nees) Warnst. – var. *rubella*, var. *sullivantii* (Austin) Müll. Frib.; infraspecific taxonomy critical.

Cephaloziella spinigera (Lindb.) Warnst. (*Cephaloziella subdentata* Warnst.). – known from a single locality, specimen: BP 21165/H Comit. Abauj-Torna. In piceetum in decl. montis Borindzás cum Leucobryum glaucum, prope pag. Telkibánya, montes Sátorhegység 19.06.1960 leg. L. Vajda.

Cephaloziella stellulifera (Spruce) Schiffn.

Chiloscyphus pallescens (Hoffm.) Dumort. – var. *pallescens*, var. *fragilis* (Roth) Müll. Frib.

Chiloscyphus polyanthos (L.) Corda. – var. *polyanthos*, var. *rivularis* (Schrader) Gottsche, Lindenb. et Nees.

Cololejeunea calcarea (Lib.) Schiffn.

Cololejeunea rossettiana (C. Massal.) Schiffn.

Conocephalum conicum (L.) Dumort.

Diplophyllum albicans (L.) Dumort.

Diplophyllum obtusifolium (Hook.) Dumort.

Fossombronia foveolata Lindb. (*Fossombronia dumortieri* Huebener et Genth ex Lindb.). – Specimens BP 48263/H and EGR. Comit. Esztergom. Ad limites paludum Szarvasszérű II. prope montis Szentlászlóhegy supra pag. Pilisszentlászló. 26.09.1948. leg. L. Vajda.

Fossombronia pusilla (L.) Nees. – BOROS (1968), ORBÁN and VAJDA (1983) include var. *decipiens* Corb., but this taxon is now included in the synonymy of *F. pusilla* (KOPERSKI *et al.* 2000).

Fossombronia wondraczekii (Corda) Lindb. – BOROS (1968), ORBÁN and VAJDA (1983) include var. *loitlesbergeri* (Schiffn.) Chalaud, which is recognised or placed into synonymy with *F. wondraczekii* (PATON 1999).

Frullania dilatata (L.) Dumort. – BOROS (1968) includes var. *anomala* Corb., but this taxon is now included in the synonymy of *F. dilatata* (KOPERSKI *et al.* 2000).

Frullania fragilifolia (Taylor) Gottsche, Lindenb. et Nees

Frullania inflata Gottsche (*Frullania cleistostoma* Schiffn. et Wollny; *Frullania saxicola* Austin)

Frullania jackii Gottsche. – known from a single locality, specimens: BP 21295/H, BP 21296/H, BP 44329/H Comit. Abauj-Torna. In rupibus andesiticis umbrosis (Kutyaszorító sziklák

jobbald.) vallis rivi Osvapatak prope pag. Telkibánya, montes Sátorhegység, 17.09.1959, leg. L. Vajda.

Frullania tamarisci (L.) Dumort.

Gymnocolea inflata (Huds.) Dumort. – known from a single locality; representative specimen: BP 37368/H Comit. Heves. In argillosis humidis ripae lacus fontis alumen continentis “Timsós-tó” dicti in valle “Ilona-völgy” prope balneum Parádfürdő, 16.08.1931, leg. Á. Boros, also collected 19.08.1961 (BP 37369/H, BP 27746/H).

Jamesoniella autumnalis (DC.) Steph.

Jungermannia atrovirens Dumort. (*Solenostoma triste* (Nees) Müll. Frib.; *Solenostoma riparia* (Taylor) Dumort.)

Jungermannia caespiticia Lindenb. (*Solenostoma caespiticium* (Lindenb.) Steph.; *Haplozia caespitica* (Lindenb.) Dumort.)

Jungermannia gracillima Sm. (*Solenostoma crenulatum* Mitt.; *Haplozia crenulata* (Sm.) Dumort.)

Jungermannia hyalina Lyell (*Plectocolea hyalina* (Lyell) Mitt.)

Jungermannia leiantha Grolle (*Jungermannia lanceolata* auct. non L.; *Liochlaena lanceolata* Nees; *Haplozia lanceolata* auct. non (L.) Dumort.)

Jungermannia pumila With. (*Solenostoma pumilum* (With.) Müll. Frib.; *Haplozia pumila* (With.) Dumort.)

Jungermannia sphaerocarpa Hook. (*Solenostoma sphaerocarpum* (Hook.) Steph.; *Haplozia sphaerocarpa* (Hook.) Dumort.)

Jungermannia subulata A. Evans. – BOROS and VAJDA (1970), therefore only in ORBÁN and VAJDA (1983), missing in BOROS (1968).

Leiocolea badensis (Gottsche) Jörg. (*Lophozia badensis* (Gottsche) Schiffn.)

Leiocolea collaris (Nees) Schljakov (*Lophozia collaris* (Nees) Dumort.; *Leiocolea muelleri* (Lindenb.) Jörg.; *Leiocolea alpestris* (F. Weber) Isov.; *Lophozia muelleri* (Lindenb.) Dumort.)

Leiocolea heterocolpos (Hartm.) H. Buch (*Lophozia heterocolpos* (Hartm.) M. Howe)

Lejeunea cavifolia (Ehrh.) Lindb. (*Lejeunea serpyllifolia* Lib.). – BOROS (1968) includes var. *loitlesbergeri* Schiffn.

Lepidozia reptans (L.) Dumort.

Lophocolea bidentata (L.) Dumort. – nomenclature confused (see annotations in SÖDERSTRÖM *et al.* (2002), KOPERSKI *et al.* (2000)); if taxa are distinguished at varietal level, the correct names are as follows: *L. bidentata* var. *bidentata* (for *L. cuspidata* auct. non (Nees) Limpr., sensu Limpricht, BOROS (1968), ORBÁN and VAJDA (1983)) and *L. bidentata* var. *rivularis* (Raddi) Schiffn. (for *L. bidentata* auct. non (L.) Dumort. sensu Limpricht, BOROS (1968), ORBÁN and VAJDA (1983)); ENGEL and SCHUSTER (1985) transfer *Lophocolea* into the genus *Chiloscyphus*, their names are *Chiloscyphus coadunatus* (Sw.) J. J. Engel et R. M. Schust. and *C. latifolius* (Nees) J. J. Engel et R. M. Schust. for the above varieties, respectively. *Lophocolea alata* Mitt. ex Larter, treated as separate species in BOROS (1968), ORBÁN and VAJDA (1983), is today included in the synonymy of *L. bidentata* var. *bidentata*. Paton (1999) does not recognise either var. *rivularis* nor *L. alata*.

Lophocolea heterophylla (Schrad.) Dumort. (*Chiloscyphus profundus* (Nees) J. J. Engel et R. M. Schust.)

Lophocolea minor Nees (*Chiloscyphus minor* (Nees) J. J. Engel et R. M. Schust.)

Lophozia ascendens (Warnst.) R. M. Schust. (*Lophozia gracillima* H. Buch)

Lophozia bicrenata (Hoffm.) Dumort. (*Isopaches bicrenatus* (Hoffm.) H. Buch)

Lophozia excisa (Dicks.) Dumort. – BOROS (1968), ORBÁN and VAJDA (1983) mention f. *limprichtii* (Lindb.) C. Massal. which is a synonym of var. *excisa* (DAMSHOLT 2002).

Lophozia incisa (Schrad.) Dumort.

Lophozia longidens (Lindb.) Macoun

Lophozia longiflora (Nees) Schiffn. (*Lophozia guttulata* (Lindberg) A. Evans; *Lophozia porphyroleuca* auct.). – Specimen: BP 47408/H Heves county, Kékes, North Forest Reserve, Mátraháza village, Mátra Mts, on decaying wood in montane beech forest, 24.09.1999, leg. P. Ódor, conf. T. Pócs.

Lophozia obtusa (Lindb.) A. Evans (*Barbilophozia obtusa* (Lindb.) Meyl.). – known from a single locality, specimens: BP 150/H, 158/H, 162/H, 36539/H Comit. Abauj-Torna. In decl. sept. montis Kis Péterménkö supra vall. Vajdavölgy prope pag. Pálháza, 23.06.1953, leg. L. Vajda.

Lophozia sudetica (Huebener) Grolle (*Lophozia alpestris* auct.)

Lophozia ventricosa (Dicks.) Dumort.

Lophozia wenzelii (Nees) Steph. (*Lophozia confertifolia* Schiffn.). – synonymy and taxonomy controversial (KOPERSKI *et al.* 2000, DAMSHOLT 2002).

Lunularia cruciata (L.) Dumort. ex Lindb.

Mannia fragrans (Balb.) Frye et L. Clark (*Grimaldia fragrans* (Balb.) Corda; *Grimaldia barbifrons* Bisch.)

Mannia triandra (Scop.) Grolle (*Grimaldia rupestris* (Nees) Lindenb.; *Mannia rupestris* (Nees) Frye et L. Clark). – I. Siller in ORBÁN (1978) (Bükk: Ómassa); SILLER (1979); ORBÁN and VAJDA (1983); in BOROS (1968) missing; no specimen could be located in BP and EGR.

Marchantia polymorpha L. subsp. *polymorpha* (*Marchantia aquatica* (Nees) Burgeff)

Marchantia polymorpha L. subsp. *ruderalis* Bischl. et Boisselier (*Marchantia polymorpha* auct.)

Marsupella emarginata (Ehrh.) Dumort.

Marsupella funckii (F. Weber et D. Mohr) Dumort. (*Marsupella hungarica* Boros et Vajda). – synonymy according to GROLLE (1976), DÜLL (1983).

Marsupella sprucei (Limpr.) Bernet. – VAJDA (1960, 1962), DÜLL (1983): ann. 102: “*M. sprucei* was reported from several places in Mt. Börzsöny in N-Hungary, but Váňa 1978 revised these specimens to *M. funckii*”; doubtful according to SÖDERSTRÖM *et al.* (2002).

Metzgeria conjugata Lindb. subsp. *conjugata*

Metzgeria conjugata Lindb. subsp. *simplex* (Müll. Frib.) R. M. Schust. (*Metzgeria simplex* Lorb. ex Müll. Frib.). – a critical taxon (GROLLE and LONG 2000). Cannot be reliably distinguished from *M. conjugata* subsp. *conjugata* by morphological characters (KOPERSKI *et al.* 2000, AUER *et al.* 1998), only by chromosome counts. Its occurrence in Hungary is doubtful, since no chromosome counts are known to us. The only specimen in BP: 20710/H Comit. Nógrád. In rupibus umbrosis montis Hangyásbérc prope pag. Kemence, montes Börzsöny, 05.10.1958, leg. L. Vajda.

Metzgeria fruticulosa (Dicks.) A. Evans. – BOROS (1968) doubts the record of Szepesfalvi; not in ORBÁN and VAJDA (1983), but recorded in SÖDERSTRÖM *et al.* (2002); doubtful, because no specimen could be located in BP, EGR and SZO.

Metzgeria furcata (L.) Dumort. – var. *ulvula* Nees is included in the synonymy by most authors.

Nardia geoscyphus (De Not.) Lindb.

Nardia scalaris Gray (*Alicularia scalaris* (Gray) Corda)

Nowellia curvifolia (Dicks.) Mitt.

Oxymitra incrassata (Brot.) Sergio et Sim-Sim (*Oxymitra paleacea* Lindenb.; *Tesselina pyramidata* Dumort. p.p.?)

Pedinophyllum interruptum (Nees) Kaal.

Pellia endiviifolia (Dicks.) Dumort. (*Pellia fabbrioniana* auct.; *Pellia calycina* Taylor)

Pellia epiphylla (L.) Corda. – known from a single locality; representative specimen: BP 32526/H Comit. Vas. In paludibus rivi Koponyás ad Jelipuszta prope pag. Kám, 01.06.1924, leg. Á. Boros, several duplicates.

Plagiochila asplenioides (L.) Dumort. (*Plagiochila major* (Nees) S.W. Arnell, nom. illeg.). – *P. asplenioides* and *P. porelloides* have not always been separated, e.g. in BOROS (1968) they are treated both under *P. asplenioides*, but under different varieties.

Plagiochila porelloides (Nees) Lindenb.

Porella arboris-vitae (With.) Grolle (*Madotheca laevigata* (Schrad.) Dumort.). – Sometimes spelled “*levigata*”, e.g. in DAMSHOLT (2002). BOROS (1968) includes var. *arboris-vitae* (= var. *thuja* Nees), var. *killarniensis* (Pearson) M. F. V. Corley, and var. *obscura* (Nees) M. F. V. Corley; none of these varieties is recognised by PATON (1999).

Porella cordaeana (Huebener) Moore (*Madotheca cordaeana* (Huebener) Dumort.). – BOROS (1968), ORBÁN and VAJDA (1983) mention var. *simplicior* (J. E. Zetterst.) S. W. Arnell.

Porella platyphylla (L.) Pfeiff. (*Madotheca platyphylla* (L.) Dumort., *Porella platyphylloidea* (Schwein.) Lindb., *Madotheca platyphylloidea* (Schwein.) Dumort.). – SÖDERSTRÖM *et al.* (2002) list *P. baueri* (Schiffn.) C. E. O. Jensen as species, but according to BOISSELIÈRE-DUBAYLE *et al.* (1998) it is an allopolyploid (parents: *P. platyphylla* and *P. cordaeana*). Other authors treat it as var. of *P. platyphylla*. *P. baueri* is recognised in BOROS (1968), ORBÁN and VAJDA (1983); *P. platyphylloidea* is listed in BOROS (1968), ORBÁN and VAJDA (1983), but according to THERRIEN *et al.* (1998) it is not specifically distinct from *P. platyphylla*.

Preissia quadrata (Scop.) Nees

Ptilidium pulcherrimum (Weber) Vain.

Radula complanata (L.) Dumort.

Radula lindenberghiana Gottsche ex C. Hartm. – BOROS (1968) estimates the report from Kőszeg Mts by Latzel as reliable, since the plants were collected with perianthia, whereas reports from other localities are estimated doubtful; these latter reports are omitted in ORBÁN and VAJDA (1983). In BP, only a sterile specimen from Börzsöny Mts could be located (BP 10073/H Comit. Hont, Hung. centr. In cortice Fraxini montis “Hegyes tető” inter pag. Zebegény et Nagymaros, 25.08.1927, leg. Szepesfalvi, teste R. Düll as “probably *R. lindenberghiana*”).

Reboulia hemisphaerica (L.) Raddi

Riccardia chamedryfolia (With.) Grolle (*Riccardia sinuata* (Hook.) Trevis.; *Aneura sinuata* Dumort.)

Riccardia incurvata Lindb. – known from few localities close to Telkibánya in Zemplén Mts, representative specimen: BP 32705/H Comit. Abauj-Torna. In arenoso-argillosis subhumidis ad marg. silv. montis Farkas-hegy prope Telkibánya, 19.10.1959, leg. Á. Boros.

Riccardia latifrons (Lindb.) Lindb. (*Aneura latifrons* Lindb.)

Riccardia multifida (L.) Gray (*Aneura multifida* Dumort.)

Riccardia palmata (Hedw.) Carruth. (*Aneura palmata* Dumort.)

Riccia bifurca Hoffm.

Riccia canaliculata Hoffm.

Riccia cavernosa Hoffm. emend. Raddi (*Riccia crystallina* auct. non L.). – BOROS (1968), ORBÁN and VAJDA (1983) include var. *angustior* (Nees) Damsholt.

Riccia ciliata Hoffm. (*Riccia subtumida* Milde). – BOROS (1968), ORBÁN and VAJDA (1983) include var. *intumescens* Bisch., but this may be the oldest name for what is now called *R. crinita* Taylor (KOPERSKI *et al.* 2000, SÖDERSTRÖM *et al.* 2002), see *R. crinita*.

Riccia ciliifera Link ex Lindenb. (*Riccia bischoffii* Huebener)

Riccia crinita Taylor (*Riccia intumescens* (Bisch.) Underw.; *Riccia canescens* Steph.; *Riccia trichocarpa* M. Howe). – nomenclature according to SÖDERSTRÖM *et al.* (2002); not reported for Hungary in SÖDERSTRÖM *et al.* (2002) but in MARSTALLER (1993a); specimen: JE, Villanier Geb. Nagy Cser b. Harkany, 29.05.88, leg. R. Marstaller, confirmed P. Erzberger (Erzberger, unpubl.).

Riccia crystallina L. emend. Raddi

Riccia duplex Lorb. ex Müll.Frib. – according to BOROS (1968), the only specimen was interpreted controversially by Vajda (*R. duplex*) and by Jovet-Ast (*R. canaliculata*); the record of *R. duplex* is accepted by ORBÁN and VAJDA (1983), DÜLL (1983), RAJCZY (1990) and SÖDERSTRÖM *et al.* (2002). Specimen: BP 19028/H Comit. Békés. ad margines agrorum (rizsföld) Vizesfás prope Vésztő, 04.09.1954, leg. V. Csapody, det. L. Vajda; rev. S. Jovet-Ast (in litt. 07.07.1959): “21: *R. duplex*. Je ne crois pas. C’est, je crois, *R. canaliculata* car les cellules des écailles mesurent 40–45 µm × 26–40 µm, les spores 77–83 µm et ont 3–4 alvéoles ayant chacune un mucron”.

Riccia fluitans L. emend. Lorb.

Riccia frostii Austin

Riccia glauca L.

Riccia gougetiana Durieu et Mont.

Riccia huebeneriana Lindenb. (*Riccia pseudo-frostii* Schiffn.)

Riccia papillosa Moris (*Riccia pseudopapillosa* Steph.)

Riccia rhenana Lorb. ex Müll. Frib.

Riccia sorocarpa Bisch.

Riccia subbifurca Warnst. ex Croz. (*Riccia baumgartneri* Schiffn.)

Riccia warnstorffii Limpr. ex Warnst.

Ricciocarpos natans (L.) Corda

Scapania aequiloba (Schwägr.) Dumort.

Scapania apiculata Spruce. – known from a single locality; specimens: BP 39243/H, BP 39244/H Comit. Borsod. Ad lignos putresc. in umbrosis vallis Leány-völgy prope Nagyvisnyó, 04.10.1951, 30.09.1950 (resp.), leg. Á. Boros.

Scapania aspera M. Bernet et Bernet

Scapania calcicola (Arnell et J. Perss.) Ingham

Scapania curta (Mart.) Dumort.

Scapania irrigua (Nees) Nees

Scapania lingulata H. Buch (*Scapania microphylla* Warnst.)

Scapania mucronata H. Buch

Scapania nemorea (L.) Grolle (*Scapania nemorosa* Dumort.)

Scapania scandica (Arnell et H. Buch) Macvicar (*Scapania parvifolia* Warnst.). – according to GROLLE and LONG (2000), *S. parvifolia* Warnst. is included; it has been treated separately in BOROS (1968), ORBÁN and VAJDA (1983).

Scapania umbrosa (Schrad.) Dumort. – known from a single locality; specimens: BP 39980/H, BP 39981/H Comit. Borsod. Ad truncos putresc. in piceeto culto ad Nagymező prope Répáshuta, 05.10.1951, 26.09.1952 (resp.), leg. Á. Boros.

Scapania undulata (L.) Dumort. – BOROS (1968), ORBÁN and VAJDA (1983) include var. *undulata*, var. *aequatiformis* De Not., var. *dentata* (Dumort.) Jörg.; but infraspecific taxonomy is controversial (KOPERSKI *et al.* 2000).

Sphaerocarpos texanus Austin (*Sphaerocarpos californicus* Austin). – BOROS (1968), ORBÁN and VAJDA (1983): a single collection, reported in DÜLL (1983) and accepted in SÖDERSTRÖM *et al.* (2002); specimens: BP 238/H, BP 239/H, BP 30007/H Comit. Somogy. In agris arenosis ad viam ferream prope Darány, 29.03.1923, leg. Á. Boros, det. V. Schiffner.

Trichocolea tomentella (Ehrh.) Dumort.

Tritomaria exsecta (Schmidel) Loeske (*Sphenolobus exsectus* (Schmidel) Steph.)

Tritomaria exsectiformis (Breidl.) Loeske (*Sphenolobus exsectiformis* (Breidl.) Steph.)

Tritomaria quinquedentata (Huds.) H. Buch (*Lophozia quinquedentata* (Huds.) Cogn.)

MUSCI

Acaulon muticum (Hedw.) Müll. Hal.

Acaulon triquetrum (Spruce) Müll. Hal.

Aloina aloides (Schultz) Kindb. – considered doubtful by BOROS (1968) and DÜLL (1984), missing in ORBÁN and VAJDA (1983), but reported by MARSTALLER (1993a); specimens: JE: Villanier Gebirge, Súdungarn, Nagyarsányi-hegy, 27.05.88, leg. R. Marstaller, JE: Pecs-Súdungarn Kis Tubes in Felsspalten, 08.08.88, leg. R. Marstaller, both confirmed by P. Erzberger (Erzberger, unpubl.); also found by G. Kis in recent collections of T. Pócs and others, specimen: EGR 94205/C pp. Tolna County, N part of Szekszárdi dombság, "Szarvas szurdik", old branching hollow road 4 km W of Szekszárd town, 46° 20.5' N, 18° 39' E, 26.10.1997, leg. S. et T. Pócs and B. O. van Zanten, conf. P. Erzberger.

Aloina ambigua (Bruch et Schimp.) Limpr.

Aloina brevirostris (Hook. et Grev.) Kindb.

Aloina rigida (Hedw.) Limpr. – incl. var. *mucronulata* (Bruch et Schimp.) Limpr., which was first reported for Hungary by DELGADILLO (1975); specimen: Comit. Komárom, Neszmély, Boros, 1937 (S-PA); the var. was recently synonymised with *A. obliquifolia* (Müll. Hal.) Broth. by GALLEGÓ *et al.* (1999); however, contrary to GALLEGÓ *et al.* (1999), we feel that the only relevant diagnostic character – the mucronate leaf apex – does not warrant specific status, since it can vary within an individual plant, as already noted by the authors of *Bryologia Europaea* (BRUCH *et al.* 1836–1855, vol. 2, p. 75).

Amblyodon dealbatus (Hedw.) Bruch et Schimp. – extinct; according to RAJCZY (1990), last found at a source in Vértes Mts (specimens: BP 89904, BP 119647, BP 119648, BP 119649 Comit. Komárom. In arenosis humidis silvaticis ad fontem Dobai-kút in valle rivi Fekete-ér prope pagum Oroszlány, 05.09.1937, leg. Á. Boros); BOROS (1968) reports a population in an electrically lit cave, see VÖRÖSS (1969).

Amblystegium confervoides (Brid.) Schimp. (*Amblystegiella confervoides* (Brid.) Loeske; *Platydictya confervoides* (Brid.) H. A. Crum). – Hedenäs (1987) demonstrated that this species and *A. subtile* are not related to *Platydictya jungermannioides* and therefore should not be included in that genus.

Amblystegium fluviatile (Hedw.) Schimp. (*Hygroamblystegium fluviatile* (Hedw.) Loeske)

Amblystegium humile (P. Beauv.) Crundw. (*Leptodictyum kochii* (Schimp.) Warnst.; *Amblystegium kochii* Schimp.; *Amblystegium trichopodium* (Schultz) C. Hartm.; *Leptodictyum trichopodium* (Schultz) Warnst.)

Amblystegium radicale (P. Beauv.) Schimp. (*Amblystegium saxatile* Schimp.; *Campylium radicale* (P. Beauv.) Grout; *Chrysohypnum radicale* (P. Beauv.) Boros; *Chrysohypnum hygrophilum* (Jur.) Loeske, nom. illeg., nom. superfl.)

Amblystegium serpens (Hedw.) Schimp. (*Amblystegium juratzkanum* Schimp.). – var. *serpens* and var. *juratzkanum* (Schimp.) Rau et Herv.

Amblystegium subtile (Hedw.) Schimp. (*Platydictya subtile* (Hedw.) H. A. Crum; *Amblystegiella subtile* (Hedw.) Loeske). – see note on *A. confervoides*.

Amblystegium tenax (Hedw.) C. E. O. Jensen (*Hygroamblystegium tenax* (Hedw.) Jenn.; *Hygroamblystegium irriguum* Loeske)

Amblystegium varium (Hedw.) Lindb.

Amphidium mougeotii (Bruch et Schimp.) Schimp.

Anacamptodon splachnoides (Brid.) Brid.

Andreaea rupestris Hedw. (*Andreaea petrophila* Fűrnr.). – MURRAY (1988) recognises 2 varieties: var. *rupestris* and var. *papillosa* (Lindb.) Podp.; according to revisions by B. Papp (unpubl.), both varieties occur in Hungary.

Anomodon attenuatus (Hedw.) Huebener

Anomodon longifolius (Brid.) Hartm.

Anomodon rostratus (Hedw.) Schimp.

Anomodon rugelii (Müll. Hal.) Keissl. (*Anomodon apiculatus* Sull.)

Anomodon viticulosus (Hedw.) Hook. et Taylor

Antitrichia curtipendula (Hedw.) Brid.

Aphanorrhagma patens (Hedw.) Lindb. (*Physcomitrella patens* (Hedw.) Schimp.)

Archidium alternifolium (Hedw.) Schimp. (*Phascum alternifolium* Dicks. ex Hedw.; *Archidium phascoides* Brid., nom. illeg., nom. superfl.)

Atrichum angustatum (Brid.) Bruch et Schimp. (*Polytrichum angustatum* Brid.; *Catharinea angustata* (Brid.) Brid.)

Atrichum undulatum (Hedw.) P. Beauv. (*Catharinea undulata* (Hedw.) F. Weber et D. Mohr). – var. *undulatum* (= *Catharinea undulata* var. *minor* (Hedw.) F. Weber et D. Mohr) and var. *gracilisetum* Besch. (= *Atrichum haussknechtii* Jur. et Milde, *Catharinea haussknechtii* Broth.); in BOROS (1968), ORBÁN and VAJDA (1983) treated as 2 species.

Aulacomnium androgynum (Hedw.) Schwägr.

Aulacomnium palustre (Hedw.) Schwägr.

Barbula convoluta Hedw. (*Streblotrichum convolutum* (Hedw.) P. Beauv.). – BOROS (1968) qualifies as doubtful reports by Latzel of var. *commutata* (Jur.) Husn.; infraspecific taxonomy critical; in BLOCKEEL and LONG (1998), var. *commutata* is no longer recognised, whereas FRAHM and AHMED (2004) recognise it at species level as *B. sardoa* (Schimp.) J.-P. Frahm.

Barbula indica (Hook.) Spreng. – GALAMBOS (1992), DÜLL (1984, 1992), RAJCZY (1990): endangered; specimens conf. J. Kučera.

Barbula unguiculata Hedw.

Bartramia halleriana Hedw. (*Bartramia norvegica* Lindb.)

Bartramia ithyphylla Brid.

Bartramia pomiformis Hedw. – BOROS (1968) includes var. *pomiformis* and var. *crispa* (Brid.) Bruch et Schimp., nom. illeg., nom. superfl., accepted name: var. *elongata* Turner.

Blindia acuta (Hedw.) Bruch et Schimp.

Brachydontium trichodes (F. Weber) Milde. – in BOROS (1968), MÖNKEMEYER (1927) spelled “*Brachyodontium*”.

Brachythecium albicans (Hedw.) Schimp. – var. *julaceum* Warnst. is placed into synonymy with *B. albicans* (KOPERSKI et al. 2000).

Brachythecium campestre (Müll. Hal.) Schimp. – according to BOROS (1968), ORBÁN and VAJDA (1983) most specimens are doubtful.

Brachythecium capillaceum (F. Weber et D. Mohr) Giacom. (*Brachythecium salebrosum* var. *capillaceum* (F. Weber et D. Mohr) Lorentz; *Brachythecium rotaceanum* (De Not.) H. Rob.). – in BOROS (1968), ORBÁN and VAJDA (1983) included in *B. salebrosum*.

Brachythecium geheebii Milde (*Homalothecium geheebii* (Milde) Wigh)

- Brachythecium glareosum* (Spruce) Schimp.
Brachythecium mildeanum (Schimp.) Schimp. ex Milde
Brachythecium laetum (Brid.) Schimp. (*Brachythecium oxycladon* auct. non (Brid.) A. Jaeger). – nomenclature according to ROBINSON and IGNATOV (1997).
Brachythecium plumosum (Hedw.) Schimp.
Brachythecium populeum (Hedw.) Schimp. – BOROS (1968) includes var. *populeum* and var. *amoenum* (Milde) Limpr.
Brachythecium reflexum (Starke) Schimp.
Brachythecium rivulare Schimp.
Brachythecium rutabulum (Hedw.) Schimp. – BOROS (1968) includes var. *plumulosum* Bruch et Schimp. and var. *eurhynchioides* Limpr.; no infraspecific taxa are recognised today (KOPERSKI *et al.* 2000).
Brachythecium salebrosum (F. Weber et D. Mohr) Schimp. (*Brachythecium lanceolatum* Warnst.)
Brachythecium velutinum (Hedw.) Schimp.
Bryoerythrophyllum recurvirostrum (Hedw.) P. C. Chen (*Erythrophyllum rubellum* Hilp.; *Didymodon rubellus* Bruch et Schimp.; *Barbula recurvirostra* (Hedw.) Dixon)
Bryum algovicum Sendtn. ex Müll. Hal. (*Bryum pendulum* (Hornsch.) Schimp.; *Bryum angustirete* Kindb. ex Macoun). – incl. f. *hazslinszkyanum* (Péterfi) Podp., and var. *ruppinense* (Warnst.) Podp.; the latter is today included in the synonymy of *B. algovicum*, of which no infraspecific taxa are recognised (KOPERSKI *et al.* 2000).
Bryum alpinum Huds. ex With. – BOROS (1968) includes f. *spindleri* (Podp. et Stolle) Podp., which is now in the synonymy of *B. alpinum* (KOPERSKI *et al.* 2000).
Bryum argenteum Hedw.
Bryum bicolor Dicks. (*Bryum atropurpureum* Bruch et Schimp.). – BOROS (1968) includes f. *arenarium* (Jur.) Podp. and var. *bohemicum* (Podp.) Podp.; taxonomy of the former is controversial (DEMARET 1993, KOPERSKI *et al.* 2000); revision of specimens is necessary.
Bryum bornholmense Wink. et R. Ruthe. – In ORBÁN and VAJDA (1983) as species, in BOROS (1968) as segregate of *B. erythrocarpum* Schwägr.; BOROS (1968), ORBÁN and VAJDA (1983) quote the specimen revised by CRUNDWELL and NYHOLM (1964). Other published record in PAPP and RAJCZY (1999).
Bryum caespiticium Hedw. – var. *caespiticium*, var. *badium* Brid. (= *Bryum badium* (Brid.) Schimp.) and var. *imbricatum* Bruch et Schimp. (= *B. kunzei* Hoppe et Hornsch. = *B. caespiticium* subsp. *kunzei* (Hoppe et Hornsch.) Giacom., see BOROS (1968), ORBÁN and VAJDA (1983)); *Bryum bakonyense* Latzel (incl. var. *tetrayense* Podp.) is now included in the synonymy of *B. caespiticium* (KOPERSKI *et al.* 2000).
Bryum capillare Hedw. – var. *capillare* and (according to DÜLL 1985) var. *platyloma* (Schwägr.) Schimp.
Bryum creberrimum Taylor (*Bryum affine* Lindb. et Arnell) – author of *B. affine* quoted from DEMARET (1993); according to KOPERSKI *et al.* (2000), the name *B. affine* Schultz is a nom. illeg., hom. post.
Bryum elegans Nees ex Brid. (*Bryum capillare* subsp. *elegans* (Brid.) Podp.). – in BOROS (1968) as subspecies of *B. capillare*; see also ZANTEN (1999a).
Bryum funckii Schwägr. – Specimens BP 169883 and SZO: Comit. Vas. Kőszeg, a meszesvölgy köfjeftőben. Phylliton. leg. and det. A. Latzel.
Bryum gemmiferum R. Wilczek et Demaret. – ZANTEN (1999a).
Bryum gemmilucens R. Wilczek et Demaret. – ORBÁN and VAJDA (1983) Appendix.

Bryum imbricatum (Schwägr.) Bruch et Schimp. (*Bryum inclinatum* (Brid.) Blandow, nom. illeg., hom. post.). – BOROS (1968) includes var. *otoeides* Podp., var. *laubacense* (Roth) Podp., var. *hagenii* (Limpr.) Podp. (= *B. hagenii* Limpr., now included in the synonymy of *B. imbricatum*), subsp. *borosii* Podp. ined.; infraspecific taxonomy controversial (KOPERSKI *et al.* 2000).

Bryum intermedium (Brid.) Blandow

Bryum klinggraeffii Schimp. – reported by DÜLL (1985). Published records in PAPP and RAJCZY (1999) and PAPP and ERZBERGER (2000).

Bryum laevifilum Syed (*Bryum flaccidum* Brid.). – taxonomy according to HODGETTS (2001): This taxon has been called (probably incorrectly) *B. flaccidum* Brid. (also as variety of *B. capillare*) and *B. subelegans* Kindb., but the latter is a different species not yet recorded from Hungary; see also ZANTEN 1999a.

Bryum mildeanum Jur. (*Bryum alpinum* var. *mildeanum* (Jur.) Podp.). – in BOROS (1968), ORBÁN and VAJDA (1983) as var. *mildeanum* (Jur.) Podp. under *B. alpinum*.

Bryum neodamense Itzigs. ex Müll. Hal.

Bryum pallens Sw.

Bryum pallescens Schleich. ex Schwägr. (*Bryum cirrhatum* Hoppe et Hornsch.). – In BOROS (1968), ORBÁN and VAJDA (1983) *B. pallescens* and *B. cirrhatum* are treated as two separate taxa; BOROS (1968) includes under *B. cirrhatum* var. *praecox* Warnst., var. *fuscum* (Lindb.) Podp. (= *B. fuscum* Lindb.; this taxon is placed into synonymy with *B. intermedium* according to KOPERSKI *et al.* (2000)) and var. *affine* (Bruch) Podp. (syn. *B. creberrimum*?); the delimitation of taxa is not clear and herbarium revision desirable.

Bryum pseudotriquetrum (Hedw.) P. Gaertn., B. Mey. et Scherb. (*Bryum ventricosum* Relhan, nom. illeg., nom. superfl.). – var. *pseudotriquetrum* and var. *bimum* (Schreb.) Lilj., treated as varieties in BOROS (1968), but as separate species in ORBÁN and VAJDA (1983).

Bryum radiculosum Brid. (*Bryum murale* Wilson ex Hunt)

Bryum rubens Mitt. – a widespread species in Hungary, (to our knowledge) first collection in Hungary: SZO Comit. Győr-Sopron, in lapicida ad fontem Deákkut supra opp. Sopron, 29.10.1977, leg. et det. I. Galambos; further references JAKAB (1997), ZANTEN (1999a), PAPP and RAJCZY (1999, 2000).

Bryum rudemale Crundw. et Nyholm. – reported in ORBÁN and VAJDA (1983) as species, in BOROS (1968) as segregate under *B. erythrocarpum* Schwägr.; BOROS (1968) quotes the specimen from Hungary revised by CRUNDWELL and NYHOLM (1964). Other published records in PAPP and RAJCZY (1999).

Bryum schleicheri DC. – in BOROS (1968) as subspecies of *B. turbinatum*; known from a single locality (Specimen: BP 117254 Comit. Borsod. In turfosis rivi Disznóspatak prope Jávorkút. 05.10.1952, leg. Á. Boros), all other specimens from the localities listed in BOROS (1968), ORBÁN and VAJDA (1983) were revised to *B. pseudotriquetrum* (B. Papp, unpubl.).

Bryum stirtonii Schimp. – ORBÁN and VAJDA (1983) Appendix.

Bryum torquescens Bruch et Schimp. – in BOROS (1968) as subspecies of *B. capillare*; ZANTEN (1999a).

Bryum turbinatum (Hedw.) Turner. – BOROS (1968) includes subsp. *stephani* Podp.

Bryum uliginosum (Brid.) Bruch et Schimp. (*Bryum cernuum* Lindb.). – BOROS (1968) includes *Bryum danubiale* Podp. ined.; no specimen could be located in BP and EGR.

Bryum versicolor A. Braun ex Bruch et Schimp. – 1 locality in BOROS (1968), omitted in ORBÁN and VAJDA (1983), reported in DÜLL (1984); no specimen could be located in BP and EGR.

Bryum violaceum Crundw. et Nyholm. – ZANTEN (1999a), PAPP and RAJCZY (1999).

Bryum warneum (Röhl.) Blandow ex Brid. – known from a single locality (Specimen: BP 117001 Comit. Komárom. In arenosis humidis foveae “Nagy-Irtás” prope Bánhida. 08.08.1937, leg. Á. Boros), the only other specimen in BP (from Zamárdi, Lake Balaton, BOROS (1968), ORBÁN and VAJDA (1983)) was revised to *B. algovicum* (B. Papp, unpubl.).

Bryum weigelii Spreng. (*Bryum duvalii* Voit)

Buxbaumia aphylla Hedw.

Buxbaumia viridis (Lam. et DC.) Brid. ex Moug. et Nestl. (*Buxbaumia indusiata* Brid.)

Calliergon cordifolium (Hedw.) Kindb. – BOROS (1968) mentions f. *phyllorhizans* Latzel.

Calliergon giganteum (Schimp.) Kindb.

Calliergon stramineum (Brid.) Kindb. (*Straminergon stramineum* (Brid.) Hedenäs)

Calliergonella cuspidata (Hedw.) Loeske (*Calliergon cuspidatum* (Hedw.) Kindb.; *Acrocladium cuspidatum* (Hedw.) Lindb.). – BOROS (1968) mentions var. *pungens* (Schimp.) Latzel, a modification of dry habitats.

Campylium calcareum Crundw. et Nyholm (*Chrysohypnum calcareum* (Crundw. et Nyholm) Boros; *Chrysohypnum sommerfeltii* auct.; *Campylophyllum calcareum* (Crundw. et Nyholm) Hedenäs)

Campylium chrysophyllum (Brid.) Lange (*Chrysohypnum chrysophyllum* (Brid.) Loeske; *Campyliadelphus chrysophyllus* (Brid.) Kanda)

Campylium elodes (Lindb.) Kindb. (*Chrysohypnum helodes* (Lindb.) Loeske, orth. var.; *Campylium helodes* (Lindb.) Broth., orth. var.; *Campyliadelphus elodes* (Lindb.) Kanda)

Campylium polygamum (Schimp.) C. E. O. Jensen (*Chrysohypnum polygamum* (Schimp.) Loeske; *Drepanocladus polygamus* (Schimp.) Hedenäs)

Campylium stellatum (Hedw.) C. E. O. Jensen (*Chrysohypnum stellatum* (Hedw.) Loeske). – var. *stellatum* and var. *protensum* (Brid.) Bryhn (according to BOROS (1968), DÜLL 1985); both also reported in HEDENÄS (2003).

Campylopus pyriformis (Schultz) Brid. (*Campylopus torfaceus* Bruch et Schimp.). – a single record is reported in BOROS (1968), ORBÁN and VAJDA (1983), but no specimen could be located in BP and EGR.

Campylostelium saxicola (F. Weber et D. Mohr) Bruch et Schimp.

Ceratodon conicus (Hampe) Lindb. – ZANTEN (1999b) collected a single, sterile specimen that could not be named with absolute certainty; therefore doubts remain.

Ceratodon purpureus (Hedw.) Brid.

Cinclidotus danubicus Schiffn. et Baumgartner

Cinclidotus fontinaloides (Hedw.) P. Beauv. (*Cinclidotus minor* Lindb.)

Cinclidotus riparius (Brid.) Arnell (*Cinclidotus nigricans* (Brid.) Wijk et Margad.)

Cirriphyllum piliferum (Hedw.) Grout

Cirriphyllum tommasinii (Boulay) Grout (*Cirriphyllum tenuinerve* Wijk et Margad., nom. invalid.; *Cirriphyllum vaucheri* Loeske et M. Fleisch.; *Eurhynchium tommasinii* (Sendtn.) R. Ruthe)

Climacium dendroides (Hedw.) F. Weber et D. Mohr

Cnestrumbium schisti (F. Weber et D. Mohr) I. Hagen (*Rhabdoweisia schisti* (F. Weber et D. Mohr) Bruch et Schimp.; *Cynodontium schisti* (F. Weber et D. Mohr) Lindb.). – reported in BOROS (1968), ORBÁN and VAJDA (1983), ORBÁN (1976); but DÜLL (1992): “The record from Hu needs verification”; it is not clear why Düll doubts these records.

Conardia compacta (Müll. Hal.) H. Rob. (*Amblystegium compactum* (Müll. Hal.) Austin; *Rhynchostegiella compacta* (Müll. Hal.) Loeske; *Amblystegium densum* Milde)

Cratoneuron filicinum (Hedw.) Spruce (*Amblystegium filicinum* (Hedw.) De Not.; *Hygroamblystegium filicinum* (Hedw.) Loeske). – BOROS (1968), ORBÁN and VAJDA (1983) include

var. *filicinum*, var. *atrovirens* (Brid.) Ochyra (= var. *fallax* (Brid.) G. Roth) and f. *trichodes* (Brid.) Mönk.

Crossidium crassinerve (De Not.) Jur. – reported by ORBÁN (1991: found by Galambos), DÜLL (1984), RAJCZY (1990): potentially endangered; recent records in PÓCS (1999).

Crossidium laxefilamentosum W. Frey et Kürschner. – reported as new to Hungary (and Europe and North Africa) by PÓCS *et al.* (in press).

Ctenidium molluscum (Hedw.) Mitt.

Cynodontium polycarpum (Hedw.) Schimp. – incl. var. *polycarpum* and var. *strumiferum* (Hedw.) Schimp.; taxonomy according to KOPERSKI *et al.* (2000); var. *strumiferum* according to BOROS (1968) not in Hungary, but it was found in Hungary (Erzberger, unpubl.).

Cynodontium tenellum Limpr. – some records doubtful according to BOROS (1968), but reported in ORBÁN and VAJDA (1983) and RAJCZY (1990): endangered; specimens: BP 57648, BP 57975, BP 98268 Comit. Abauj-Torna. In rupibus andesiticis umbrosis Kerekkő montis Nagyhangyás ad Kőkapu prope pag. Pálháza montes Sátor-hegység, 19.07.1957, 17.07.1957, 21.07.1957 (resp.), leg. L. Vajda.

Desmatodon cernuus (Huebener) Bruch et Schimp. (*Tortula cernua* (Huebener) Lindb.)

Desmatodon heimii (Hedw.) Mitt. (*Pottia heimii* (Hedw.) Hampe; *Hennediella heimii* (Hedw.) R. H. Zander)

Dialytichia mucronata (Brid.) Broth. (*Cinclidotus mucronatus* (Brid.) Guim.). – Specimen: BP 110580. Com. Sopron. Kéthely. In der Klausen. 25.04.1895. leg. A. Latzel.

Dichodontium pellucidum (Hedw.) Schimp. – in Hu only var. *pellucidum*; var. *flavescens* is absent, see excluded taxa.

Dicranella cerviculata (Hedw.) Schimp. – known from a single locality, specimens: BP 78522, BP 97180, BP 97182 Comit. Heves. In alveo exsicc. alumen. lacus "Timsós-tó" vallis Ilona-völgy pr. Parádfürdő, 18.08.1961, 19.08.1961 (resp.), leg. Á. Boros.

Dicranella crispa (Hedw.) Schimp. (*Anisothecium vaginale* (Dicks.) Loeske; *Anisothecium crispum* (Hedw.) C. E. O. Jensen). – author citation of *Anisothecium crispum* must be C. E. O. Jensen, because according to DÜLL (1992), *D. crispa* (Schreb.) Lindb. stands for *D. schreberiana*.

Dicranella heteromalla (Hedw.) Schimp.

Dicranella humilis R. Ruthe (*Anisothecium rigidulum* (Hedw.) C. E. O. Jensen; *Dicranella varia* var. *tenella* Bruch et Schimp.). – in BOROS (1968) as var. *tenella* under *D. rubra* (= *varia*); specimen: BP 97465 Comit. Veszprém. In apertis silv. sub monte Borostyán-hegy prope Márkó, 21.04.1967, leg. Á. Boros.

Dicranella rufescens (Dicks.) Schimp. (*Anisothecium rufescens* (Dicks.) Lindb.)

Dicranella schreberiana (Hedw.) Hilf. ex H. A. Crum et L. E. Anderson (*Dicranella schreberi* Schimp., nom. illeg., nom. superfl.; *Anisothecium schreberianum* (Hedw.) Dixon). – var. *schreberiana* and var. *robusta* (Braithw.) H. A. Crum et L. E. Anderson (corresponds to var. *lenta* (Wilson) Limpr., included in BOROS (1968)).

Dicranella staphylina H. Whitehouse (*Anisothecium staphylinum* (H. Whitehouse) Sipman, Rubers et Riemann)

Dicranella subulata (Hedw.) Schimp. (*Dicranella secunda* Lindb., nom. illeg., nom. superfl.; *Dicranella curvata* (Hedw.) Schimp.). – DÜLL (1984) distinguished 2 varieties, var. *subulata* and var. *curvata* (Hedw.) Rabenh.; but DÜLL (1992) remarks that the latter has "probably no taxonomic value". BOROS (1968) includes var. *curvata* with a single record.

Dicranella varia (Hedw.) Schimp. (*Dicranella rubra* Lindb., nom. illeg., nom. superfl.; *Anisothecium varium* (Hedw.) Mitt.; *Anisothecium rubrum* Lindb., nom. illeg., nom. superfl.)

Dicranodontium denudatum (Brid.) E. Britton (*Dicranodontium longirostre* (F. Weber et D. Mohr) Bruch et Schimp.)

Dicranoweisia cirrata (Hedw.) Lindb. ex Milde

Dicranum bonjeanii De Not. (*Dicranum palustre* Bruch et Schimp., nom. illeg., hom. post.)

Dicranum flagellare Hedw. (*Orthodicranum flagellare* (Hedw.) Loeske)

Dicranum fulvum Hook.

Dicranum montanum Hedw. (*Orthodicranum montanum* (Hedw.) Loeske)

Dicranum muehlenbeckii Bruch et Schimp.

Dicranum polysetum Sw. (*Dicranum undulatum* Ehrh. ex F. Weber et D. Mohr, nom. illeg., hom. post.; *Dicranum rugosum* (Funck) Hoffm. ex Brid., nom. illeg., nom. superfl.)

Dicranum scoparium Hedw.

Dicranum spurium Hedw.

Dicranum tauricum Sapjegin (*Orthodicranum tauricum* (Sapjegin) Z. Smirnova; *Dicranum strictum* Schleich. ex D. Mohr; *Orthodicranum strictum* (D. Mohr) Culm.). – in BOROS (1968) doubtful; in ORBÁN and VAJDA (1983) reported, obviously expanding its area, ERZBERGER (1999).

Dicranum viride (Sull. et Lesq.) Lindb. – has been confused with *D. tauricum* (e.g. JAKAB 1997); ERZBERGER (1999).

Didymodon acutus (Brid.) K. Saito (*Barbula acuta* (Brid.) Brid.; *Barbula gracilis* Schwägr., nom. illeg., hom. post.)

Didymodon cordatus Jur. (*Barbula cordata* (Jur.) Braithw.; *Didymodon austriacus* Schiffn. et Baumgartner). – BOROS (1968) includes *Barbula austriaca* (Schiffn. et Baumgartner) Boros et Polgár (= subsp. *austriacus* (Schiffn. et Baumgartner) Wijk et Margad., ORBÁN and VAJDA (1983)); now included in the synonymy of *D. cordatus* (KUČERA 2000).

Didymodon fallax (Hedw.) R. H. Zander (*Barbula fallax* Hedw.)

Didymodon ferrugineus (Besch.) M. O. Hill (*Barbula reflexa* (Brid.) Brid.)

Didymodon glaucus Ryan (*Didymodon rigidulus* var. *glaucus* (Ryan) Wijk et Margad.). – in BOROS (1968) treated as subspecies of *Barbula rigidula*; no specimen could be located in BP and EGR.

Didymodon insulanus (De Not.) M. O. Hill (*Barbula cylindrica* (Taylor) Schimp.; *Barbula vinealis* var. *cylindrica* (Taylor) Boulay; *Didymodon vinealis* var. *flaccidus* (Bruch et Schimp.) R. H. Zander). – taxonomic status is controversial, some authors prefer to place this taxon as var. *flaccidus* in *D. vinealis*; we follow KUČERA (2000) in retaining *D. insulanus* as a species of its own.

Didymodon luridus Hornsch. ex Spreng. (*Barbula lurida* (Spreng.) Lindb., nom. illeg., hom. post.; *Barbula trifaria* auct. non (Hedwig) Mitt.; *Didymodon trifarius* auct. non (Hedw.) Röhl.)

Didymodon rigidulus Hedw. (*Barbula rigidula* (Hedw.) Mitt.). – BOROS (1968) includes var. *rigidulus* and var. *validus* (Limpr.) Düll, the latter is doubtful according to BOROS (1968) and reported in DÜLL (1984), but Düll has not seen any specimen (Düll in litt.).

Didymodon sinuosus (Mitt.) Delogne (*Barbula sinuosa* (Mitt.) Grav.; *Oxystegus sinuosus* (Mitt.) Hilp.)

Didymodon spadiceus (Mitt.) Limpr. (*Barbula spadicea* (Mitt.) Braithw.)

Didymodon tophaceus (Brid.) Lisa (*Barbula tophacea* (Brid.) Mitt.)

Didymodon vinealis (Brid.) R. H. Zander (*Barbula vinealis* Brid.)

Diphyscium foliosum (Hedw.) D. Mohr (*Diphyscium sessile* Lindb., nom. illeg., nom. superfl.)

Distichium capillaceum (Hedw.) Bruch et Schimp. (*Distichium montanum* I. Hagen; *Cynodontium capillaceum* Hedw.; *Swartzia montana* Lindb.)

Ditrichum crispatisimum (Müll. Hal.) Paris (*Ditrichum giganteum* R. S. Williams; *Ditrichum gracile* (Mitt.) O. Kuntze, synonymy doubtful (see ERZBERGER 2001); *Ditrichum flexicaule*

var. *sterile* (De Not.) Limpr.; *Ditrichum flexicaule* var. *longifolium* (J. E. Zetterst.) I. Hagen). – For an account of taxonomy and occurrence of this moss in Hungary: ERZBERGER (2001); some authors prefer to treat it as variety of *D. flexicaule*.

Ditrichum cylindricum (Hedw.) Grout (*Trichodon cylindricum* (Hedw.) Schimp.; *Ditrichum tenuifolium* Lindb.)

Ditrichum flexicaule (Schwägr.) Hampe. – ERZBERGER (2001) describes the variability and distribution of this species in Hungary.

Ditrichum heteromallum (Hedw.) E. Britton (*Ditrichum homomallum* (Hedw.) Hampe)

Ditrichum pallidum (Hedw.) Hampe

Ditrichum pusillum (Hedw.) Hampe (*Ditrichum tortile* (Schrad.) Brockm.)

Drepanocladus aduncus (Hedw.) Warnst. – The taxonomy of this genus is still controversial. An evaluation of Hungarian herbaria is needed. For taxonomy of *D. aduncus* and related species, HEDENÄS (2003) is adopted (with reservations). BOROS (1968) includes var. *kneiffii* (Schimp.) Mönk., var. *polycarpus* (Voit) G. Roth and forms.

Drepanocladus cossonii (Schimp.) Loeske (*Drepanocladus intermedius* (Lindb.) Warnst.; *Scorpidium cossonii* (Schimp.) Hedenäs). – HEDENÄS (2003) reports the occurrence of this species in Hungary, which coincides with our own observations; all Hungarian material reported *D. revolvens* (anon.) Warnst. probably is *D. cossonii*.

Drepanocladus lycopodioides (Brid.) Warnst. (*Pseudocalliergon lycopodioides* (Brid.) Hedenäs)

Drepanocladus sendtneri (H. Müll.) Warnst.

Drepanocladus sordidus (Müll. Hal.) Hedenäs. – HEDENÄS (2003) reports the occurrence of this species in Hungary, based on the following specimen: (S) Komitat Pest, Cserhát-Gebirge, am Rande der Tiefebene, am Bach Rákos bei Pécel, 160 m a.s.l., auf torfigen Seggenwiesen des Baches Rákos, 15 May 1960, A. Boros (Crypt. exs. ed. a. Mus. Hist. Nat. Vindob. 4872) Hedenäs, pers. comm.)

Encalypta ciliata Hedw.

Encalypta streptocarpa Hedw. (*Encalypta contorta* Hoppe ex Lindb., nom. illeg., nom. superfl.)

Encalypta vulgaris Hedw. (*Encalypta extinctoria* Lindb.)

Entosthodon fascicularis (Hedw.) Müll. Hal. (*Funaria fascicularis* (Hedw.) Lindb.)

Entosthodon hungaricus (Boros) Loeske (*Funaria hungarica* Boros; *Steppomitra hungarica* (Boros) Vondraček et Hadač)

Ephemerum cohaerens (Hedw.) Hampe. – a single record by Förster is reported in BOROS (1968), ORBÁN and VAJDA (1983).

Ephemerum minutissimum Lindb. (*E. serratum* var. *minutissimum* (Lindb.) Grout). – This taxon has not always been separated from *E. serratum*; its occurrence in Hungary was recently demonstrated by revision of *E. serratum* s.l. (B. Papp, unpubl.). Representative specimen: BP 113777, Comit. Abaúj-Torna. In locis subhumidis vallis Vajda-völgy prope Pálháza. 06.10.1953, leg. Á. Boros, rev. B. Papp

Ephemerum recurvifolium (Dicks.) Boulay. – NOVOTNY (1988) reports this moss as new for Hungary.

Ephemerum serratum (Hedw.) Hampe. – Hungarian floras include var. *longifolium* (R. Ruthe) Mönk. (BOROS (1968)), probably a nom. superfl. for var. *rutheanum* (Schimp.) Jur. (ORBÁN and VAJDA (1983)), the taxonomic value of which is not clear, see KOPERSKI *et al.* (2000). Revision of the material of *E. serratum* s.l. at BP and EGR by B. Papp resulted in evidence for the presence of *E. serratum* s. str. and *E. minutissimum* in Hungary, the latter taxon more frequent (B. Papp, unpubl.).

Representative specimen: BP 113781, Comit. Heves. In argillosis subhumidis ripae lacus Nagysástó-rét inter Mátrafüred et Mátraháza. 11.10.1953. leg. Á. Boros.

Ephemerum sessile (Bruch) Müll. Hal. – This species was found recently in a specimen of *E. serratum* during revision by B. Papp, new for Hungary (B. Papp, unpubl.). Specimen: BP 169882 Comit. Borsod. In argillosis subhumidis ad marg. silv. vallis sub monte Király-hegy prope Rakaca. 27.10.1957. leg. Boros.

Eucladium verticillatum (Brid.) Bruch et Schimp.

Eurhynchium angustirete (Broth.) T. J. Kop. (*Eurhynchium zetterstedtii* Størmø; *Eurhynchium striatum* subsp. *zetterstedtii* (Størmø) Podp.)

Eurhynchium crassinervium (Wilson) Schimp. (*Cirriphyllum crassinervium* (Wilson) Loeske et M. Fleisch.)

Eurhynchium flotowianum (Sendtn.) Kartt. (*Cirriphyllum reichenbachianum* (Huebener) Wijk et Margad.; *Cirriphyllum velutinoides* (Schimp.) Loeske et M. Fleisch.; *Cirriphyllum filiforme* Broth., nom. illeg., nom. superfl.; *Eurhynchium velutinoides* Schimp.)

Eurhynchium hians (Hedw.) Sande Lac. (*Eurhynchium swartzii* (Turner) Curn.; *Oxyrrhynchium swartzii* (Turner) Warnst.; *Oxyrrhynchium hians* (Hedw.) Loeske; *Eurhynchium praelongum* auct. non L.). – This taxon is called *E. swartzii* in BOROS (1968), but in ORBÁN and VAJDA (1983) two names are treated as if they were separate taxa, although both are synonyms of *E. hians* as conceived here: *Oxyrrhynchium swartzii* (Turner) Warnst. and *Oxyrrhynchium hians* (Hedw.) Loeske. The latter obviously relates to the single record of “var. *hians*” of *E. swartzii* mentioned in BOROS (1968), therefore this “taxon” was considered “potentially threatened” in RAJCZY (1990). In BOROS (1968), *E. schleicheri* was placed as var. *abbreviatum* under *E. swartzii*. Revision of specimens would be desirable.

Eurhynchium praelongum (Hedw.) Schimp. (*Oxyrrhynchium praelongum* (Hedw.) Warnst. var. *stokesii* (Turner) Podp.; *Eurhynchium stokesii* (Turner) Schimp.)

Eurhynchium pulchellum (Hedw.) Jenn. – BOROS (1968), ORBÁN and VAJDA (1983) distinguish between var. *pulchellum* and var. *praecox* (Hedw.) Dixon.

Eurhynchium pumilum (Wilson) Schimp. (*Oxyrrhynchium pumilum* (Wilson) Loeske; *Rhynchostegiella pallidirostra* (Brid.) Loeske, nom. illeg. (HEDENÄS 1992))

Eurhynchium schleicheri (R. Hedw.) Jur. (*Eurhynchium praelongum* var. *abbreviatum* Turner; *Oxyrrhynchium schleicheri* (R. Hedw.) Roell). – in BOROS (1968) as var. *abbreviatum* of *E. swartzii*.

Eurhynchium speciosum (Brid.) Jur. (*Oxyrrhynchium speciosum* (Brid.) Warnst.)

Eurhynchium striatulum (Spruce) Schimp. (*Isothecium filesceus* (Brid.) Mönk.; *Plasteurhynchium striatulum* (Spruce) M. Fleisch.). – omitted by mistake in ORBÁN and VAJDA (1983).

Eurhynchium striatum (Hedw.) Schimp. – incl. var. *magnusii* H. Winter = *Eurhynchium magnusii* (H. Winter) Pilous.

Fabronia ciliaris (Brid.) Brid. (*Fabronia octoblepharis* (Schleich.) Schwägr.)

Fabronia pusilla Raddi

Fissidens adianthoides Hedw.

Fissidens arnoldii R. Ruthe (*Fissidens obtusifolius* auct. non Wilson)

Fissidens bryoides Hedw.

Fissidens crassipes Wilson ex Bruch et Schimp. subsp. *crassipes* (*Fissidens crassipes* var. *rufipes* Schimp.; *Fissidens crassipes* var. *mildeanus* (Schimp.) Mönk., nom. illeg., nom. superfl.)

Fissidens crassipes Wilson ex Bruch et Schimp. subsp. *warnstorffii* (M. Fleisch.) Brugg.-Nann. (*Fissidens crassipes* var. *submarginatus* M. Fleisch. et Warnst.; *Fissidens crassipes* var. *philibertii*

Besch.). – known from a single locality, specimen: BP 10453 Comit. Abauj-Torna. In muris molae prope pag. Jósvald, 05.04.1952, leg. L. Vajda, det. Potier de la Varde.

Fissidens curnovii Mitt. – Specimen: BP 63066. Comit. Abauj-Torna. Ad margines sylvarum in monte Nagy Farkashegy, prope pag. Telkibánya, mtes Sátorhegység. 19.06.1960. leg. L. Vajda.

Fissidens curvatus Hornsch. (*Fissidens algarvicus* Solms). – It was found only once in Börzsöny Mts, VAJDA (1956), BOROS (1968), ORBÁN and VAJDA (1983).; nomenclature according to BRUGGEMANN-NANNENGA and PURSELL (1996). Specimen: BP 46459. Comit. Nógrád. In argillosis ad margines rivi Kemencepatak prope pag. Diósjenő, montes Börzsöny. 25.05.1955. leg. Vajda.

Fissidens dubius P. Beauv. (*Fissidens cristatus* Wilson ex Mitt.; *Fissidens decipiens* De Not.)

Fissidens exiguus Sull. – The specimen of Börzsöny Mts that Vajda had originally named *F. kosaninii* Latzel was revised by Pilous to *F. exiguus* (VAJDA 1975).

Fissidens exilis Hedw.

Fissidens gracilifolius Brugg.-Nann. et Nyholm (*Fissidens minutulus* Sull. var. *tenuifolius* (Boulay) Norkett; *Fissidens pusillus* var. *minutulus* (Sull.) Husn., nom. illeg.). – In the older literature, this taxon was partly included in *F. pusillus* Wilson and *F. minutulus* Sull.

Fissidens gymnandrus Büse. – In BOROS (1968) this taxon is treated as variety of *F. bryoides*, in ORBÁN and VAJDA (1983) it is missing; doubtful according to DÜLL (1992).

Fissidens incurvus Starke ex Röhl. (*Fissidens tamarindifolius* (Turner) Brid.). – BOROS (1968) includes var. *tamarindifolius* (Turner) Braithw. as a form of *F. bryoides*, in ORBÁN and VAJDA (1983) as subsp. of *F. bryoides*. *F. incurvus* is estimated doubtful by DÜLL (1992), but we do not agree with this opinion.

Fissidens pusillus (Wilson) Milde. – In BOROS (1968), this name comprises both *F. gracilifolius* and *F. pusillus*; in ORBÁN and VAJDA (1983), *F. pusillus* is called *F. minutulus* Sull.; however, this is not an approved synonym of *F. pusillus* (KOPERSKI et al. 2000).

Fissidens taxifolius Hedw. – *F. taxifolius* subsp. *taxifolius*, excluding subsp. *pallidicaulis* (Mitt.) Corb.

Fissidens viridulus (Sw.) Wahlenb. – In BOROS (1968), ORBÁN and VAJDA (1983) as var. or subsp. of *F. bryoides*, resp.; also reported by MARSTALLER (1993a).

Fontinalis antipyretica Hedw.

Fontinalis hypnoides Hartm. – In BOROS (1968), *F. antipyretica* var. *thermalis* Boros is mentioned as synonym of *F. hypnoides*.

Funaria hygrometrica Hedw.

Funaria mühlenbergii Turner (*Funaria dentata* Crome; *Funaria calcarea* Wahlenb.; *Funaria hibernica* Hook.; *F. mediterranea* Lindb., nom. illeg.). – For an account of the taxonomy and Hungarian distribution of this and the following species see CRUNDWELL and NYHOLM (1974), ERZBERGER (2002).

Funaria pulchella H. Philib. – This species has for a long time been misunderstood in Hungary (ERZBERGER 2002).

Grimmia anodon Bruch et Schimp.

Grimmia dissimulata E. Maier. – This species has been discovered recently as new for the Hungarian bryoflora by unpublished herbarium studies of E. Maier, in the following specimens BP 39067 (sub *Grimmia montana* Br. eur.): Comit. Veszprém. In rupibus basalticis siccis montis Apátihegy prope pag. Tihany, 21.06.1955, leg. L. Vajda, and in herb. Erzberger, Berlin: 6847, 6848 (sub *Grimmia* cf. *pulvinata*): Pilisborosjenő, Nagy-Kevély, 14.04.2001, leg. Erzberger and 7077 (sub *Grimmia* cf. *pulvinata*): Vértess, Ugró-völgy bei Csákberény, 29.04.2001, leg. Erzberger, all det. E. Maier.

Grimmia funalis (Schwägr.) Bruch et Schimp. – known from a single locality, representative specimen: BP 112800 Crypt. exs. ed. a Mus. Hist. Nat. Vind. 3958. Com. Heves, an Andesitfelsen des Berges Dúznókó bei Parádk, 730 m; 25.03.1951, leg. Á. Boros; numerous dupl., some conf. by J. Munoz and E. Maier.

Grimmia hartmanii Schimp. (*Dryptodon hartmanii* (Schimp.) Limpr.)

Grimmia laevigata (Brid.) Brid. (*Grimmia campestris* Burchell ex Hook.; *Grimmia leucophaea* Grev.)

Grimmia longirostris Hook. (*Grimmia affinis* Hornsch., nom. illeg., hom. post.; *Grimmia ovalis* auct. non (Hedw.) Lindb.). – In BOROS (1968) and ORBÁN and VAJDA (1983) for *G. longirostris* the (incorrect) name *G. ovalis* is used. Nomenclature after MUÑOZ (1998a); in MUÑOZ and PANDO (2000), Hungary is missing from the world distribution, most of the specimens in BP that were referred to *G. longirostris* belong to *G. mühlenbeckii* or other species, but a single specimen was confirmed as *G. longirostris* by E. Maier (unpubl.): BP 46525 (sub *Grimmia ovalis* Web. et Mohr) Comit. Abauj-Torna. In rupibus andesiticis siccis montis Kakasbérce prope pag. Füzér, montes Sátorhegyeség, 09.09.1955, leg. L. Vajda.

Grimmia montana Bruch et Schimp. – This taxon is meant by “*Grimmia donniana* Sm.” in ORBÁN and VAJDA (1983); synonymy erroneous. *G. donniana* is excluded from the bryoflora of Hungary (see Appendix 1). Hungary is missing from the world distribution of *G. montana* in MUÑOZ and PANDO (2000), but the specimens from Mecsek Mts in BP were confirmed by E. Maier.

Grimmia mühlenbeckii Schimp. (*Grimmia trichophylla* var. *muehlenbeckii* (Schimp.) Husn.; *Grimmia trichophylla* var. *tenuis* (Wahlenb.) Wijk et Margad.). – In BOROS (1968) and ORBÁN and VAJDA (1983) *G. mühlenbeckii* is treated as a variety of *G. trichophylla*, viz. var. *muehlenbeckii* and var. *tenuis*, respectively. One of the most widespread species of the genus in Hungary according to recent revisions (E. Maier unpubl.).

Grimmia orbicularis Bruch ex Wilson. – The alleged synonymy with *G. pulvinata* var. *africana* (Hedw.) Hook. f. et Wilson in ORBÁN and VAJDA (1983) is erroneous (e.g. GREVEN 1995).

Grimmia ovalis (Hedw.) Lindb. (*Grimmia commutata* Huebener). – In BOROS (1968) and ORBÁN and VAJDA (1983) the name *G. ovalis* stands for *G. longirostris*!

Grimmia plagiopodia Hedw. – According to Györfy (quoted in BOROS (1968)) part of the records are var. *arvernica* (H. Philib.) Boulay, a taxon not evaluated (type not seen) by MUÑOZ and PANDO (2000).

Grimmia pulvinata (Hedw.) Sm. – The significance of var. *africana* (Hedw.) Hook. f. et Wilson in ORBÁN and VAJDA (1983) is not clear, since it has been erroneously synonymised with *G. orbicularis*. Revision of herbarium specimens is necessary.

Grimmia teretinervis Limpr. – This species is not in BOROS (1968), but listed in ORBÁN and VAJDA (1983) with two occurrences, one of which has been confirmed by Muñoz and E. Maier (unpubl.): Specimens BP 75600 and BP 111992 Comit. Borsod. In rupibus calc. silvat. adv. montem Kerek-hegy supra vallem Szinva-völgy pr. Lillafüred, 28.03.1959, leg. Á. Boros.

Grimmia tergestina Tomm. ex Bruch et Schimp. – var. *tergestina* occurs in the Bükk Mts according to NOWACK and POELT (1979), who quote a specimen collected by Boros: Magoskő pr. Ómassa; var. *tergestinoides* (Culm.) Podp. is probably more generally distributed in Hungary. However, the infraspecific taxonomy is controversial (KOPERSKI *et al.* 2000, GREVEN 1995, MAIER 2002b).

Grimmia trichophylla Grev. – For the current taxonomy and an improved description of this species see MAIER (2002a).

Gymnostomum aeruginosum Sm. (*Gymnostomum rupestre* Schwägr.)

Gymnostomum calcareum Nees et Hornsch.

Gyroweisia tenuis (Hedw.) Schimp.

Hamatocaulis vernicosus (Mitt.) Hedenäs (*Drepanocladus vernicosus* (Mitt.) Warnst.)

Hedwigia ciliata (Hedw.) Ehrh. ex P. Beauv. (*Hedwigia albicans* Lindb. p.p., nom. illeg. nom. superfl.). – This species includes 2 varieties, var. *ciliata* and var. *leucophaea* Bruch et Schimp., both are widespread in Hungary. Taxonomy according to HEDENÄS (1994), ERZBERGER (1996).

Hedwigia stellata Hedenäs (*Hedwigia albicans* Lindb. pp., nom. illeg. nom. superfl.). – For an account of this species see ERZBERGER (1996), where also data on Hungarian specimens are published.

Helodium blandowii (F. Weber et D. Mohr) Warnst. (*Thuidium lanatum* (Brid.) I. Hagen, nom. illeg. nom. superfl.)

Herzogiella seligeri (Brid.) Z. Iwats. (*Dolichotheca seligeri* (Brid.) Loeske; *Dolichotheca silesiaca* (F. Weber et D. Mohr) M. Fleisch., nom. illeg., nom. superfl.; *Plagiothecium silesiacum* (F. Weber et D. Mohr) Schimp., nom. illeg., nom. superfl.; *Isopterygium seligeri* (Brid.) Dixon; *Sharpiella seligeri* (Brid.) Z. Iwats.)

Heterocladium dimorphum (Brid.) Schimp. (*Heterocladium squarulosum* Lindb.; *Heterocladium squarrosulum* Voit, nom. inval., hom. post.)

Hilpertia velenovskyi (Schiffn.) R. H. Zander (*Tortula velenovskyi* Schiffn.)

Homalia besseri Lobarz. (*Neckera besseri* (Lobarz.) Jur.; *Neckera sendtneriana* Schimp.)

Homalia trichomanoides (Hedw.) Schimp.

Homalothecium lutescens (Hedw.) H. Rob. (*Camptothecium lutescens* (Hedw.) Schimp.). – incl. var. *lutescens* and var. *fallax* (H. Philib.) Hedenäs et L. Söderström.

Homalothecium philippeanum (Spruce) Schimp. (*Camptothecium philippeanum* (Spruce) Kindb.)

Homalothecium sericeum (Hedw.) Schimp. (*Camptothecium sericeum* (Hedw.) Kindb.)

Homomallium incurvatum (Brid.) Loeske (*Hypnum incurvatum* Schrad. ex Brid.)

Hygrohypnum luridum (Hedw.) Jenn. (*Hygrohypnum palustre* Loeske, nom. illeg., nom. superfl.). – The forms recorded in BOROS (1968) (f. *subenerve* (Schimp.) Mönk. and f. *hamulosa* (Schimp.) Mönk.) are probably only modifications (BOROS (1968)).

Hylocomium brevirostre (Brid.) Schimp. – known from a single locality, specimens: BP 150314, BP 150315, BP 150316, BP 150320 Comit. Baranya. In silvis vallis "Csatorna-völgy" montis Hármashükk prope pagum Somogy, 26.07.1932, leg. Á. Boros et A. Visnya, det. A. Latzel.

Hylocomium splendens (Hedw.) Schimp. (*Hylocomium proliferum* (Brid.) Lindb., nom. illeg., nom. superfl.)

Hymenostylium recurvirostrum (Hedw.) Dixon (*Hymenostylium curvirostre* Mitt.). – incl. var. *scabrum* (Lindb.) Podp.

Hypnum cupressiforme Hedw. – Several varieties besides var. *cupressiforme* are mentioned in BOROS (1968) and ORBÁN and VAJDA (1983), among them var. *lacunosum* Brid. (syn. var. *tectorum* Funck ex Brid.), var. *subjulaceum* Molendo (syn. var. *cuspidatum* Jur.); DÜLL (1985) reports var. *lacunosum*, var. *resupinatum* (Düll in litt.: doubtful) and var. *subjulaceum* (Düll in litt.: doubtful).

Hypnum lindbergii Mitt. (*Hypnum arcuatum* Lindb., nom. illeg., hom. post.; *Calliergonella lindbergii* (Mitt.) Hedenäs)

Hypnum pallescens (Hedw.) P. Beauv. (*Hypnum reptile* Michx.). – This taxon is also treated as var. *reptile* of *H. pallescens*.

Hypnum vaucheri Lesq.

Isopterygiopsis pulchella (Hedw.) Z. Iwats. (*Isopterygium pulchellum* (Hedw.) A. Jaeger et Sauerb.; *Plagiothecium pulchellum* (Hedw.) Schimp.)

Isoetecium alopecuroides (Dubois) Isov. (*Isoetecium viviparum* Lindb.; *Isoetecium myurum* Brid.)

Isoetecium myosuroides Brid. (*Pseudisoetecium myosuroides* (Brid.) Grout)

Leptobryum pyriforme (Hedw.) Wilson

Leptodictyum riparium (Hedw.) Warnst. (*Amblystegium riparium* (Hedw.) Schimp.). – The forms recorded in BOROS (1968) (*f. longifolia*, *f. leptophylla*) are only modifications (BOROS (1968)).

Leptodon smithii (Hedw.) F. Weber et D. Mohr

Leskea polycarpa Ehrh. ex Hedw.

Leucobryum glaucum (Hedw.) Ångstr.

Leucobryum juniperoideum (Brid.) Müll. Hal.

Leucodon sciuroides (Hedw.) Schwägr.

Meesia triquetra (Richt.) Ångstr. – known from a single locality, representative specimen: BP 119635 Comit. Zala. In turfosis versus Batyk prope Túrje, 19.09.1953, leg. Á. Boros, numerous duplicates.

Mnium hornum Hedw.

Mnium lycopodioides Schwägr. (*Mnium ambiguum* H. Müll.; *Mnium orthorrhynchum* var. *lycopodioides* (Schwägr.) Husn.). – Taxonomy according to KOPONEN (1994) and KOPERSKI *et al.* (2000); the taxonomic position of “var. *dioicum*” (var. *riparium* (Mitt.) Husn., mentioned under *M. marginatum* in BOROS (1968)) is unresolved as yet.

Mnium marginatum (Dicks.) P. Beauv. – BOROS (1968) includes reports by Latzel of “var. *riparium* (Mitt.) Husn.”, but the taxonomy of this and its relation to *M. marginatum* var. *dioicum* (H. Müll.) Crundw., placed into synonymy with *M. lycopodioides* by KOPONEN (1980), needs further study.

Mnium spinulosum Bruch et Schimp. – Reported from a single record (Bakony Mts) in BOROS (1968), ORBÁN and VAJDA (1983). Specimen: BP 91988. Comit. Veszprém. In faginetis sept. montis Miklóspál-hegy ad Bánd prope Szentgál. 06.06.1949. leg. Á. Boros.

Mnium stellare Hedw.

Mnium thomsonii Schimp. (*Mnium orthorrhynchum* auct. non Brid., under this name in BOROS (1968))

Myurella julacea (Schwägr.) Schimp. (*Myurella julacea* var. *scabrifolia* Lindb. ex Limpr.)

Neckera complanata (Hedw.) Huebener

Neckera crispa Hedw.

Neckera pennata Hedw.

Neckera pumila Hedw. – BOROS (1968), ORBÁN and VAJDA (1983) mention var. *philippeana* (Bruch et Schimp.) Milde and var. *pilifera* Jur., but these are no longer recognised (NYHOLM 1960).

Orthothecium intricatum (Hartm.) Schimp.

Orthotrichum affine Schrad. ex Brid. (*Orthotrichum octoblepharum* Brid.; *Orthotrichum fastigiatum* Bruch ex Brid.). – BOROS (1968), ORBÁN and VAJDA (1983) include var. *fastigiatum* Huebener; but according to modern taxonomists, this taxon is no longer recognised (LUDWIG *et al.* 1996, VITT 1973, LEWINSKY 1993).

Orthotrichum anomalum Hedw. (*Orthotrichum saxatile* Brid., nom. illeg., nom. superfl.). – BOROS (1968), ORBÁN and VAJDA (1983) include var. *saxatile* (Schimp.) Milde; according to NYHOLM (1960) probably only a modification.

Orthotrichum cupulatum Brid. (*Orthotrichum sardagnanum* Venturi). – In Hungary var. *cupulatum* and var. *riparium* Huebener (= var. *nudum* (Dicks.) Lindb.) occur according to BOROS (1968); it is not clear, what is meant with var. *sardagnanum* Venturi.

Orthotrichum diaphanum Schrad. ex Brid.

Orthotrichum gymnostomum Bruch ex Brid. – known from a single locality, specimens: BP 25476, BP 156188 Comit. Pest. In truncos populi in populetis ad Mórícgáti tanyák, 14.06.1953, leg. L. Vajda.

Orthotrichum lyellii Hook. et Taylor

Orthotrichum obtusifolium Brid.

Orthotrichum pallens Bruch ex Brid.

Orthotrichum patens Bruch ex Brid. – in BOROS (1968) under *O. stramineum* var. *patens* (Brid.) Venturi.

Orthotrichum pumilum Sw. (*Orthotrichum fallax* Bruch ex Brid.; *Orthotrichum schimperi* Hammar). – contrary to BOROS (1968), ORBÁN and VAJDA (1983) modern taxonomists no longer distinguish between varieties of this species (LUDWIG *et al.* 1996, VITT 1973, LEWINSKY 1993).

Orthotrichum rogeri Brid.

Orthotrichum rupestre Schleich. ex Schwägr. (*Orthotrichum sturmii* Hoppe et Hornsch.). – BOROS (1968), ORBÁN and VAJDA (1983) include var. *sturmii* (Hoppe et Hornsch.) Jur., but this taxon is no longer distinguished (LUDWIG *et al.* 1996, VITT 1973, LEWINSKY 1993).

Orthotrichum scanicum Grönvall (*Orthotrichum leucomitrium* Bruch et Schimp.)

Orthotrichum speciosum Nees

Orthotrichum sprucei Mont. – Until its discovery by ERZBERGER and PAPP (2000) in Kiskunság, this moss was only known from oceanic Western Europe, but in the meantime it has been reported from Turkey (ERDAĞ and KÖRSCHNER 2000) and even Kazakhstan (GOFFINET 2002).

Orthotrichum stellatum Brid. (*Orthotrichum braunii* Bruch et Schimp.)

Orthotrichum stramineum Hornsch. ex Brid.

Orthotrichum striatum Hedw. (*Orthotrichum leiocarpum* Bruch et Schimp., nom. illeg., nom. superfl.). – BOROS (1968) distinguishes subsp. *shawii* Wilson, a taxon that is considered by MAZIMPAKA *et al.* (2000) as a good species. Revision of the specimens is necessary.

Orthotrichum tenellum Bruch ex Brid.

Orthotrichum urnigerum Myrin

Oxystegus tenuirostris (Hook. et Taylor) A. J. E. Sm. (*Oxystegus cylindricus* (Brid.) Hilp.; *Tortella cylindrica* (Brid.) Loeske; *Trichostomum cylindricum* (Brid.) Müll. Hal., nom. illeg., hom. post.; *Trichostomum tenuirostre* (Hook. et Taylor) Lindb.). – incl. var. *gemmiparus* (Schimp.) R. H. Zander; GALAMBOS (1986).

Palustriella commutata (Hedw.) Ochyra (*Cratoneuron commutatum* (Hedw.) G. Roth). – Intraspecific taxonomy is controversial. BOROS (1968), ORBÁN and VAJDA (1983) mention 3 additional varieties (var. *falcatum*, var. *ptychodioides* and var. *sulcatum*), which Boros considers to be mere habitat modifications. However, var. *commutata* and var. *falcata* (Brid.) Ochyra are treated as separate species by HEDENÄS (2003), the latter he calls *Palustriella falcata* (Brid.) Hedenäs. On the other hand, KOPERSKI *et al.* (2000) recognise 4 varieties: var. *commutata*, var. *falcata* (Brid.) Ochyra, var. *fluctuans* (Schimp.) Ochyra, (not reported from Hungary), and var. *sulcata* (Lindb.) Ochyra. The var. *ptychodioides* (G. Roth) Mönk. (sub *Cratoneuron*) mentioned in BOROS (1968), ORBÁN and VAJDA (1983) is included in *P. commutata* var. *commutata* by KOPERSKI *et al.* (2000). Whereas var. *falcata* and var. *sulcata* are kept separate by KOPERSKI *et al.* (2000), HEDENÄS (2003) places var. *sulcata* into synonymy with *Palustriella falcata*.

Paraleucobryum longifolium (Hedw.) Loeske (*Dicranum longifolium* Ehrh. ex Hedw.). – BOROS (1968) mentions a record by Latzel of var. *hamatum* Jur. (= f. *hamatum* (Jur.) Demaret), but not many authors recognise this form.

Phascum curvicolle Hedw. (*Microbryum curvicolle* (Hedw.) R. H. Zander)

Phascum cuspidatum Hedw. (*Phascum acaulon* L. ex With.; *Phascum halophilum* Šmarda; *Tortula acaulon* (With.) R. H. Zander). – Whereas no infraspecific taxa are mentioned in ORBÁN and VAJDA (1983), BOROS (1968) includes, besides var. *cuspidatum*, var. *piliferum* (Hedw.) Hook. et Taylor (as *Phascum acaulon* L. forma *piliferum* (Schreb.) Boros) and *Phascum halophilum* Šmarda (as f. *halophilum* Šmarda) Boros et Vajda; the latter is not recognised in KOPERSKI *et al.* (2000), who treat two additional varieties: var. *mitraeforme* Limpr. and var. *papillosum* (Lindb.) C. Hartm. (not reported from Hungary). Herbarium revision or fieldwork is necessary to establish the situation of infraspecific taxa in Hungary.

Phascum floerkeanum F. Weber et D. Mohr (*Microbryum floerkeanum* (F. Weber et D. Mohr) Schimp.)

Phascum leptophyllum Müll. Hal. (*Chenia rhizophylla* (Sakurai) R. H. Zander; *Chenia leptophylla* (Müll. Hal.) R. H. Zander; *Tortula rhizophylla* (Sakurai) Z. Iwats. et K. Saito). – ZANTEN (2000) reports this species as new for Hungary.

Philonotis arnellii Husn. (*Philonotis capillaris* auct.). – for synonymy, see KOPERSKI *et al.* (2000).

Philonotis caespitosa Jur.

Philonotis calcarea (Bruch et Schimp.) Schimp.

Philonotis fontana (Hedw.) Brid. – KOPERSKI *et al.* (2000) propose to include *P. tomentella* Molendo as var. *pumila* Turner in *P. fontana*. If this treatment is followed, the typical taxon must be called *P. fontana* var. *fontana*. We do not know of any records of *P. tomentella* in Hungary.

Philonotis marchica (Hedw.) Brid.

Physcomitrium eurystomum Sendtn. (*Physcomitrium acuminatum* Bruch et Schimp.). – BOROS (1968) includes f. *acuminata* (Schleich.) Loeske.

Physcomitrium pyriforme (Hedw.) Brid.

Physcomitrium sphaericum (C. F. Ludw.) Brid.

Plagiobryum zierii (Hedw.) Lindb.

Plagiomnium affine (Blandow) T. J. Kop. (*Mnium affine* Blandow; *Mnium cuspidatum* auct. p.p.). – BOROS (1968) includes var. *integrifolium* Lindb. and var. *ciliare* Lindb., the taxonomic value of which is not clear.

Plagiomnium cuspidatum (Hedw.) T. J. Kop. (*Mnium cuspidatum* Hedw.)

Plagiomnium elatum (Bruch et Schimp.) T. J. Kop. (*Mnium seligeri* auct.; *Mnium affine* var. *elatum* Bruch et Schimp.)

Plagiomnium ellipticum (Brid.) T. J. Kop. (*Mnium rugicum* Laurer). – This species is missing from BOROS (1968), but contained in ORBÁN and VAJDA (1983).

Plagiomnium medium (Bruch et Schimp.) T. J. Kop. (*Mnium medium* Bruch et Schimp.). – subsp. *medium*.

Plagiomnium rostratum (anon.) T. J. Kop. (*Mnium rostratum* anon.; *Mnium longirostre* Brid.)

Plagiomnium undulatum (Hedw.) T. J. Kop. (*Mnium undulatum* Hedw.)

Plagiopus oederianus (Sw.) H. A. Crum et L. E. Anderson (*Plagiopus oederi* (Brid.) Limpr.; *Barramia oederi* Brid.)

Plagiothecium cavifolium (Brid.) Z. Iwats. (*Plagiothecium roeseanum* Schimp.)

Plagiothecium denticulatum (Hedw.) Schimp. – BOROS (1968) includes var. *majus* (Boulay) Limpr.

Plagiothecium laetum Schimp. (*Plagiothecium curvifolium* Limpr.). – We follow KOPERSKI *et al.* (2000) in placing *P. curvifolium* Limpr. as var. *curvifolium* (Limpr.) Mastracci et M. Sauer within *P. laetum* Schimp.

Plagiothecium nemorale (Mitt.) A. Jaeger (*Plagiothecium neglectum* Mönk.; *Plagiothecium sylvaticum* auct.)

Plagiothecium platyphyllum Mönk.

Plagiothecium ruthei Limpr. – KOPERSKI *et al.* (2000) place this taxon at varietal level within *P. denticulatum*, but we follow MASTRACCI and SAUER (2001) in recognising it as species.

Plagiothecium succulentum (Wilson) Lindb.

Plagiothecium undulatum (Hedw.) Schimp. – Specimen: BP 71215. Comit. Vas. Ad margines rivulorum prope pag. Jeli. 12.05.1965. leg. L. Vajda.

Platydictya jungermannioides (Brid.) H. A. Crum

Platygyrium repens (Brid.) Schimp.

Platyhypnidium riparioides (Hedw.) Dixon (*Eurhynchium rusciforme* Milde, nom. illeg., nom. superfl.; *Rhynchostegium riparioides* (Hedw.) Cardot). – STECH and FRAHM (1999) and HEDENÅS (1990) suggest placement of this taxon in a genus of its own (KOPERSKI *et al.* 2000).

Pleuridium acuminatum Lindb. (*Pleuridium subulatum* auct. non (Hedw.) Rabenh., BOROS (1968) uses this name for *P. acuminatum* Lindb.)

Pleuridium subulatum (Hedw.) Rabenh. (*Pleuridium alternifolium* auct. non (Hedw.) Brid., BOROS (1968) uses this name for *P. subulatum* (Hedw.) Rabenh.)

Pleurochaete squarrosa (Brid.) Lindb.

Pleurozium schreberi (Brid.) Mitt. (*Entodon schreberi* (Brid.) Mönk.)

Pogonatum aloides (Hedw.) P. Beauv.

Pogonatum nanum (Hedw.) P. Beauv.

Pogonatum urnigerum (Hedw.) P. Beauv.

Pohlia andalusica (Höhn.) Broth. – Revision of herbarium specimens (Erzberger, in press) showed that this is the most frequent among Hungarian bulbiferous *Pohlia* species. It is new for Hungary.

Pohlia annotina (Hedw.) Lindb. (*Pohlia grandiflora* H. Lindb.). – Synonymy according to KOPERSKI *et al.* (2000). Synonymies given in ORBÁN and VAJDA (1983) are erroneous. Revision of herbarium specimens (Erzberger, in press) showed that part of the specimens labelled *P. grandiflora* belong to *P. andalusica*, *P. prolifera* and *P. annotina*.

Pohlia camptotrachela (Renaud et Cardot) Broth. – Synonymy in ORBÁN and VAJDA (1983) is erroneous. Recently found in a single specimen labelled *P. bulbifera* (Erzberger, in press): BP 116206: Comit. Abauj-Torna. In arenoso-argillosis subhumidis ad marg. silv. sept. montis Farkas-hegy prope Telkibánya, 19.10.1959, leg. Á. Boros.

Pohlia cruda (Hedw.) Lindb.

Pohlia elongata Hedw.

Pohlia lutescens (Limpr.) H. Lindb. (*Leptobryum lutescens* (Limpr.) Mönk.). – In BOROS (1968) as doubtful, but confirmed in BOROS and VAJDA (1970), reported in ORBÁN and VAJDA (1983).

Pohlia melanodon (Brid.) A. J. Shaw (*Mniobryum delicatulum* (Hedw.) Dixon; *Mniobryum carneum* (F. Weber et D. Mohr) Limpr., nom. illeg., nom. superfl.; *Pohlia carnea* (Schimp.) Lindb.)

Pohlia nutans (Hedw.) Lindb.

Pohlia prolifera (Brid.) Lindb. ex Arnell. – reported as doubtful in DÜLL (1985), erroneously synonymised in ORBÁN and VAJDA (1983), but some specimens were confirmed (Erzberger, in press); representative specimen: BP 42500: Comit. Veszprém. In locis humidis montis Kabhegy prope pag. Padrag, 05.10.1955, leg. L. Vajda sub *Mniobryum albicans*, rev. G. Nordhorn-Richter, 1981.

Pohlia wahlenbergii (F. Weber et D. Mohr) A. L. Andrews (*Mniobryum wahlenbergii* (F. Weber et D. Mohr) Jenn.; *Mniobryum albicans* (Wahlenb.) Limpr., nom. illeg., nom. superfl.). – BOROS (1968) mentions var. *calcareum*, but according to KOPERSKI *et al.* (2000), intraspecific taxa are critical.

Polytrichum alpinum Hedw. (*Polytrichastrum alpinum* (Hedw.) G. L. Sm.)

Polytrichum commune Hedw. – In BOROS (1968) and ORBÁN and VAJDA (1983) var. *commune* and var. *perigoniale* (Michx.) Hampe are treated as subspecies.

Polytrichum formosum Hedw. (*Polytrichastrum formosum* (Hedw.) G. L. Sm.; *Polytrichum attenuatum* Menzies ex Brid.)

Polytrichum juniperinum Hedw.

Polytrichum longisetum Sw. ex Brid. (*Polytrichastrum longisetum* (Brid.) G. L. Sm.; *Polytrichum gracile* Dicks.)

Polytrichum piliferum Schreb. ex Hedw.

Polytrichum strictum Menzies ex Brid. (*Polytrichum alpestre* Hoppe). – In ORBÁN and VAJDA (1983) treated as subspecies of *P. juniperinum*.

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) Fűrnr. (*Tortula modica* R. H. Zander)

Pottia lanceolata (Hedw.) Müll. Hal. (*Tortula lanceola* R. H. Zander). – BOROS (1968) includes var. *gasilieni* (Venturi) Corb., but this taxon is placed in *Tortula atrovirens* in ORBÁN and VAJDA (1983) and also in ZANDER (1993); taxonomic value and position require further studies.

Pottia mutica Venturi (*Microbryum starckeana* var. *brachyodus* (Bruch et Schimp.) R. H. Zander). – BOROS (1968), ORBÁN and VAJDA (1983) probably treat this taxon under the name *P. starckeana*; BOROS (1968) includes var. *mutica*, but only for a single record by Latzel. In our opinion, however, *P. mutica* is widespread in open calcareous habitats. Other infraspecific taxa of *P. starckeana* are not mentioned, in ORBÁN and VAJDA (1983) even var. *mutica* is omitted.

Pottia starckeana (Hedw.) Müll. Hal. (*Microbryum starckeana* R. H. Zander). – The presence of this taxon in Hungary could be shown recently (Erzberger, unpubl.). Specimen: Fejér county, Vértes Mts. Open calcareous grassland around Bucka-hill between Csákvár and Csákberény, 12.04.2004, leg. P. Erzberger 9985 (herb. Erzberger, Berlin). See also note under the preceding species.

Pottia truncata (Hedw.) Bruch et Schimp. (*Pottia truncatula* (With.) Büse, nom. illeg., nom. superfl.; *Tortula truncata* (Hedw.) Mitt.)

Pseudephemerum nitidum (Hedw.) Reimers (*Pseudephemerum axillare* (Lindb.) I. Hagen, nom. illeg., nom. superfl.)

Pseudocrossidium hornschruchianum (Schultz) R. H. Zander (*Barbula hornschruchiana* Schultz). – BOROS (1968) includes var. *pseudorevoluta* Reimers = var. *obtusula* (Lindb.) Podp. According to NYHOLM (1990), this variety is better placed under *P. revolutum*, as var. *obtusula* (Lindb.) Mönk.

Pseudocrossidium revolutum (Brid.) R. H. Zander (*Barbula revoluta* Brid.). – see note under the preceding species.

Pseudoleskea saviana (De Not.) Latzel (*Pseudoleskea illyrica* Glowacki; *Lescuraea saviana* (De Not.) E. Lawton). – known from a single locality, representative specimen: BP 83964 Crypt. exs. ed. a Mus. Hist. Nat. Vind. 3993. Com. Heves, an bewaldeten Andesitfelsen des Berges Kékes bei Pará, 950–1000 m; 27.04.1952, leg. Á. Boros; numerous dupl.

Pseudoleskeella catenulata (Schrad.) Kindb. (*Leskea catenulata* (Schrad.) Mitt.)

Pseudoleskeella nervosa (Brid.) Nyholm (*Leskea nervosa* (Brid.) Myrin; *Leskeella nervosa* (Brid.) Loeske)

Pseudotaxiphyllum elegans (Brid.) Z. Iwats. (*Isopterygium elegans* (Brid.) Lindb.; *Plagiothecium elegans* (Brid.) Sull.)

Pterigynandrum filiforme Hedw.

Pterogonium gracile (Hedw.) Sm. (*Pterogonium ornithopodioides* (F. Weber et D. Mohr) Lindb., nom. illeg., nom. superfl.). – known from a single locality, representative specimen: BP 45022, BP 122886 Basaltberg St. György bei Tapolca am Platten-See, an Felsen, 24.03.1901, leg. et det. J. Baumgartner, later (01.05.1955) also collected by Boros and Vajda (BP 39247, BP 122887).

Pterygoneurum compactum M.J. Cano, J. Guerra et Ros. – PÓCS (1999).

Pterygoneurum crossidioides W. Frey, Herrnst. et Kürschner. – PÓCS (1999); according to PÓCS *et al.* (2002), the records need confirmation since European specimens are not typical.

Pterygoneurum lamellatum (Lindb.) Jur.

Pterygoneurum ovatum (Hedw.) Dixon (*Pterygoneurum pusillum* (Lindb.) C. E. O. Jensen; *Pterygoneurum cavifolium* Jur., nom. illeg., nom. superfl.)

Pterygoneurum squamosum Segarra et Kürschner. – PÓCS (1999).

Pterygoneurum subsessile (Brid.) Jur.

Ptilium crista-castrensis (Hedw.) De Not.

Pylaisia polyantha (Hedw.) Schimp. – spelled “Pylaiea” in BOROS (1968).

Pyramidula tetragona (Brid.) Brid.

Racomitrium affine (F. Weber et D. Mohr) Lindb. – spelled “*Rhacomitrium*” in BOROS (1968), now considered an invalid orthographic variant (KOPERSKI *et al.* 2000); in BOROS (1968) and ORBÁN and VAJDA (1983) as “subsp. *affine* (Web. et Mohr) Amann”; specimens should be checked because of change in definition of taxa (KOPERSKI *et al.* 2000).

Racomitrium aquaticum (Schr.) Brid. (*Racomitrium protensum* (A. Braun) Huebener)

Racomitrium canescens (Hedw.) Brid. – Since the specimens have not been revised, it is not clear, which taxa of the *R. canescens* group (FRISVOLL 1983) are present in Hungary, apart from *R. canescens* s. str., confirmed by the first author (Erzberger, unpubl.).

Racomitrium heterostichum (Hedw.) Brid. – BOROS (1968) includes var. *affine* (F. Weber et D. Mohr) Lesqu. [nom. illeg., nom. superfl.] and f. *obtusum* (see following species), but specimens should be checked.

Racomitrium obtusum (Brid.) Brid. – In BOROS (1968), ORBÁN and VAJDA (1983) included as f. *obtusum* under *R. heterostichum*; herbarium specimens should be checked.

Rhabdoweisia fugax (Hedw.) Bruch et Schimp. (*Rhabdoweisia striata* (Schr.) Lindb.)

Rhizomnium punctatum (Hedw.) T. J. Kop. (*Mnium punctatum* Hedw.)

Rhodobryum ontariense (Kindb.) Kindb. (*Rhodobryum spathulatum* auct.). – not in BOROS (1968); for an account of this species in Hungary see ORBÁN and PÓCS (1976).

Rhodobryum roseum (Hedw.) Limpr.

Rhynchostegiella curviseta (Brid.) Limpr.

Rhynchostegiella tenella (Dicks.) Limpr. (*Rhynchostegiella algiriana* (P. Beauv.) Warnst.)

Rhynchostegiella teneriffae (Mont.) Dirkse et Bouman (*Rhynchostegiella jacquinii* (Garov.) Limpr.)

Rhynchostegiella tenuicaulis (Spruce) Kartt. (*Cirriphyllum germanicum* (Grebe) Loeske et M. Fleisch.)

Rhynchostegium confertum (Dicks.) Schimp.

Rhynchostegium megapolitanum (F. Weber et D. Mohr) Schimp.

Rhynchostegium murale (Hedw.) Schimp. – BOROS (1968) mentions var. *julaceum* Schimp., but no infraspecific taxa are recognised today (KOPERSKI *et al.* 2000).

Rhynchostegium rotundifolium (Brid.) Schimp.

Rhytidiadelphus squarrosus (Hedw.) Warnst. (*Hylocomium squarrosus* (Hedw.) Schimp.)

Rhytidiadelphus triquetrus (Hedw.) Warnst. (*Hylocomium triquetrum* (Hedw.) Schimp.)

Rhytidium rugosum (Hedw.) Kindb.

Saelania glaucescens (Hedw.) Broth. (*Saelania caesia* (P. Beauv.) Lindb.)

Sanionia uncinata (Hedw.) Loeske (*Drepanocladus uncinatus* (Hedw.) Warnst.)

Schistidium apocarpum (Hedw.) Bruch et Schimp. (*Grimmia apocarpa* Hedw.). – Taxonomy according to BLOM (1996, 1998); the material of the genus should be revised. The name *S. apocarpum* in BOROS (1968), ORBÁN and VAJDA (1983) is understood *sensu lato*.

Schistidium brunnescens Limpr. subsp. *brunnescens* (*Schistidium apocarpum* subsp. *brunnescens* (Limpr.) Loeske). – BLOM (1996): Budakalász, “Mt. Monalovác”; widespread in calcareous habitats (Erzberger, unpubl.), see also BOROS (1968), ORBÁN and VAJDA (1983).

Schistidium crassipilum H. H. Blom. – BLOM (1996): CBIatorbágy by Budapest, Sziklaperem, VII 1979 Marstaller (JE), Bükk Mts., Leányvölgy near Szilvásvárád Vitt 25526 (ALTA)”. Many records of *S. apocarpum* s.l. are probably *S. crassipilum*.

Schistidium flaccidum (De Not.) Ochyra (*Grimmia flaccida* (De Not.) Lindb.; *Schistidium pulvinatum* var. *flaccidum* (De Not.) De Not.; *Schistidium pulvinatum* auct. non (Hedw.) Brid.). – BLOM (1996): Representative specimen: BP 5587, Flora Hungarica exsiccata VIII. 729, Pomáz, comit. Pest Hungariae centralis, in rupium fissuris montis “Kis Csikóvár”, 04.1924. leg. and det. Á. Degen. Several other specimens exist from the same locality. We could still find the species in 2000 (Erzberger and Papp, unpubl.).

Schistidium singarense (Schiffn.) Lazarenko. – BLOM (1996): Villányi Mts., Tenkeshegy by Máriagyűd, 4.6.1986, Marstaller (JE).

Scleropodium purum (Hedw.) Limpr. (*Pseudoscleropodium purum* (Hedw.) M. Fleisch. ex Broth.)

Scorpidium scorpioides (Hedw.) Limpr.

Seligeria calcarea (Hedw.) Bruch et Schimp. – missing in BOROS (1968), only ORBÁN and VAJDA (1983).

Seligeria campylopoda Kindb. – GOS and OCHYRA (1994), specimens: BP 96768 leg. Á. Boros, rev. L. Gos 1991 and BP 68281 leg. L. Vajda, rev. L. Gos 1991. Comit. Veszprém. In rupibus dolomiticis umbrosis montis Csókakő prope Keszthely, 06.05.1963.

Seligeria donniana (Sm.) Müll. Hal. – missing in BOROS (1968), only ORBÁN and VAJDA (1983).

Seligeria pusilla (Hedw.) Bruch et Schimp.

Seligeria recurvata (Hedw.) Bruch et Schimp. (*Seligeria setacea* Lindb., nom. illeg., nom. superfl.)

Seligeria trifaria (Brid.) Lindb. var. *longifolia* (Broth.) Ochyra et Gos. – GOS and OCHYRA (1994), specimen: BP 75532 Comit. Heves. In muris humidis in pag. Eger. 31.08.1962. leg. L. Vajda, rev. L. Gos 1991.

Sphagnum angustifolium (Warnst.) C. E. O. Jensen (*Sphagnum parvifolium* (Warnst.) Warnst.). – This species is treated under *S. recurvum* in BOROS (1968) as f. *parvifolium*, it is implicitly included in *S. recurvum* in ORBÁN and VAJDA (1983).

Sphagnum capillifolium (Ehrh.) Hedw. (*Sphagnum nemoreum* auct.; *Sphagnum acutifolium* Ehrh. ex Schrad.)

Sphagnum centrale C. E. O. Jensen (*Sphagnum subbicolor* auct. non Hampe)

Sphagnum compactum Lam. et DC. – Most authors do not recognise infraspecific taxa (BOROS (1968) mentions var. *squarrosum* Russow, f. *laxum* Cardot and var. *subsquarrosum* Warnst.).

Sphagnum contortum Schultz

Sphagnum cuspidatum Ehrh. ex Hoffm. – SZURDOKI (2003).

Sphagnum denticulatum Brid. – In spite of occasional difficulties in separating *S. inundatum* and *S. denticulatum*, we follow DIERSEN (1996) in recognising two species. By earlier authors, these taxa were not always strictly separated from one another and from *S. subsecundum*. This is also evident from the descriptions in ORBÁN and VAJDA (1983). Therefore, old reports are sometimes interpreted with difficulty. For recent records consult SZURDOKI (2003).

Sphagnum fallax (H. Klinggräff) H. Klinggräff (*Sphagnum recurvum* var. *mucronatum* (Russow) Warnst.). – in ORBÁN and VAJDA (1983) reported as *S. recurvum* P. Beauv., a wider taxon; in BOROS (1968) as *S. fallax* and *S. recurvum* var. *mucronatum* (Russow) Warnst.

Sphagnum fimbriatum Wilson

Sphagnum flexuosum Dozy et Molk. (*Sphagnum recurvum* var. *amblyphyllum* (Russow) Warnst.)

Sphagnum girgensohnii Russow. – only in ORBÁN and VAJDA (1983), missing in BOROS (1968).

Sphagnum inundatum Russow. – In spite of occasional difficulties in separating *S. inundatum* and *S. denticulatum*, we follow DIERSEN (1996) in recognising two species. For recent records consult SZURDOKI (2003).

Sphagnum magellanicum Brid.

Sphagnum obtusum Warnst.

Sphagnum palustre L.

Sphagnum platyphyllum (Braithw.) Sull. ex Warnst.

Sphagnum quinquefarium (Braithw.) Warnst.

Sphagnum riparium Ångstr. – reported as new for Hungary by SZURDOKI *et al.* (2000).

Sphagnum russowii Warnst. (*Sphagnum robustum* (Warnst.) Cardot)

Sphagnum squarrosum Crome

Sphagnum subnitens Russow et Warnst. (*Sphagnum plumulosum* Roell)

Sphagnum subsecundum Nees. – possibly not always separated from *S. denticulatum* or *S. inundatum*, see note under the former species.

Sphagnum teres (Schimp.) Ångstr.

Sphagnum warnstorffii Russow. – Extinct according to BOROS (1968) (specimen: BP 5518 Comit. Zala. In paludosis turfosis ad piscinas prope Lesenceistvánd, 25.08.1923, leg. Boros, conf. P. Erzberger); a second locality (specimen: BP 5526 Comit. Vas. In sphagnetis vallis Gössbach prope pagum Hámortó, 18.08.1924, leg. Á. Boros, det. P. Fürst, conf. P. Erzberger; 2 specimens in herb. Piers, SZO: Hungaria. Districtus-transdanubialis. In uliginosis vallis Goos solo phyllitico, 30.04.1897, leg. Piers, rev. A. Latzel) is situated in Austria near the Hungarian border (cf. KIRÁLY 1996).

Splachnobryum obtusum (Brid.) Müll. Hal. (*Splachnobryum wrightii* Müll. Hal.). – Synonymy according to VAJDA (1960) and DÜLL (1985); known from a single locality, representative specimen: BP 164959 Crypt. exs. ed. a Mus. Hist. Nat. Vind. 4496. Com. Heves, an berieselten, von Kalktuff durchsetzten Stellen der Thermalquelle in der Stadt Eger, ca. 180 m, 15.09.1959, leg. Á. Boros; numerous duplicates.

Taxiphyllum densifolium (Broth.) Reimers (*Plagiothecium densifolium* (Broth.) Limpr.)

Taxiphyllum wissgrillii (Garov.) Wijk et Margad. (*Taxiphyllum depressum* (Brid.) Reimers)

Tetraxis pellucida Hedw. (*Georgia pellucida* (Hedw.) Rabenh.)

Thamnobryum alopecurum (Hedw.) Gangulee (*Arbuscula alopecura* (Hedw.) H. A. Crum, Steere et L. E. Anderson, nom. illeg., nom. superfl.; *Thamnium alopecurum* (Hedw.) Schimp.)

Thuidium abietinum (Hedw.) Schimp. (*Abietinella abietina* (Hedw.) M. Fleisch.). – It is not clear, to which of two varieties (var. *abietinum* and var. *hystricosum* (Mitt.) Loeske) the Hungarian records belong; DÜLL (1985) reports var. *hystricosum* as doubtful; he has not seen specimens (Düll in litt.).

Thuidium delicatulum (Hedw.) Schimp. (*Thuidium erectum* Duby)

Thuidium philibertii Limpr. – BOROS (1968) includes var. *pseudotamarisci* Limpr., but this is generally placed into synonymy with *T. philibertii*.

Thuidium recognitum (Hedw.) Lindb.

Thuidium tamariscinum (Hedw.) Schimp. (*Thuidium tamariscifolium* Lindb., nom. illeg., nom. superfl.)

Timmia austriaca Hedw. – known from a single locality, specimens: BP 8544, BP 8545 Comit. Borsod. In rupibus calcareis montis Hollókő prope pag. Nagyvisnyó, 04.10.1951, leg. L. Vajda, and BP 121385, 07.08.1953, leg. Á. Boros.

Timmia bavarica Hessel.

Tomentypnum nitens (Hedw.) Loeske (*Homalothecium trichoides* (Lindb.) Boros; *Camptothecium nitens* (Hedw.) Schimp.; *Homalothecium nitens* (Hedw.) H. Rob.; *Camptothecium trichoides* Broth.)

Tortella hambergeri (Schimp.) Broth. – not reported by BOROS (1968), ORBÁN and VAJDA (1983), but in MARSTALLER (1993a); three specimens from JE could be confirmed (Erzberger, unpubl.); another specimen was found during revision: Herb. Erzberger, Berlin, 4702: Ungarn, Bükk-Geb., Hór-völgy, Ódor-vár, 06.08.1998, leg. P. Erzberger sub *T. tortuosa* (untypisch) (Erzberger, unpubl.).

Tortella inclinata (R. Hedw.) Limpr.

Tortella tortuosa (Hedw.) Limpr.

Tortula atrovirens (Sm.) Lindb. (*Desmatodon convolutus* (Brid.) Grout). – ORBÁN and VAJDA (1983) includes var. *gasilieni* (Venturi) Limpr., which is treated under *Pottia lanceolata* in BOROS (1968), but placed in *T. atrovirens* e.g. in ZANDER (1993); taxonomic value and position require further studies.

Tortula brevissima Schiffn. – For an account of this species in Hungary, its interesting bryogeography and bryosociology see ERZBERGER (1998), KÜRSCHNER and PAROLLY (1998), KÜRSCHNER and PÓCS (2002) and KÜRSCHNER (2002).

Tortula calcicolens W. A. Kramer (*Tortula ruralis* var. *calcicola* (J. J. Amann) Barkman; *Syntrichia calcicola* J. J. Amann)

Tortula caninervis (Mitt.) Broth. subsp. *spuria* (J. J. Amann) W. A. Kramer (*Tortula caninervis* subsp. *spuria* var. *gypsophila* (Roth) W. A. Kramer; *Tortula desertorum* Broth.; *Syntrichia caninervis* Mitt. var. *spuria* (J. J. Amann) R. H. Zander). – var. *spuria*; discovered as new for the Hungarian bryoflora during herbarium studies by TÓTH (1987); for nomenclature see WERNER and HÉBRARD (1986); vulnerable according to RAJCZY (1990) (as *Tortula desertorum* Broth.).

Tortula crinita (De Not.) De Not. (*Tortula intermedia* (Brid.) Berk., nom. illeg., hom. post.; *Syntrichia montana* Nees; *Syntrichia intermedia* Brid.). – Two varieties occur in Hungary (TÓTH 1986): var. *crinita* and var. *calva* (Durieu et Sagot) Nebel et Heinrichs (= *T. intermedia* var. *calva* (Durieu et Sagot) Wijk et Margad).

Tortula inermis (Brid.) Mont. (*Syntrichia inermis* (Brid.) Bruch). – Specimen: BP 4452. Comit. Pest. In valle “Apátkúti völgy” ad saxa trachyt. pr. pag. Visegrád. 07.06.1932. leg. J. Szepesfalvi, teste J. Kučera 1998.

Tortula laevipila (Brid.) Schwägr. (*Syntrichia laevipila* Brid.)

Tortula latifolia Bruch ex Hartm. (*Syntrichia latifolia* (Hartm.) Huebener)

Tortula mucronifolia Schwägr. (*Syntrichia mucronifolia* (Schwägr.) Brid.)

Tortula muralis L. ex Hedw. – var. *muralis* and var. *aestiva* Brid. ex Hedw.

Tortula norvegica (F. Weber) Wahlenb. ex Lindb. (*Syntrichia norvegica* F. Weber). – first published for Hungary by TÓTH (1987), discovered by L. Meinunger.

Tortula obtusifolia (Schwägr.) Mathieu (*Tortula muralis* var. *obtusifolia* (Schwägr.) Boros). – BOROS (1968) treats this taxon as a variety of *T. muralis*.

Tortula papillosa Wilson (*Syntrichia papillosa* (Wilson) Jur.)

Tortula papillosissima (Copp.) Broth. (*Syntrichia ruralis* var. *hirsuta* (Venturi) Podp., [syn. of var. *papillosissima*]; *Syntrichia ruralis* var. *submamillosa* (W. A. Kramer) R. H. Zander (syn. of var. *submamillosa*)). – Two varieties occur in Hungary (TÓTH 1986): var. *papillosissima* (= *T. ruralis* subsp. *hirsuta* (Venturi) W. A. Kramer var. *hirsuta*) and var. *submamillosa* (W. A. Kramer) Heinrichs et Caspari (= *T. ruralis* subsp. *hirsuta* (Venturi) W. A. Kramer var. *submamillosa* W. A. Kramer).

Tortula ruraliformis (Besch.) Ingham (*Tortula ruralis* var. *arenicola* Braithw., nom. illeg., nom. superfl.; *Syntrichia ruralis* var. *ruraliformis* (Besch.) Durand, nom. illeg.; *Syntrichia ruralis* var. *arenicola* (Braithw.) J. J. Amann)

Tortula ruralis (Hedw.) P. Gaertn., B. Mey. et Scherb. (*Syntrichia ruralis* (Hedw.) F. Weber et D. Mohr)

Tortula subulata Hedw. (*Syntrichia subulata* (Hedw.) F. Weber et D. Mohr). – var. *subulata* and var. *angustata* (Schimp.) Limpr.

Tortula virescens (De Not.) De Not. (*Syntrichia virescens* (De Not.) Ochyra)

Trichostomum brachydontium Bruch (*Trichostomum mutabile* Bruch). – It is not clear, which of the two varieties (var. *brachydontium* and var. *cuspidatum* (Braithw.) L. I. Savicz) is present; the report of var. *cuspidatum* in DÜLL (1984) is based on PODPERA (1954), but there no details are given.

Trichostomum crispulum Bruch. – BOROS (1968) mentions *T. viridulum* Bruch (as doubtful), a taxon that is now placed as var. *angustifolium* Bruch et Schimp. in *T. crispulum* (KOPERSKI et al. 2000).

Ulota bruchii Hornsch. ex Brid. (*Ulota crispa* var. *norvegica* (Grönvall) A. J. E. Sm. et M. O. Hill)

Ulota coarctata (P. Beauv.) Hammar (*Ulota ludwigii* (Brid.) Brid.)

Ulota crispa (Hedw.) Brid. (*Ulota ulophylla* Broth.; *Ulota crispula* Brid.). – Although treated in BOROS (1968), ORBÁN and VAJDA (1983) as a separate taxon, *U. crispula* is now generally included in *U. crispa* (SMITH and PROCTOR 1993, ERZBERGER 2003).

Ulota hutchinsiae (Sm.) Hammar (*Ulota americana* (P. Beauv.) Limpr., nom. illeg., hom. post.). – extinct according to RAJCZY (1990); no specimen could be located in BP and EGR.

Warnstorfia exannulata (Schimp.) Loeske (*Drepanocladus exannulatus* (Schimp.) Warnst.)

Weissia brachycarpa (Nees et Hornsch.) Jur. (*Hymenostomum microstomum* (Hedw.) R. Br. ex Nees et Hornsch.; *Weissia microstoma* (Hedw.) Müll. Hal., nom. illeg., hom. post.)

Weissia condensa (Voit) Lindb. (*Hymenostomum tortile* (Schwägr.) Bruch et Schimp.; *Weissia tortilis* (Schwägr.) Müll. Hal., nom. illeg., hom. post.)

Weissia controversa Hedw. (*Weissia viridula* Brid., nom. illeg., nom. superfl.). – var. *controversa*; synonym: *W. viridula* var. *stenocarpa* (Nees et Hornsch.) Bruch et Schimp.; this name is used

in BOROS (1968) and ORBÁN and VAJDA (1983) in addition to the "type", the meaning of which is not clear.

Weissia fallax Sehm. (*Weissia tortilis* var. *fallax* (Sehm.) Mönk.; *Weissia controversa* var. *crispata* (Nees et Hornsch.) Nyholm)

Weissia longifolia Mitt. (*Astomum crispum* (Hedw.) Hampe)

Weissia rostellata (Brid.) Lindb. (*Hymenostomum rostellatum* (Brid.) Schimp.). – in BOROS (1968) missing, in ORBÁN and VAJDA (1983) reported from a single locality (for which a single, sterile and therefore doubtful specimen could be located: BP 75551 Comit. Abauj-Torna. In rupibus humidis vallis Senyőölgy pr. pag. Telkibánya; montes Sátorhegység); however, a recent collection (specimen: BP 167684 Budapest County. Budai-mountains, mount Hárs-hegy at Budapest on acidic soil on the northeastern part of the hill, 30.06.2000, leg. et det. B. Papp) proves the presence of this species in Hungary.

Weissia rutilans (Hedw.) Lindb.

Zygodon rupestris Schimp. ex Lorentz (*Zygodon viridissimus* var. *vulgaris* Malta, nom. illeg., nom. superfl.). – BOROS (1968), ORBÁN and VAJDA (1983) report only *Z. viridissimus*, but according to revision, specimens in BP and JE are *Z. rupestris* (B. Papp, P. Erzberger, unpubl.).

APPENDIX 1. EXCLUDED SPECIES

(Taxa reported in ORBÁN and VAJDA (1983) are marked with an asterisk)

HEPATICAEE

Cephaloziella elachista (Gottsche et Rabenh.) Schiffn. – A doubtful record from Mecsek Mts is rejected by BOROS (1968); not in Hungary according to SÖDERSTRÖM *et al.* (2002).

Gymnomitrium corallioides Nees. – doubtful according to SÖDERSTRÖM *et al.* (2002); source: MÜLLER (1954–1957): "Ungarn, Liptauer Gebirge" – present-day Slovakia, no records from Hungary known.

**Nardia insecta* Lindb. – although reported in BOROS (1968), ORBÁN and VAJDA (1983) and SÖDERSTRÖM *et al.* (2002), all specimens in BP were revised to *N. geoscyphus* by Vána; since all former reports refer to a single locality (representative specimen: BP 39074/H Comit. Abauj-Torna. In arenoso-argillosis silvat. montis Farkas-hegy supra Telkibánya, 19.10.1959, leg. Á. Boros), there is no evidence for the occurrence of this species in Hungary.

**Porella baueri* (Schiffn.) C. E. O. Jensen. – see annotation to *Porella platyphylla*.

**Porella platyphylloidea* (Schwein.) Lindb. (*Madotheca platyphylloidea* (Schwein.) Dumort.). – according to THERRIEN *et al.* (1998) not specifically distinct from *P. platyphylla*.

Ptilidium ciliare (L.) Hampe. – not in Hungary, according to BOROS (1968), SÖDERSTRÖM *et al.* 2002.

Sphaerocarpos michelii Bellardi (*Sphaerocarpos terrestris* Sm.). – Erroneously reported in DÜLL (1983), RAJCZY (1990) and accepted in SÖDERSTRÖM *et al.* (2002); Düll in litt.: "pers. communication by T. Pócs: 'Only once collected, specimen in BP'". According to T. Pócs (pers. comm.) this statement of Düll is erroneous and refers to *S. texanus*.

MUSCI

Aloina bifrons (De Not.) Delgad. – Missing in BOROS (1968), ORBÁN and VAJDA (1983), reports in DÜLL (1984, 1992) are based on an erroneous information from Orbán.

Aloina obliquifolia (Müll. Hal.) Broth. – see note under *A. rigida*.

**Anoetangium aestivum* (Hedw.) Mitt. – The report in ORBÁN and VAJDA (1983) (Appendix) is based on a single specimen, which was revised to *Hymenostylium recurvirostrum* (B. Papp, unpubl.). Specimen: BP 160192. Comit. Borsod. Lillafüred. Ad margines sylvarum. 10.03.1978. leg. L. Vajda.

Brachythecium starkei (Brid.) Schimp. – excluded in BOROS (1968), omitted in ORBÁN and VAJDA (1983).

**Bryum veronense* De Not. – in BOROS (1968) as subspecies of *B. argenteum*; see also ORBÁN and VAJDA (1983), VAJDA (1966b), VAJDA and ORBÁN (1975); the specimens (BP 118573 and BP 57956: Comit. Nógrád. In rupibus irrigatis rivi Rózsapatak prope Királyháza, montes Börzsöny. 03.02.1957, leg. L. Vajda) were revised to *B. argenteum* (B. Papp, unpubl.).

Calliergon sarmentosum (Wahlenb.) Kindb. (*Warnstorfia sarmentosa* (Wahlenb.) Hedenäs). – erroneously reported in HEDENÄS (2003) for Hungary; the specimen on which this report is based was collected in present-day Slovakia (Hedenäs, pers. comm.), and no other report is known.

**Coscinodon cribrosus* (Hedw.) Spruce. – first published by VAJDA (1966a), this record is listed in BOROS (1968), ORBÁN and VAJDA (1983); however, the specimens (BP 71290 and BP 111088 Comit. Veszprém. In rupibus siccis pr. pag. Salföld, 12.05.1956, leg. L. Vajda) were revised to *Grimmia trichophylla* (B. Papp, unpubl.).

**Dichodontium flavescens* (Dicks.) Lindb. (*Dichodontium pellucidum* var. *flavescens* (Dicks.) Moore). – Taxonomy according to WERNER (2002); no *D. flavescens* could be found during revision of all specimens of *D. pellucidum* in BP (Erzberger, unpubl.). Until specimens are located, *D. flavescens* must be considered absent from the Hungarian bryoflora.

Dicranella palustris (Dicks.) Crundw. ex E. F. Warb. – erroneously reported by DÜLL (1984).

Didymodon fallax var. *adriatica* (Baumgartner) Düll. – The record of Latzel (as *Barbula adriatica* Baumgartner) is rejected by BOROS (1968); but Latzel's record is repeated in PODPERA (1954), DÜLL (1984, 1992). Düll (pers. comm.) considers the variety to be presumably without taxonomic value.

Didymodon icmadophilus (Müll. Hal.) K. Saito. – erroneously reported by DÜLL (1984).

**Drepanocladus revolvens* (anon.) Warnst. – see note under *D. cossonii*; not reported for Hungary according to HEDENÄS (2003).

**Entodon concinnus* (De Not.) Paris (*Entodon orthocarpus* (Brid.) Lindb.; *Cylindrothecium concinatum* (De Not.) Schimp.). – All specimens that could be located in BP (1 specimen), EGR, SZO (4 specimens, Piers-herb.) belong to different species e.g. *Pleurozium schreberi* or *Calliergonella cuspidata*. These specimens refer to records from Kőszeg Mts; according to BOROS (1968), ORBÁN and VAJDA (1983) all other records are doubtful.

Fissidens kosaninii Latzel. – reported in BOROS (1968), VAJDA (1958), missing in ORBÁN and VAJDA (1983), because the material has been revised to *F. exiguus* (VAJDA 1975).

**Fissidens osmundoides* Hedw. – The only report in ORBÁN and VAJDA (1983) (Appendix) is based on a single specimen, which has been revised to *Fissidens taxifolius* (B. Papp, unpubl.). Specimen: BP 160761. Comit. Somogy. in salicetis ad margines fluvii Dráva prope pag. Drávatamási. 21.04.1979. Leg. I. Galambos, det. L. Vajda sub *Fissidens osmundoides* Hedw.

**Grimmia donniana* Sm. – MUÑOZ and PANDO (2000) quote a Hungarian specimen from BP (L. Vajda s.n.). In MUÑOZ (1998b), p. 381, probably the same specimen is quoted in more detail:

"HUNGARY, Montes Szeben, prope Paltanis, Vajda s.n. (BP-73974)". This collection originates from Romania, outside the present territory of Hungary. No specimen of *Grimmia donniana* from present-day Hungary annotated by Muñoz could be located in BP. Thus, there is no evidence for the presence of *G. donniana* in Hungary. In ORBÁN and VAJDA (1983), this name appears erroneously (see note under *G. montana*).

Heterocladium heteropterum Schimp. – BOROS (1968): the specimen of Szepesfalvi was revised by Boros to *Pterigynandrum filiforme*.

Hylocomium pyrenaicum (Spruce) Lindb. – specimens have been revised to *H. splendens* (BOROS (1968)).

**Hypnum fertile* Sendtn. – A single occurrence of this species was reported by I. Galambos (ORBÁN and VAJDA (1983), Appendix). However, the specimen does not belong to *H. fertile* (B. Papp and P. Erzberger, unpubl.). Specimen: BP 159411. Comit. Somogy. In ripa Nagyberek, ad truncos putr., prope pago Darány. 14.11.1976. leg. I. Galambos, det. L. Vajda sub *Hypnum fertile* Sendtn.

**Isopterygiopsis muelleriana* (Schimp.) Z. Iwats. (*Isopterygium muellerianum* (Schimp.) A. Jaeger; *Plagiothecium muellerianum* Schimp.). – Two specimens under this name were located in BP, both represent different species. BP 143883: Comit. Hont. In rupibus andesit. sept. Fagatorium vallis rivi Nagyvasfazék-patak pr. Királyréti. 13.04.1958, leg. Á. Boros, rev. by B. Papp as *Plagiothecium succulentum* (Wilson) Lindb. (unpubl.); this locality was omitted in BOROS (1968), ORBÁN and VAJDA (1983). BP 143878 Com. Heves. In rupibus andesiticis umbrosis vallis Hórákó prope Mátraháza, 25.10.1952, leg. L. Vajda, rev. by B. Papp as *Isopterygiopsis pulchella* (Hedw.) Iwats. (unpubl.). Since this is the only locality mentioned in BOROS (1968), ORBÁN and VAJDA (1983), we consider *I. muelleriana* to be absent from the Hungarian bryoflora.

Myurella tenerrima (Brid.) Lindb. – erroneously reported by DÜLL (1985).

Palustriella decipiens (De Not.) Ochyra (*Cratoneuron decipiens* (De Not.) Loeske). – Rejected in BOROS (1968); HEDENÄS (2003) erroneously reports this species from Hungary; the specimen on which this record is based was collected by Györfi in present-day Slovakia (Hedenäs, pers. comm.).

**Pohlia bulbifera* (Warnst.) Warnst. – All specimens in BP labelled *P. bulbifera* proved to be different species (Erzberger, in press).

**Pohlia drummondii* (Müll. Hal.) A. L. Andrews (*Pohlia commutata* Lindb.). – Synonymy according to KOPERSKI *et al.* (2000); synonymies in ORBÁN and VAJDA (1983) erroneous. No specimen of *P. drummondii* could be found during revision in BP (Erzberger, in press).

Pohlia filum (Schimp.) Mårtensson (*Pohlia gracilis* (Bruch et Schimp.) Lindb.). – No specimen of *P. filum* could be found during revision in BP (Erzberger, in press).

**Pseudoleskea incurvata* (Hedw.) Loeske (*Pseudoleskea atrovirens* (Brid.) Schimp.; *Lescuraea atrovirens* (Brid.) Kindb.). – The reports in BOROS (1968), ORBÁN and VAJDA (1983) are based on a single collection, which has been revised to *Pseudoleskeella nervosa* (Brid.) Nyholm (B. Papp, unpubl.). Specimens: BP 75667 and EGR. Agriense, in silva Corno-Quercetum mtis Rókalyuktető, pr. praed. Markaz. 22.06.1966. leg. M. Kovács, det. L. Vajda sub *Lescuraea incurvata* (Hedw.) Lawton var. *incurvata*.

Pseudoleskea patens (Lindb.) Kindb. (*Lescuraea atrovirens* var. *patens* (Lindb.) Mönk.). – The reports in BOROS (1968), ORBÁN and VAJDA (1983) are based on a single collection, which has been revised to *Thuidium abietinum* (B. Papp, unpubl.). Specimens: BP 127617 and EGR. Comit. Heves. In rupestribus andesit. "Kecskebére" prope Mátraháza. 28.10.1952. leg. Á. Boros.

Racomitrium aciculare (Hedw.) Brid. – reports in DÜLL (1985, 1992) are purely conjectural (Düll in litt.).

Racomitrium lanuginosum (Hedw.) Brid. – rejected in BOROS (1968).

Rhytidiadelphus loreus (Hedw.) Warnst. – BOROS (1968) doubts the only report by Györfy.

Scorpiurium circinatum (Brid.) M. Fleisch. et Loeske (*Eurhynchium circinatum* (Brid.) Schimp.). – BOROS (1968) rejects the only report by Latzel.

Sphagnum molle Sull. – BOROS (1968) rejects the only report by Szepesfalvi. Specimens in BP (BP 6353, BP 3017/S, BP 329/S and BP 6351: Hungaria occid. In sphagneto piscinarum pr. pag. Lesenceistvánd ad lac. Balaton, 01.09.1933, leg. J. Szepesfalvi) represent *S. capillifolium* (rev. J. Klawitter, Berlin).

Splachnum ampullaceum L. ex Hedw. – Erroneously reported by DÜLL (1985).

Stegonia latifolia (Schwägr.) Venturi ex Broth. – Erroneously reported by DÜLL (1985) (source: Limpricht: "Liptauer Alpen").

**Tortella flavovirens* (Bruch) Broth. – var. *viridiflava* (De Not.) Casares-Gil. (= *T. esterelensis* (Roth) Giacom.); in BOROS (1968) as *T. viridiflava* (De Not.) Broth. (= subsp. *viridiflava* (De Not.) Giacom.); all specimens located in BP were revised to other species of *Tortella* (B. Papp, unpubl.).

Tortella humilis (Hedw.) Jenn. (*T. caespitosa* (Schwägr.) Limpr.). – According to BOROS (1968) reports of this species are based on misidentified *T. inclinata*.

Tortella nitida (Lindb.) Broth. – According to BOROS (1968) reports of this species are based on misidentified *T. tortuosa* (revised by Reimers).

Tortula cuneifolia (Dicks.) Turner. – The report in DÜLL (1984) is based on PODPERA (1954), but there reference is given to Loeske, who rejected a report by Györfy ("Hajdúszoboszló", 1932) as erroneous, as communicated by Boros (in litt.).

Warnstorfia fluitans (Hedw.) Loeske (*Drepanocladus fluitans* (Hedw.) Warnst.). – Estimated doubtful in BOROS (1968), omitted in ORBÁN and VAJDA (1983); erroneously reported in HEDENÄS (2003) for Hungary; the specimen on which the report is based, was collected in present-day Slovakia (Hedenäs, pers. comm.).

APPENDIX 2. TAXA OF DOUBTFUL OCCURRENCE IN HUNGARY (not listed in main list)

HEPATICAЕ

Moerckia hibernica (Hook.) Gottsche (*Moerckia flotoviana* (Nees) Schiffn.). – a single record by Szepesfalvi, but there exists no specimen; omitted in ORBÁN and VAJDA (1983) but accepted by BOROS (1968), RAJCZY (1990), SÖDERSTRÖM *et al.* (2002); sometimes spelled *Moerchia*, e.g. DAMSHOLT (2002).

MUSCI

Atrichum tenellum (Röhl.) Bruch et Schimp. – doubtful according to BOROS (1968), missing in ORBÁN and VAJDA (1983).

Barbula crocea (Brid.) F. Weber et D. Mohr – doubtful according to BOROS (1968), missing in ORBÁN and VAJDA (1983), but reported by MARSTALLER (1993a); no specimen collected by Marstaller in Hungary was sent upon request from JE.

Barbula enderesii Garov. – doubtful according to BOROS (1968), missing in ORBÁN and VAJDA (1983).

Bryum barnesii J. B. Wood. – reported by DÜLL (1985), but since *B. barnesii* was considered by Düll as synonym of *B. bicolor*, this record is doubtful. No specimen seen.

Bryum cyclophyllum (Schwägr.) Bruch et Schimp. – doubtful according to BOROS (1968), missing in ORBÁN and VAJDA (1983).

Cratoneuron curvicaule (Jur.) G. Roth. – not reported for Hungary according to HEDENÄS (2003), but reported by DÜLL (1985); however, this report is unlikely because in Central Europe *C. curvicaule* is a montane-alpine taxon (HEDENÄS 2003, GRIMS 1999); no specimen seen.

Cynodontium gracilescens (F. Weber et D. Mohr) Schimp. – the only specimen determined by Latzel is rejected in BOROS (1968) (Boros revised it to *Dichodontium pellucidum*); however, Boros's determination is probably wrong (Erzberger, unpubl.). The identity of the specimen still awaits resolution.

Dicranum bergeri Blandow ex Hoppe. – reported by DÜLL (1984), but unlikely, since it is a boreo-montane taxon, no specimen seen.

Dicranum fuscescens Sm. – the only reports of the taxon as var. *falcifolium* Braithw. and var. *congestum* Brid. by Latzel are estimated doubtful in BOROS (1968); not reported in ORBÁN and VAJDA (1983); in DÜLL (1984) *D. fuscescens* is not reported, whereas *D. congestum* is, but in DÜLL (1992) this report is obviously thought unreliable, because it "has to be verified for Hu".

Encalypta alpina Sm. – doubtful according to BOROS (1968), not reported in ORBÁN and VAJDA (1983), nor in DÜLL (1984).

Encalypta rhyptocarpa Schwägr. – doubtful according to BOROS (1968), not reported in ORBÁN and VAJDA (1983), nor in DÜLL (1984); according to a remark in BOROS (1968) the specimens from the Bükk Mts are intermediate between *E. rhyptocarpa* and *E. vulgaris*, perhaps aff. *E. trachymitria* Ripart (cf. NYHOLM 1998). The true identity of these specimens remains to be established.

**Entosthodon obtusus* (Hedw.) Lindb. (*Funaria obtusa* (Hedw.) Lindb.). – The report in ORBÁN and VAJDA (1983) is based on a single record by Degen, which is questioned in BOROS (1968). A doubtful specimen from a different locality was revised to *E. cf. fascicularis* (B. Papp, unpubl.). Specimen: BP 114587. Comit. Győr. In loco inculto paludoso prope pag. Nagyszentpálpuszta, prope Győrszemere. 08.07.1941, leg. S. Polgár, det. Á. Boros. No other specimen of *E. obtusus* from Hungary could be located in BP, EGR or SZO.

Grimmia decipiens (Schultz) Lindb. – in BOROS (1968) one report by Szepesfalvi and one report by Latzel are estimated doubtful, reports from Mátra Mts are rejected; omitted in ORBÁN and VAJDA (1983) and DÜLL (1984); not reported for Hungary in MUÑOZ and PANDO (2000); no specimen seen.

Grimmia incurva Schwägr. – MUÑOZ and PANDO (2000) quote a specimen (A. Boros s.n., BP) that could not be located. MAIER and GEISLER (1995) report the altitudinal range of *G. incurva* between 1,900 and 3,080 m a.s.l. The occurrence in present-day Hungary thus seems highly unlikely. Until appropriate material is located, the occurrence of *G. incurva* in Hungary cannot be accepted.

**Grimmia sessitana* De Not. (*Grimmia reflexidens* Müll. Hal.; *Grimmia alpestris* (F. Weber et D. Mohr) Schleich. var. *subsulcata* (Limpr.) Broth.). – Nomenclature according to Maier (2002b); MUÑOZ (1998b) quotes *G. reflexidens* Müll. Hal. as the correct name for *G. sessitana* De Not., but this is rejected by MAIER (2002b); in MUÑOZ (1998b) as well as in MUÑOZ and PANDO (2000) Hungary is missing from the world distribution, but the species is reported in ORBÁN and VAJDA (1983) (as *G. sessitana* f. *subsulcata*) and in BOROS (1968) (as *Grimmia alpestris* var. *subsulcata*). However, the specimens in BP belong to *G. funalis*, revision by J. Muñoz and E. Maier. Until appropriate material is located, *G. sessitana* must be considered to be absent from the Hungarian bryoflora.

Hypnum andoi A. J. E. Sm. – reported as doubtful in DÜLL (1985), no specimen seen; but could perhaps be expected.

Hypnum pratense W. D. J. Koch ex Spruce. – reported as doubtful in BOROS (1968), omitted in ORBÁN and VAJDA (1983), DÜLL (1985).

Meesia longiseta Hedw. – reported as doubtful in BOROS (1968), omitted in ORBÁN and VAJDA (1983), DÜLL (1985).

Mnium spinosum (Voit) Schwägr. – reported as doubtful in BOROS (1968), omitted in ORBÁN and VAJDA (1983), DÜLL (1985), no Hungarian records reported in ORBÁN (1975).

Pohlia sphagnicola (Bruch et Schimp.) Broth. – reported as doubtful in BOROS (1968), omitted in ORBÁN and VAJDA (1983), DÜLL (1985).

Pseudoleskeella tectorum (Brid.) Kindb. ex Broth. (*Leskea tectorum* (Brid.) Lindb.). – reported as doubtful in BOROS (1968), omitted in ORBÁN and VAJDA (1983), but reported in DÜLL (1985).

Schistidium confertum (Funck) Bruch et Schimp. – in BOROS (1968) transient forms to *S. brunnescens* are reported; specimens should be examined.

Schistidium rivulare (Brid.) Podp. – missing from BOROS (1968), ORBÁN and VAJDA (1983), but listed as vulnerable by RAJCZY (1990); specimens should be checked.

Sphagnum rubellum Wilson. – neither in BOROS (1968) nor ORBÁN and VAJDA (1983), but in RAJCZY (1990) “endangered”; no specimen could be located in BP and EGR; a recent collection by E. Szurdoki was revised to *S. capillifolium* (rev. J. Klawitter, Berlin and P. Erzberger, unpubl.); the taxonomic status of *S. rubellum* and its separation from *S. capillifolium* are controversial (MCQUEEN 1989, HILL 1978, KOPERSKI *et al.* 2000).

Tortula canescens Mont. – not reported by BOROS (1968), ORBÁN and VAJDA (1983), but in MARSTALLER (1993a); from JE a single specimen (Südungarn Villanier Gebirge Nagyarsany-h., 27.05.88, leg. R. Marstaller) consisting of a few sterile plants only was obtained, that does not allow unequivocal determination.

Tortula princeps De Not. (*Syntrichia princeps* (De Not.) Mitt.). – reported in BOROS (1968), ORBÁN and VAJDA (1983) and MARSTALLER (1993a), but all specimens were revised by J. Kučera, České Budejovice, to *T. crinita*, among them a specimen from JE (Ungarn Villanier Gebirge Nagyarsany-hegy, 06.06.88, leg. R. Marstaller).

Weissia squarrosa (Nees et Hornsch.) Müll. Hal. – reported as doubtful in BOROS (1968), omitted in ORBÁN and VAJDA (1983), DÜLL (1984).

Weissia triumphans (De Not.) M. O. Hill. – not reported in BOROS (1968), ORBÁN and VAJDA (1983), but reported by MARSTALLER (1993a), no specimen collected by Marstaller in Hungary was sent upon request from JE.

Zygodon viridissimus (Dicks.) Brid. – var. *viridissimus* may be included in the reports in BOROS (1968), ORBÁN and VAJDA (1983); reported by MARSTALLER (1993a, b); a single specimen collected by Marstaller in Hungary was sent upon request from JE, which proved to be *Z. rupestris* (Erzberger, unpubl.); JE Ungarn Baranya Wälder um Dravafok, 07.06.89, leg. R. Marstaller.

APPENDIX 3. TAXA OF DOUBTFUL OCCURRENCE IN HUNGARY

(listed in main list, see notes under individual taxa)

HEPATICAЕ

Cephalozia lacinulata J. B. Jack ex Spruce

Marsupella sprucei (Limpr.) Bernet

Metzgeria conjugata Lindb. subsp. *simplex* (Müll. Frib.) R. M. Schust. (*Metzgeria simplex* Lorb. ex Müll. Frib.)

Metzgeria fruticulosa (Dicks.) A. Evans

Radula lindenbergiana Gottsche ex C. Hartm.

Riccia duplex Lorb. ex Müll. Frib.

MUSCI

Brachythecium campestre (Müll. Hal.) Schimp.

Ceratodon conicus (Hampe) Lindb.

Fissidens gymnandrus Büse

Pterygoneurum crossidioides W. Frey, Herrnst. et Kürschner

Racomitrium affine (F. Weber et D. Mohr) Lindb.

Racomitrium obtusum (Brid.) Brid.

APPENDIX 4. TAXA RECORDED AFTER 1983

HEPATICAЕ

Anastrophyllum hellerianum (Lindenb.) R. M. Schust. – ÓDOR (2000).

Riccia crinita Taylor (*Riccia intumescens* (Bisch.) Underw.; *Riccia canescens* Steph.; *Riccia trichocarpa* M. Howe). – MARSTALLER (1993a); confirmed specimen see main list.

MUSCI

Aloina aloides (Schultz) Kindb. – MARSTALLER (1993a); confirmed specimens see main list.

Barbula indica (Hook.) Spreng. – GALAMBOS (1992).

Bryum gemmiferum R. Wilczek et Demaret. – ZANTEN (1999a).

Bryum rubens Mitt. – first collected by I. Galambos (unpubl., see note in main list); JAKAB (1997), ZANTEN (1999a), PAPP and RAJCZY (1999, 2000).

Bryum violaceum Crundw. et Nyholm. – ZANTEN (1999a).

Ceratodon conicus (Hampe) Lindb. – ZANTEN (1999b).

- Crossidium crassinerve* (De Not.) Jur. – reported by ORBÁN (1991: found by Galambos), DÜLL (1984).
- Crossidium laxefilamentosum* W. Frey et Kürschner. – PÓCS *et al.* (2004).
- Ditrichum crispatisimum* (Müll. Hal.) Paris – ERZBERGER (2001).
- Drepanocladus sordidus* (Müll. Hal.) Hedenäs – HEDENÄS (2003)
- Ephemerum minutissimum* Lindb. (*E. serratum* var. *minutissimum* (Lindb.) Grout) – B. Papp (unpubl.)
- Ephemerum recurvifolium* (Dicks.) Boulay. – NOVOTNY (1988).
- Ephemerum sessile* (Bruch) Müll. Hal. – confirmed specimen see note in main list.
- Grimmia dissimulata* E. Maier. – confirmed specimens see note in main list.
- Hedwigia stellata* Hedenäs – ERZBERGER (1996).
- Orthotrichum sprucei* Mont. – ERZBERGER and PAPP (2000).
- Phascum leptophyllum* Müll. Hal. – ZANTEN (2000).
- Pohlia andalusica* (Höhn.) Broth. – (ERZBERGER, in press).
- Pterygoneurum compactum* M. J. Cano, J. Guerra et Ros. – PÓCS (1999).
- Pterygoneurum crossidioides* W. Frey, Herrnst. et Kürschner. – PÓCS (1999).
- Pterygoneurum squamosum* Segarra et Kürschner. – PÓCS (1999).
- Seligeria campylopoda* Kindb. – confirmed specimens see note in main list.
- Seligeria trifaria* (Brid.) Lindb. var. *longifolia* (Broth.) Ochyra et Gos. – confirmed specimen see note in main list.
- Tortella bambergeri* (Schimp.) Broth. – MARSTALLER (1993a) from Villany Mts, Erzberger (unpubl.) from Bükk Mts.
- Tortula brevissima* Schiffn. – ERZBERGER (1998).
- Tortula caninervis* (Mitt.) Broth. subsp. *spuria* var. *spuria* (J. J. Amann) W. A. Kramer. – TÓTH (1987).
- Tortula norvegica* (F. Weber) Lindb. – TÓTH (1987), leg. L. Meinunger.
- Tortula papillosissima* (Copp.) Broth. var. *papillosissima* and var. *submamillosa* (W. A. Kramer) Heinrichs et Caspari. – TÓTH (1987)

APPENDIX 5. TABLE OF USEFUL SYNONYMS

SYNONYM	ACCEPTED NAME
Hepaticae	
<i>Alicularia scalaris</i> (Gray) Corda	<i>Nardia scalaris</i> Gray
<i>Aneura latifrons</i> Lindb.	<i>Riccardia latifrons</i> (Lindb.) Lindb.
<i>Aneura multifida</i> Dumort.	<i>Riccardia multifida</i> (L.) Gray
<i>Aneura palmata</i> Dumort.	<i>Riccardia palmata</i> (Hedw.) Carruth.
<i>Aneura sinuata</i> Dumort.	<i>Riccardia chamedryfolia</i> (With.) Grolle
<i>Anthoceros crispulus</i> auct. non (Mont.) Douin	<i>Anthoceros agrestis</i> Paton
<i>Anthoceros laevis</i> auct.	<i>Phaeoceros carolinianus</i> (Michx.) Proskauer
<i>Anthoceros punctatus</i> auct. non L.	<i>Anthoceros agrestis</i> Paton
<i>Barbilophozia obtusa</i> (Lindb.) Meyl.	<i>Lophozia obtusa</i> (Lindb.) A. Evans
<i>Calypogeia meylanii</i> H. Buch	<i>Calypogeia integristipula</i> Steph.
<i>Calypogeia trichomanis</i> auct.	<i>Calypogeia azurea</i> Stotler et Crotz
<i>Cephalozia lammersiana</i> (Huebener) F. Lees	<i>Cephalozia bicuspidata</i> (L.) Dumort.

SYNONYM	ACCEPTED NAME
<i>Cephalozia media</i> Lindb.	<i>Cephalozia lunulifolia</i> (Dumort.) Dumort.
<i>Cephaloziella starkei</i> (Funck) Schiffn.	<i>Cephaloziella divaricata</i> (Sm.) Schiffn.
<i>Cephaloziella subdentata</i> Warnst.	<i>Cephaloziella spinigera</i> (Lindb.) Warnst.
<i>Chiloscyphus coadunatus</i> (Sw.) J. J. Engel et R. M. Schust.	<i>Lophocolea bidentata</i> var. <i>bidentata</i> (L.) Dumort.
<i>Chiloscyphus latifolius</i> (Nees) J. J. Engel et R. M. Schust.	<i>Lophocolea bidentata</i> var. <i>rivularis</i> (Raddi) Schiffn.
<i>Chiloscyphus minor</i> (Nees) J. J. Engel et R. M. Schust.	<i>Lophocolea minor</i> Nees
<i>Chiloscyphus profundus</i> (Nees) J. J. Engel et R. M. Schust.	<i>Lophocolea heterophylla</i> (Schrad.) Dumort.
<i>Clevea hyalina</i> (Sommerf.) Lindb.	<i>Athalamia hyalina</i> (Sommerf.) S. Hatt.
<i>Eucalyx hyalinus</i> (Lyell) Breidl.	<i>Jungermannia hyalina</i> Lyell
<i>Fimbriaria fragrans</i> Nees	<i>Asterella saccata</i> (Wahlenb.) A. Evans
<i>Fimbriaria saccata</i> (Wahlenb.) Nees	<i>Asterella saccata</i> (Wahlenb.) A. Evans
<i>Fossombronina dumortieri</i> (Huebener et Genth) Lindb.	<i>Fossombronina foveolata</i> Lindb.
<i>Frullania cleistostoma</i> Schiffn. et Wollny	<i>Frullania inflata</i> Gottsche
<i>Frullania saxicola</i> Austin	<i>Frullania inflata</i> Gottsche
<i>Grimaldia barbifrons</i> Bischof	<i>Mannia fragrans</i> (Balbis) Frye et L. Clark
<i>Grimaldia fragrans</i> (Balbis) Corda	<i>Mannia fragrans</i> (Balbis) Frye et L. Clark
<i>Grimaldia rupestris</i> (Nees) Lindenb.	<i>Mannia triandra</i> (Scop.) Grolle
<i>Haplozia caespiticia</i> (Lindenb.) Dumort.	<i>Jungermannia caespiticia</i> Lindenb.
<i>Haplozia crenulata</i> (Sm.) Dumort.	<i>Jungermannia gracillima</i> Sm.
<i>Haplozia lanceolata</i> (L.) Dumort.	<i>Jungermannia leiantha</i> Grolle
<i>Haplozia pumila</i> (With.) Dumort.	<i>Jungermannia pumila</i> With.
<i>Haplozia sphaerocarpa</i> (Hook.) Dumort.	<i>Jungermannia sphaerocarpa</i> Hook.
<i>Isopaches bicrenatus</i> (Hoffm.) H. Buch	<i>Lophozia bicrenata</i> (Hoffm.) Dumort.
<i>Jungermannia amakawana</i> Grolle	<i>Jungermannia subulata</i> A. Evans
<i>Jungermannia lanceolata</i> L.	<i>Jungermannia leiantha</i> Grolle
<i>Leiocolea alpestris</i> (F. Weber) Isov.	<i>Leiocolea collaris</i> (Nees) Schljakov
<i>Leiocolea muelleri</i> (Lindenb.) Jörg.	<i>Leiocolea collaris</i> (Nees) Schljakov
<i>Lejeunea serpyllifolia</i> Lib.	<i>Lejeunea cavifolia</i> (Ehrh.) Lindb.
<i>Liochlaena lancoelata</i> (L.) Nees	<i>Jungermannia leiantha</i> Grolle
<i>Lophocolea alata</i> Larter	<i>Lophocolea bidentata</i> var. <i>bidentata</i> (L.) Dumort.
<i>Lophocolea bidentata</i> auct. non (L.) Dumort., sensu Limpricht, BOROS (1968), ORBÁN and VAJDA (1983)	<i>Lophocolea bidentata</i> var. <i>rivularis</i> (Raddi) Schiffn.
<i>Lophocolea cuspidata</i> auct. non (Nees) Limpr., sensu Limpricht, BOROS (1968), ORBÁN and VAJDA (1983)	<i>Lophocolea bidentata</i> var. <i>bidentata</i> (L.) Dumort.
<i>Lophozia alpestris</i> auct.	<i>Lophozia sudetica</i> (Huebener) Grolle
<i>Lophozia badensis</i> (Gottsche) Schiffn.	<i>Leiocolea badensis</i> (Gottsche) Jörg.
<i>Lophozia collaris</i> (Nees) Dumort.	<i>Leiocolea collaris</i> (Nees) Schljakov
<i>Lophozia confertifolia</i> Schiffn.	<i>Lophozia wenzelii</i> (Nees) Steph.
<i>Lophozia gracillima</i> H. Buch	<i>Lophozia ascendens</i> (Warnst.) R. M. Schust.

SYNONYM	ACCEPTED NAME
<i>Lophozia guttulata</i> (Lindb. et H. Arnell) Evans	<i>Lophozia longiflora</i> (Nees) Schiffn.
<i>Lophozia heterocolpos</i> (Hartm.) M. Howe	<i>Leiocolea heterocolpos</i> (Hartm.) H. Buch
<i>Lophozia muelleri</i> (Lindenb.) Dumort.	<i>Leiocolea collaris</i> (Nees) Schljakov
<i>Lophozia porphyroleuca</i> auct.	<i>Lophozia longiflora</i> (Nees) Schiffn.
<i>Lophozia quinquedentata</i> (Huds.) Cogn.	<i>Tritomaria quinquedentata</i> (Huds.) H. Buch
<i>Madotheca cordaeana</i> (Huebener) Dumort.	<i>Porella cordaeana</i> (Huebener) Moore
<i>Madotheca laevigata</i> (Schrad.) Dumort.	<i>Porella arboris-vitae</i> (With.) Grolle
<i>Madotheca platyphylla</i> (L.) Dumort.	<i>Porella platyphylla</i> (L.) Pfeiff.
<i>Madotheca platyphylloidea</i> (Schwein.) Dumort.	<i>Porella platyphylla</i> (L.) Pfeiff.
<i>Mannia rupestris</i> (Nees) Frye et L. Clark	<i>Mannia triandra</i> (Scop.) Grolle
<i>Marchantia aquatica</i> (Nees) Burgeff	<i>Marchantia polymorpha</i> L. subsp. <i>polymorpha</i>
<i>Marchantia polymorpha</i> auct.	<i>Marchantia polymorpha</i> L. subsp. <i>ruderalis</i> Bischl. et Boisselier
<i>Marsupella hungarica</i> Boros et Vajda	<i>Marsupella funkii</i> (F. Weber et D. Mohr) Dumort.
<i>Metzgeria pubescens</i> (Schrank) Raddi	<i>Apometzgeria pubescens</i> (Schrank) Kuwah.
<i>Metzgeria simplex</i> Müll. Frib.	<i>Metzgeria conjugata</i> Lindb. subsp. <i>simplex</i> (Müll. Frib.) R. M. Schust.
<i>Oxymitra paleacea</i> Lindenb.	<i>Oxymitra incrassata</i> (Brot.) Sergio et Sim-Sim
<i>Pellia calycina</i> Taylor	<i>Pellia endiviifolia</i> (Dicks.) Dumort.
<i>Pellia fabbronia</i> auct.	<i>Pellia endiviifolia</i> (Dicks.) Dumort.
<i>Plagiochila major</i> (Nees) S. W. Arnell	<i>Plagiochila asplenioides</i> (L.) Dumort.
<i>Plectocolea hyalina</i> (Lyell) Mitt.	<i>Jungermannia hyalina</i> Lyell
<i>Porella platyphylloidea</i> (Schwein.) Lindb.	<i>Porella platyphylla</i> (L.) Pfeiff.
<i>Riccardia pinguis</i> (L.) Gray	<i>Aneura pinguis</i> (L.) Dumort.
<i>Riccardia sinuata</i> (Hook.) Trevis	<i>Riccardia chamedryfolia</i> (With.) Grolle
<i>Riccia baumgartneri</i> Schiffn.	<i>Riccia subbifurca</i> Crozals
<i>Riccia bischoffii</i> Huebener	<i>Riccia ciliifera</i> Lindenb.
<i>Riccia crystallina</i> auct. non L.	<i>Riccia cavernosa</i> Hoffm.
<i>Riccia pseudo-frostii</i> Schiffn.	<i>Riccia huebeneriana</i> Lindenb.
<i>Riccia pseudopapillosa</i> Steph.	<i>Riccia papillosa</i> Moris
<i>Riccia subtumida</i> Milde	<i>Riccia ciliata</i> Hoffm.
<i>Scapania microphylla</i> Warnst.	<i>Scapania lingulata</i> H. Buch
<i>Scapania nemorosa</i> Dumort.	<i>Scapania nemorea</i> (L.) Grolle
<i>Scapania parvifolia</i> Warnst.	<i>Scapania scandica</i> (Arnell et H. Buch) Macvicar
<i>Solenostoma caespitium</i> (Lindenb.) Steph.	<i>Jungermannia caespiticia</i> Lindenb.
<i>Solenostoma crenulatum</i> Mitt.	<i>Jungermannia gracillima</i> Sm.
<i>Solenostoma lanceolata</i> Steph.	<i>Jungermannia leiantha</i> Grolle
<i>Solenostoma pumilum</i> (With.) Müll. Frib.	<i>Jungermannia pumila</i> With.
<i>Solenostoma riparia</i> (Taylor) Dumort.	<i>Jungermannia atrovirens</i> Dumort.
<i>Solenostoma sphaerocarpum</i> (Hook.) Steph.	<i>Jungermannia sphaerocarpa</i> Hook.
<i>Solenostoma triste</i> (Nees) Müll. Frib.	<i>Jungermannia atrovirens</i> Dumort.
<i>Sphaerocarpos californicus</i> Austin	<i>Sphaerocarpos texanus</i> Austin
<i>Sphenolobus exsectiformis</i> (Breidl.) Steph.	<i>Tritomaria exsectiformis</i> (Breidl.) Loeske
<i>Sphenolobus exsectus</i> (Schmidel) Steph.	<i>Tritomaria exsecta</i> (Schmidel) Loeske
<i>Sphenolobus michauxii</i> (F. Weber) Steph.	<i>Anastrophyllum michauxii</i> (F. Weber) H. Buch

SYNONYM

Sphenobolus minutus (Schreb.) Steph.
Tesselina pyramidata Dumort.

Musci

Abietinella abietina (Hedw.) M. Fleisch.
Acrocladium cuspidatum Lindb.
Amblystegiella confervoides (Brid.) Loeske
Amblystegiella subtilis (Hedw.) Loeske
Amblystegium compactum (Müll. Hal.) Austin
Amblystegium densum Milde
Amblystegium filicinum (Hedw.) De Not.
Amblystegium juratzkanum Schimp.
Amblystegium kochii Schimp.
Amblystegium riparium (Hedw.) Schimp.
Amblystegium saxatile Schimp.
Amblystegium trichopodium (Schultz) C.
 Hartm.
Andreaea petrophila Fűrnr.
Anisothecium crispum (Hedw.) C. E. O. Jensen
Anisothecium rigidulum (Hedw.) C. E. O.
 Jensen
Anisothecium rubrum Lindb.
Anisothecium rufescens (Dicks.) Lindb.
Anisothecium schreberianum (Hedw.) Dixon

Anisothecium staphylinum (H. Whitehouse)
 Sipman, Rubers et Rieman
Anisothecium vaginale (With.) Loeske
Anisothecium varium (Hedw.) Mitt.
Anomodon apiculatus Schimp.
Arbuscula alopecura (Hedw.) H. A. Crum,
 Steere et L. E. Anderson
Archidium phascoides Brid.
Astomum crispum (Hedw.) Hampe
Atrichum haussknechtii Jur. et Milde
Barbula acuta (Brid.) Brid.
Barbula cordata (Jur.) Braithw.
Barbula cylindrica (Taylor) Schimp.
Barbula fallax Hedw.
Barbula gracilis Schwägr.
Barbula hornschruchiana Schultz

Barbula lurida (Spreng.) Lindb.
Barbula recurvirostra (Hedw.) Dixon

Barbula reflexa (Brid.) Brid.
Barbula revoluta Brid.
Barbula rigidula (Hedw.) Mitt.

ACCEPTED NAME

Anastrophyllum minutum (Schreb.) R. M. Schust.
Oxymitra incrassata (Brot.) Sergio et Sim-Sim

Thuidium abietinum (Hedw.) Schimp.
Calliergonella cuspidata (Hedw.) Loeske
Amblystegium confervoides (Brid.) Schimp.
Amblystegium subtile (Hedw.) Schimp.
Conardia compacta (Müll. Hal.) H. Rob.
Conardia compacta (Müll. Hal.) H. Rob.
Cratoneuron filicinum (Hedw.) Spruce
Amblystegium serpens (Hedw.) Schimp.
Amblystegium humile (P. Beauv.) Crundw.
Leptodictyum riparium (Hedw.) Warnst.
Amblystegium radicale (P. Beauv.) Schimp.
Amblystegium humile (P. Beauv.) Crundw.

Andreaea rupestris Hedw.
Dicranella crispa (Hedw.) Schimp.
Dicranella humilis R. R. R. R.

Dicranella varia (Hedw.) Schimp.
Dicranella rufescens (Dicks.) Schimp.
Dicranella schreberiana (Hedw.) Hilf. ex H. A.
 Crum et L. E. Anderson
Dicranella staphylina H. Whitehouse

Dicranella crispa (Hedw.) Schimp.
Dicranella varia (Hedw.) Schimp.
Anomodon rugelii (Müll. Hal.) Keissl.
Thamnobryum alopecurum (Hedw.) Gangulee

Archidium alternifolium (Hedw.) Schimp.
Weissia longifolia Mitt.
Atrichum undulatum var. *gracilisetum* Besch.
Didymodon acutus (Brid.) K. Saito
Didymodon cordatus Jur.
Didymodon insulanus (De Not.) M. O. Hill
Didymodon fallax (Hedw.) R. H. Zander
Didymodon acutus (Brid.) K. Saito
Pseudocrossidium hornschruchianum (Schultz) R.
 H. Zander
Didymodon luridus Hornsch. ex Spreng.
Bryoerythrophyllum recurvirostrum (Hedw.) P.
 C. Chen
Didymodon ferrugineus (Besch.) M. O. Hill
Pseudocrossidium revolutum (Brid.) R. H. Zander
Didymodon rigidulus Hedw.

SYNONYM	ACCEPTED NAME
<i>Barbula sinuosa</i> (Mitten) Garov.	<i>Didymodon sinuosus</i> (Mitt.) Delogne
<i>Barbula spadicea</i> (Mitten) Braithw.	<i>Didymodon spadiceus</i> (Mitt.) Limpr.
<i>Barbula tophacea</i> (Brid.) Mitt.	<i>Didymodon tophaceus</i> (Brid.) Lisa
<i>Barbula trifaria</i> auct. non (Hedw.) Mitt.	<i>Didymodon luridus</i> Hornsch. ex Spreng.
<i>Barbula vinealis</i> Brid.	<i>Didymodon vinealis</i> (Brid.) R. H. Zander
<i>Barbula vinealis</i> var. <i>cylindrica</i> (Taylor) Boulay	<i>Didymodon insulanus</i> (De Not.) M. O. Hill
<i>Bartramia norvegica</i> Lindb.	<i>Bartramia halleriana</i> Hedw.
<i>Bartramia oederi</i> Brid.	<i>Plagiopus oederianus</i> (Sw.) H. A. Crum et L. E. Anderson
<i>Brachythecium laetum</i> (Brid.) Schimp.	<i>Brachythecium oxycladum</i> (Brid.) A. Jaeger
<i>Brachythecium lanceolatum</i> Warnst.	<i>Brachythecium salebrosum</i> (F. Weber et D. Mohr) Schimp.
<i>Brachythecium rotaeianum</i> De Not.	<i>Brachythecium capillaceum</i> (F. Weber et D. Mohr) Giacom.
<i>Brachythecium salebrosum</i> (F. Weber et D. Mohr) Schimp. var. <i>capillaceum</i> F. Weber et D. Mohr	<i>Brachythecium capillaceum</i> (F. Weber et D. Mohr) Giacom.
<i>Bryum affine</i> Lindb. et Arnell	<i>Bryum creberrimum</i> Taylor
<i>Bryum alpinum</i> var. <i>mildeanum</i> (Jur.) Podp.	<i>Bryum mildeanum</i> Jur.
<i>Bryum angustirete</i> Macoun	<i>Bryum algovicum</i> Müll. Hal.
<i>Bryum atropurpureum</i> Bruch et Schimp.	<i>Bryum bicolor</i> Dicks.
<i>Bryum badium</i> (Brid.) Schimp.	<i>Bryum caespitium</i> Hedw.
<i>Bryum capillare</i> subsp. <i>elegans</i> (Brid.) Podp.	<i>Bryum elegans</i> Brid.
<i>Bryum cernuum</i> Lindb.	<i>Bryum uliginosum</i> (Brid.) Bruch et Schimp.
<i>Bryum cirrhatum</i> Hoppe et Hornsch.	<i>Bryum pallescens</i> Schleich. ex Schwägr.
<i>Bryum duvalii</i> Voit	<i>Bryum weigeli</i> Spreng.
<i>Bryum flaccidum</i> Brid.	<i>Bryum laevifilum</i> Syed
<i>Bryum inclinatum</i> (Brid.) Blandow	<i>Bryum imbricatum</i> (Schwägr.) Bruch et Schimp.
<i>Bryum murale</i> Wilson	<i>Bryum radiculosum</i> Brid.
<i>Bryum pendulum</i> (Hornsch.) Schimp.	<i>Bryum algovicum</i> Müll. Hal.
<i>Bryum ventricosum</i> Relhan	<i>Bryum pseudotriquetrum</i> (Hedw.) P. Gaertn., B. Mey. et Scherb.
<i>Buxbaumia indusiata</i> Brid.	<i>Buxbaumia viridis</i> (Lam. et DC.) Brid. ex Mouge. et Nestl.
<i>Calliergon cuspidatum</i> Kindb.	<i>Calliergonella cuspidata</i> (Hedw.) Loeske
<i>Calliergonella lindbergii</i> (Mitt.) Hedenäs	<i>Hypnum lindbergii</i> Mitt.
<i>Camptothecium lutescens</i> (Hedw.) Schimp.	<i>Homalothecium lutescens</i> (Hedw.) H. Rob.
<i>Camptothecium nitens</i> (Hedw.) Schimp.	<i>Tomentypnum nitens</i> (Hedw.) Loeske
<i>Camptothecium philippeanum</i> (Spruce) Kindb.	<i>Homalothecium philippeanum</i> (Spruce) Schimp.
<i>Camptothecium sericeum</i> (Hedw.) Kindb.	<i>Homalothecium sericeum</i> (Hedw.) Schimp.
<i>Camptothecium trichoides</i> Broth.	<i>Tomentypnum nitens</i> (Hedw.) Loeske
<i>Campyliadelphus chrysophyllus</i> (Brid.) Kanda	<i>Campylium chrysophyllum</i> (Brid.) Lange
<i>Campyliadelphus elodes</i> (Lindb.) Kanda	<i>Campylium elodes</i> (Lindb.) Kindb.
<i>Campylium helodes</i> (Spruce) Broth.	<i>Campylium elodes</i> (Lindb.) Kindb.
<i>Campylium radicale</i> (P. Beauv.) Grout	<i>Amblystegium radicale</i> (P. Beauv.) Schimp.
<i>Campylopus torfaceus</i> Bruch et Schimp.	<i>Campylopus pyriformis</i> (Schultz) Brid.
<i>Catharina angustata</i> (Brid.) Brid.	<i>Atrichum angustatum</i> (Brid.) Bruch et Schimp.

SYNONYM

ACCEPTED NAME

- Catharinea haussknechtii* Broth.
Catharinea undulata (Hedw.) Weber et Mohr
Chenia leptophylla (Müll. Hal.) R. H. Zander
Chenia rhizophylla (Sakurai) R. H. Zander
Chrysohypnum calcareum (Crundw. et Nyholm) Boros
Chrysohypnum chrysophyllum (Brid.) Loeske
Chrysohypnum helodes (Spruce) Loeske
Chrysohypnum hygrophilum (Jur.) Loeske
Chrysohypnum polygamum (Schimp.) Loeske
Chrysohypnum radicale (P. Beauv.) Boros
Chrysohypnum sommerfeltii auct.
Chrysohypnum stellatum (Hedw.) Loeske
Cinclidotus minor Lindb.
Cinclidotus mucronatus (Brid.) Guim.
Cinclidotus nigricans (Brid.) Wijk et Margad.
Cirriphyllum crassinervium (Wilson) Loeske et M. Fleisch.
Cirriphyllum filiforme Broth.
Cirriphyllum germanicum (Grebe) Loeske et M. Fleisch.
Cirriphyllum reichenbachianum (Huebener) Wijk et Margad.
Cirriphyllum tenuinerve Wijk et Margad.
Cirriphyllum vaucheri Loeske et M. Fleisch.
Cirriphyllum velutinoides (Schimp.) Loeske et M. Fleisch.
Cratoneuron commutatum (Hedw.) G. Roth
Cynodontium capillaceum Hedw.
Cynodontium schisti (F. Weber et D. Mohr) Lindb.
Desmatodon convolutus (Brid.) Grout
Dicranella curvata (Hedw.) Schimp.
Dicranella rubra Lindb.
Dicranella schreberi Schimp.
Dicranella secunda Lindb.
Dicranella varia var. *tenella* Bruch et Schimp.
Dicranodontium longirostre (F. Weber et D. Mohr) Bruch et Schimp.
Dicranum longifolium Ehrh. ex Hedw.
Dicranum palustre Bruch et Schimp.
Dicranum rugosum (Funck) Hoffm. ex Brid.
Dicranum strictum D. Mohr
Dicranum undulatum Ehrh. ex F. Weber et D. Mohr
Atrichum undulatum var. *gracilisetum* Besch.
Atrichum undulatum (Hedw.) P. Beauv.
Phascum leptophyllum Müll. Hal.
Phascum leptophyllum Müll. Hal.
Campylium calcareum Crundw. et Nyholm
Campylium chrysophyllum (Brid.) Lange
Campylium elodes (Lindb.) Kindb.
Amblystegium radicale (P. Beauv.) Schimp.
Campylium polygamum (Schimp.) C. E. O. Jensen
Amblystegium radicale (P. Beauv.) Schimp.
Campylium calcareum Crundw. et Nyholm
Campylium stellatum (Hedw.) C. E. O. Jensen
Cinclidotus fontinaloides (Hedw.) P. Beauv.
Dialytrichia mucronata (Brid.) Broth.
Cinclidotus riparius (Brid.) H. Arnell
Eurhynchium crassinervium (Wilson) Schimp.
Eurhynchium flotowianum (Sendtn.) Kartt.
Rhynchostegiella tenuicaulis (Spruce) Kartt.
Eurhynchium flotowianum (Sendtn.) Kartt.
Cirriphyllum tommasinii (Boulay) Grout
Cirriphyllum tommasinii (Boulay) Grout
Eurhynchium flotowianum (Sendtn.) Kartt.
Palustriella commutata (Hedw.) Ochyra
Distichium capillaceum (Hedw.) Bruch et Schimp.
Cnestrum schisti (F. Weber et D. Mohr) I. Hagen
Tortula atrovirens (Sm.) Lindb.
Dicranella subulata (Hedw.) Schimp.
Dicranella varia (Hedw.) Schimp.
Dicranella schreberiana (Hedw.) Hilf. ex H. A. Crum et L. E. Anderson
Dicranella subulata (Hedw.) Schimp.
Dicranella humilis R. Ruthe
Dicranodontium denudatum (Brid.) E. Britton
Paraleucobryum longifolium (Hedw.) Loeske
Dicranum bonjeanii De Not.
Dicranum polysetum Sw.
Dicranum tauricum Sapjegin
Dicranum polysetum Sw.

SYNONYM	ACCEPTED NAME
<i>Didymodon austriacus</i> Schiffr. et Baumgartner	<i>Didymodon cordatus</i> Jur.
<i>Didymodon rigidulus</i> var. <i>glaucus</i> (Ryan) Wijk. et Margad.	<i>Didymodon glaucus</i> Ryan
<i>Didymodon rubellus</i> Bruch et Schimp.	<i>Bryoerythrophyllum recurvirostrum</i> (Hedw.) P. C. Chen
<i>Didymodon trifarius</i> auct. non (Hedw.) Röhl.	<i>Didymodon luridus</i> Hornsch. ex Spreng.
<i>Diphyscium sessile</i> Lindb.	<i>Diphyscium foliosum</i> (Hedw.) D. Mohr
<i>Distichium montanum</i> I. Hagen	<i>Distichium capillaceum</i> (Hedw.) Bruch et Schimp.
<i>Ditrichum flexicaule</i> var. <i>longifolium</i> (J. E. Zetterst.) I. Hagen	<i>Ditrichum crispatisimum</i> (Müll. Hal.) Paris
<i>Ditrichum flexicaule</i> var. <i>sterile</i> (De Not.) Limpr.	<i>Ditrichum crispatisimum</i> (Müll. Hal.) Paris
<i>Ditrichum giganteum</i> R. S. Williams	<i>Ditrichum crispatisimum</i> (Müll. Hal.) Paris
<i>Ditrichum gracile</i> (Mitt.) O. Kuntze	<i>Ditrichum crispatisimum</i> (Müll. Hal.) Paris
<i>Ditrichum homomallum</i> (Hedw.) Hampe	<i>Ditrichum heteromallum</i> (Hedw.) E. Britton
<i>Ditrichum tenuifolium</i> Lindb.	<i>Ditrichum cylindricum</i> (Hedw.) Grout
<i>Ditrichum tortile</i> (Schrad.) Brockm.	<i>Ditrichum pusillum</i> (Hedw.) Hampe
<i>Dolichotheca seligeri</i> (Brid.) Loeske	<i>Herzogiella seligeri</i> (Brid.) Z. Iwats.
<i>Dolichotheca silesiaca</i> (F. Weber et D. Mohr) M. Fleisch.	<i>Herzogiella seligeri</i> (Brid.) Z. Iwats.
<i>Drepanocladus exannulatus</i> (Schimp.) Warnst.	<i>Warnstorfia exannulata</i> (Schimp.) Loeske
<i>Drepanocladus intermedius</i> (Lindb.) Warnst.	<i>Drepanocladus cossonii</i> (Schimp.) Loeske
<i>Drepanocladus polygamus</i> (Schimp.) Hedenäs	<i>Campylium polygamum</i> (Schimp.) C. E. O. Jensen
<i>Drepanocladus uncinatus</i> (Hedw.) Warnst.	<i>Sanionia uncinata</i> (Hedw.) Loeske
<i>Drepanocladus vernicosus</i> (Mitt.) Warnst.	<i>Hamatocaulis vernicosus</i> (Mitt.) Hedenäs
<i>Dryptodon hartmanii</i> (Schimp.) Limpr.	<i>Grimmia hartmanii</i> Schimp.
<i>Encalypta contorta</i> Lindb.	<i>Encalypta streptocarpa</i> Hedw.
<i>Encalypta extinctoria</i> Lindb.	<i>Encalypta vulgaris</i> Hedw.
<i>Entodon schreberi</i> (Brid.) Mönk.	<i>Pleurozium schreberi</i> (Brid.) Mitt.
<i>Erythrophyllum rubellum</i> Hilp.	<i>Bryoerythrophyllum recurvirostrum</i> (Hedw.) P. C. Chen
<i>Eurhynchium praelongum</i> auct. non (Hedw.) Schimp.	<i>Eurhynchium hians</i> (Hedw.) Sande Lac.
<i>Eurhynchium praelongum</i> var. <i>abbreviatum</i> Turner	<i>Eurhynchium schleicheri</i> (R. Hedw.) Jur.
<i>Eurhynchium rusciforme</i> Milde	<i>Platyhypnidium riparioides</i> (Hedw.) Dixon
<i>Eurhynchium stokesii</i> (Turner) Schimp.	<i>Eurhynchium praelongum</i> (Hedw.) Schimp.
<i>Eurhynchium striatum</i> subsp. <i>zetterstedtii</i> (Störmer) Podp.	<i>Eurhynchium angustirete</i> (Broth.) T. J. Kop.
<i>Eurhynchium swartzii</i> (Turner) Curn.	<i>Eurhynchium hians</i> (Hedw.) Sande Lac.
<i>Eurhynchium tommasinii</i> (Sendtn.) R. Ruthe	<i>Cirriphyllum tommasinii</i> (Boulay) Grout
<i>Eurhynchium velutinoides</i> Schimp.	<i>Eurhynchium flotowianum</i> (Sendtn.) Kartt.
<i>Eurhynchium zetterstedtii</i> Störmer	<i>Eurhynchium angustirete</i> (Broth.) T. J. Kop.
<i>Fabronia octoblepharis</i> (Schleich.) Schwägr.	<i>Fabronia ciliaris</i> (Brid.) Brid.
<i>Fissidens crassipes</i> var. <i>mildeanus</i> (Schimp.) Mönk.	<i>Fissidens crassipes</i> Bruch et Schimp. subsp. <i>crassipes</i>

SYNONYM	ACCEPTED NAME
<i>Fissidens crassipes</i> var. <i>philibertii</i> Besch.	<i>Fissidens crassipes</i> Bruch et Schimp. subsp. <i>warnstorffii</i> (M. Fleisch.) Brugg.-Nann.
<i>Fissidens crassipes</i> var. <i>rufipes</i> Schimp.	<i>Fissidens crassipes</i> Bruch et Schimp. subsp. <i>crassipes</i>
<i>Fissidens crassipes</i> var. <i>submarginatus</i> M. Fleisch. et Warnst.	<i>Fissidens crassipes</i> Bruch et Schimp. subsp. <i>warnstorffii</i> (M. Fleisch.) Brugg.-Nann.
<i>Fissidens cristatus</i> Wilson ex Mitt.	<i>Fissidens dubius</i> P. Beauv.
<i>Fissidens decipiens</i> De Not.	<i>Fissidens dubius</i> P. Beauv.
<i>Fissidens minutulus</i> Sull.	<i>Fissidens pusillus</i> (Wilson) Milde
<i>Fissidens minutulus</i> var. <i>tenuifolius</i> (Boulay) Norkett	<i>Fissidens gracilifolius</i> Brugg.-Nann. et Nyholm
<i>Fissidens obtusifolius</i> auct. non Wilson	<i>Fissidens arnoldii</i> R. Ruthe
<i>Fissidens pusillus</i> auct. pp.	<i>Fissidens pusillus</i> (Wilson) Milde
<i>Fissidens pusillus</i> auct. pp.	<i>Fissidens gracilifolius</i> Brugg.-Nann. et Nyholm
<i>Fissidens pusillus</i> var. <i>minutulus</i> (Sull.) Husn.	<i>Fissidens gracilifolius</i> Brugg.-Nann. et Nyholm
<i>Fissidens tamarindifolius</i> (Turner) Brid.	<i>Fissidens incurvus</i> Starke ex Röhl.
<i>Funaria calcarea</i> Wahlenb.	<i>Funaria muhlenbergii</i> Turner
<i>Funaria dentata</i> Crome	<i>Funaria muhlenbergii</i> Turner
<i>Funaria fascicularis</i> (Hedw.) Lindb.	<i>Entosthodon fascicularis</i> (Hedw.) Müll. Hal.
<i>Funaria hibernica</i> Hook.	<i>Funaria muhlenbergii</i> Turner
<i>Funaria hungarica</i> Boros	<i>Entosthodon hungaricus</i> (Boros) Loeske
<i>Funaria mediterranea</i> Lindb.	<i>Funaria muhlenbergii</i> Turner
<i>Georgia pellucida</i> (Hedw.) Rabenh.	<i>Tetraphis pellucida</i> Hedw.
<i>Grimmia affinis</i> Hornsch.	<i>Grimmia longirostris</i> Hook.
<i>Grimmia apocarpa</i> Hedw.	<i>Schistidium apocarpum</i> (Hedw.) Bruch et Schimp.
<i>Grimmia campestris</i> Hook.	<i>Grimmia laevigata</i> (Brid.) Brid.
<i>Grimmia commutata</i> Huebener	<i>Grimmia ovalis</i> (Hedw.) Lindb.
<i>Grimmia flaccida</i> (De Not.) Lindb.	<i>Schistidium flaccidum</i> (De Not.) Ochyra
<i>Grimmia leucophaea</i> Grev.	<i>Grimmia laevigata</i> (Brid.) Brid.
<i>Grimmia trichophylla</i> var. <i>muehlenbeckii</i> (Schimp.) Husn.	<i>Grimmia muehlenbeckii</i> Schimp.
<i>Grimmia trichophylla</i> var. <i>tenuis</i> (Wahlenb.) Wijk et Margad.	<i>Grimmia muehlenbeckii</i> Schimp.
<i>Gymnostomum rupestre</i> Schwägr.	<i>Gymnostomum aeruginosum</i> Sm.
<i>Hedwigia albicans</i> Lindb. p.p.	<i>Hedwigia ciliata</i> (Hedw.) Ehrh. ex P. Beauv.
<i>Hedwigia albicans</i> Lindb. p.p.	<i>Hedwigia stellata</i> Hedenäs
<i>Hennediella heimii</i> (Hedw.) R. H. Zander	<i>Desmatodon heimii</i> (Hedw.) Mitt.
<i>Heterocladium squarrosulum</i> Voit	<i>Heterocladium dimorphum</i> (Brid.) Schimp.
<i>Heterocladium squarulosum</i> Lindb.	<i>Heterocladium dimorphum</i> (Brid.) Schimp.
<i>Homalothecium geheebii</i> (Milde) Wigh	<i>Brachythecium geheebii</i> Milde
<i>Homalothecium nitens</i> (Hedw.) H. Rob.	<i>Tomentypnum nitens</i> (Hedw.) Loeske
<i>Homalothecium trichoides</i> (Lindb.) Boros	<i>Tomentypnum nitens</i> (Hedw.) Loeske
<i>Hygramblystegium filicinum</i> (Hedw.) Loeske	<i>Cratoneuron filicinum</i> (Hedw.) Spruce
<i>Hygramblystegium fluviatile</i> (Hedw.) Loeske	<i>Amblystegium fluviatile</i> (Hedw.) Schimp.
<i>Hygramblystegium irriguum</i> Loeske	<i>Amblystegium tenax</i> (Hedw.) C. E. O. Jensen
<i>Hygramblystegium tenax</i> (Hedw.) Jenn.	<i>Amblystegium tenax</i> (Hedw.) C. E. O. Jensen
<i>Hygrohypnum palustre</i> Loeske	<i>Hygrohypnum luridum</i> (Hedw.) Jenn.

SYNONYM	ACCEPTED NAME
<i>Hylocomium proliferum</i> (Brid.) Lindb.	<i>Hylocomium splendens</i> (Hedw.) Schimp.
<i>Hylocomium squarrosum</i> (Hedw.) Schimp.	<i>Rhytiadelphus squarrosus</i> (Hedw.) Warnst.
<i>Hylocomium triquetrum</i> (Hedw.) Schimp.	<i>Rhytiadelphus triquetrus</i> (Hedw.) Warnst.
<i>Hymenostomum microstomum</i> (Hedw.) R. Braun ex Nees et Hornsch.	<i>Weissia brachycarpa</i> (Nees et Hornsch.) Jur.
<i>Hymenostomum rostellatum</i> (Brid.) Schimp.	<i>Weissia rostellata</i> (Brid.) Lindb.
<i>Hymenostomum tortile</i> (Schwägr.) Bruch et Schimp.	<i>Weissia condensa</i> (Voit) Lindb.
<i>Hymenostylium curvirostre</i> Mitt.	<i>Hymenostylium recurvirostrum</i> (Hedw.) Dixon
<i>Hypnum arcuatum</i> Lindb.	<i>Hypnum lindbergii</i> Mitt.
<i>Hypnum incurvatum</i> Brid.	<i>Homomallium incurvatum</i> (Brid.) Loeske
<i>Hypnum reptile</i> Michx.	<i>Hypnum pallescens</i> (Hedw.) P. Beauv.
<i>Isopterygium elegans</i> (Brid.) Lindb.	<i>Pseudotaxiphyllum elegans</i> (Brid.) Z. Iwats.
<i>Isopterygium pulchellum</i> (Hedw.) A. Jaeger et Sauerb.	<i>Isopterygiopsis pulchella</i> (Hedw.) Z. Iwats.
<i>Isopterygium seligeri</i> (Brid.) Dixon	<i>Herzogiella seligeri</i> (Brid.) Z. Iwats.
<i>Isothecium filescens</i> (Brid.) Mönk.	<i>Eurhynchium striatulum</i> (Spruce) Schimp.
<i>Isothecium myurum</i> Brid.	<i>Isothecium alopecuroides</i> (Dubois) Isov.
<i>Isothecium viviparum</i> Lindb.	<i>Isothecium alopecuroides</i> (Dubois) Isov.
<i>Leptobryum lutescens</i> (Limpr.) Mönk.	<i>Pohlia lutescens</i> (Limpr.) Lindb.
<i>Leptodictyum kochii</i> (Schimp.) Warnst.	<i>Amblystegium humile</i> (P. Beauv.) Crundw.
<i>Leptodictyum trichopodium</i> (Schultz) Warnst.	<i>Amblystegium humile</i> (P. Beauv.) Crundw.
<i>Lescurea saviana</i> (De Not.) E. Lawton	<i>Pseudoleskea saviana</i> (De Not.) Latzel
<i>Leskea catenulata</i> (Schräd.) Mitt.	<i>Pseudoleskeella catenulata</i> (Schräd.) Kindb.
<i>Leskea nervosa</i> (Brid.) Myrin	<i>Pseudoleskeella nervosa</i> (Brid.) Nyholm
<i>Leskeella nervosa</i> (Brid.) Loeske	<i>Pseudoleskeella nervosa</i> (Brid.) Nyholm
<i>Microbryum curvicolle</i> (Hedw.) R. H. Zander	<i>Phascum curvicolle</i> Hedw.
<i>Microbryum davallianum</i> (Sm.) R. H. Zander	<i>Pottia davalliana</i> (Sm.) C. E. O. Jensen
<i>Microbryum floerkeanum</i> (F. Weber et D. Mohr) Schimp.	<i>Phascum floerkeanum</i> F. Weber et D. Mohr
<i>Microbryum starckeanum</i> R. H. Zander	<i>Pottia starckeanum</i> (Hedw.) Müll. Hal.
<i>Microbryum starckeanum</i> var. <i>brachyodus</i> (Bruch et Schimp.) R. H. Zander	<i>Pottia mutica</i> Venturi
<i>Mniobryum albicans</i> (Wahlenb.) Limpr.	<i>Pohlia wahlenbergii</i> (F. Weber et D. Mohr) A. L. Andrews
<i>Mniobryum carneum</i> (F. Weber et D. Mohr) Limpr.	<i>Pohlia melanodon</i> (Brid.) A. J. Shaw
<i>Mniobryum delicatulum</i> (Hedw.) Dixon	<i>Pohlia melanodon</i> (Brid.) A. J. Shaw
<i>Mniobryum wahlenbergii</i> (F. Weber et D. Mohr) Jenn.	<i>Pohlia wahlenbergii</i> (F. Weber et D. Mohr) A. L. Andrews
<i>Mnium affine</i> Blandow	<i>Plagiomnium affine</i> (Blandow) T. J. Kop.
<i>Mnium affine</i> var. <i>elatum</i> Bruch et Schimp.	<i>Plagiomnium elatum</i> (Bruch et Schimp.) T. J. Kop.
<i>Mnium ambiguum</i> H. Müll.	<i>Mnium lycopodioides</i> Schwägr.
<i>Mnium cuspidatum</i> auct. p.p.	<i>Plagiomnium affine</i> (Blandow) T. J. Kop.
<i>Mnium cuspidatum</i> Hedw.	<i>Plagiomnium cuspidatum</i> (Hedw.) T. J. Kop.
<i>Mnium longirostre</i> Brid.	<i>Plagiomnium rostratum</i> (anon.) T. J. Kop.

SYNONYM

Mnium medium Bruch et Schimp.
Mnium orthorrhynchum auct. non Brid.
Mnium orthorrhynchum var. *lycopodioides* (Schwägr.) Husn.
Mnium punctatum Hedw.
Mnium rostratum anon.
Mnium rugicum Laurer
Mnium seligeri auct.
Mnium undulatum Hedw.
Neckera besseri (Lobarz.) Jur.
Neckera sendtneriana Schimp.
Orthodicranum flagellare (Hedw.) Loeske
Orthodicranum montanum (Hedw.) Loeske
Orthodicranum strictum (D. Mohr) Culm.
Orthodicranum tauricum (Sapjegin) Z. Smirnova
Orthotrichum braunii Bruch et Schimp.
Orthotrichum fallax Bruch ex Brid.
Orthotrichum fastigiatum Brid.
Orthotrichum leiocarpum Bruch et Schimp.
Orthotrichum leucomitrium Bruch et Schimp.
Orthotrichum octoblepharum Brid.
Orthotrichum sardagnanum Venturi
Orthotrichum saxatile Brid.
Orthotrichum schimperi Hammar
Orthotrichum sturmii Hoppe et Hornsch.
Oxyrhynchium hians (Hedw.) Loeske
Oxyrhynchium praelongum var. *stokesii* (Turner) Podp.
Oxyrhynchium pumilum (Wilson) Loeske
Oxyrhynchium schleicheri (R. Hedw.) Roell
Oxyrhynchium speciosum (Brid.) Warnst.
Oxyrhynchium swartzii (Turner) Warnst.
Oxystegus cylindricus (Brid.) Hilp.
Oxystegus sinuosus Hilp.
Phascum acaulon L. ex With.
Phascum alternifolium Hedw.
Phascum halophilum Šmarda
Philonotis capillaris auct.
Physcomitrella patens (Hedw.) Schimp.
Physcomitrium acuminatum Bruch et Schimp.
Plagiopus oederi (Brid.) Limpr.

Plagiothecium curvifolium Limpr.
Plagiothecium densifolium (Broth.) Limpr.
Plagiothecium elegans (Brid.) Sull.

ACCEPTED NAME

Plagiomnium medium (Bruch et Schimp.) T. J. Kop.
Mnium thomsonii Schimp.
Mnium lycopodioides Schwägr.

Rhizomnium punctatum (Hedw.) T. J. Kop.
Plagiomnium rostratum (anon.) T. J. Kop.
Plagiomnium ellipticum (Brid.) T. J. Kop.
Plagiomnium elatum (Bruch et Schimp.) T. J. Kop.
Plagiomnium undulatum (Hedw.) T. J. Kop.
Homalia besseri Lobarz.
Homalia besseri Lobarz.
Dicranum flagellare Hedw.
Dicranum montanum Hedw.
Dicranum tauricum Sapjegin
Dicranum tauricum Sapjegin

Orthotrichum stellatum Brid.
Orthotrichum pumilum Sw.
Orthotrichum affine Brid.
Orthotrichum striatum Hedw.
Orthotrichum scanicum Grönv.
Orthotrichum affine Brid.
Orthotrichum cupulatum Brid.
Orthotrichum anomalum Hedw.
Orthotrichum pumilum Sw.
Orthotrichum rupestre Schleich. ex Schwägr.
Eurhynchium hians (Hedw.) Sande Lac.
Eurhynchium praelongum (Hedw.) Schimp.

Eurhynchium pumilum (Wilson) Schimp.
Eurhynchium schleicheri (R. Hedw.) Jur.
Eurhynchium speciosum (Brid.) Jur.
Eurhynchium hians (Hedw.) Sande Lac.
Oxystegus tenuirostris (Hook. et Taylor) A. J. E. Sm.
Didymodon sinuosus (Mitt.) Delogne
Phascum cuspidatum Hedw.
Archidium alternifolium (Hedw.) Schimp.
Phascum cuspidatum Hedw.
Philonotis arnelli Husn.
Aphanorrhagma patens (Hedw.) Lindb.
Physcomitrium eury stomum Sendtn.
Plagiopus oederianus (Sw.) H. A. Crum et L. E. Anderson
Plagiothecium laetum Schimp.
Taxiphyllum densifolium (Broth.) Reimers
Pseudotaxiphyllum elegans (Brid.) Z. Iwats.

SYNONYM	ACCEPTED NAME
<i>Plagiothecium neglectum</i> Mönk.	<i>Plagiothecium nemorale</i> (Mitt.) A. Jaeger
<i>Plagiothecium pulchellum</i> (Hedw.) Schimp.	<i>Isoterygiopsis pulchella</i> (Hedw.) Z. Iwats.
<i>Plagiothecium roeseanum</i> Schimp.	<i>Plagiothecium cavifolium</i> (Brid.) Z. Iwats.
<i>Plagiothecium silesiacum</i> (F. Weber et D. Mohr) Schimp.	<i>Herzogiella seligeri</i> (Brid.) Z. Iwats.
<i>Plagiothecium sylvaticum</i> auct.	<i>Plagiothecium nemorale</i> (Mitt.) A. Jaeger
<i>Plasteurhynchium striatulum</i> (Spruce) M. Fleisch.	<i>Eurhynchium striatulum</i> (Spruce) Schimp.
<i>Platydictya confervoides</i> (Brid.) H. A. Crum	<i>Amblystegium confervoides</i> (Brid.) Schimp.
<i>Platydictya subtilis</i> (Hedw.) H. A. Crum	<i>Amblystegium subtile</i> (Hedw.) Schimp.
<i>Pleuridium alternifolium</i> auct. non (Hedw.) Brid.	<i>Pleuridium subulatum</i> (Hedw.) Rabenh.
<i>Pleuridium subulatum</i> auct. non (Hedw.) Rabenh.	<i>Pleuridium acuminatum</i> Lindb.
<i>Pohlia carnea</i> Lindb.	<i>Pohlia melanodon</i> (Brid.) A. J. Shaw
<i>Pohlia grandiflora</i> H. Lindb.	<i>Pohlia annotina</i> (Hedw.) Lindb.
<i>Polytrichastrum alpinum</i> (Hedw.) G. L. Sm.	<i>Polytrichum alpinum</i> Hedw.
<i>Polytrichastrum formosum</i> (Hedw.) G. L. Sm.	<i>Polytrichum formosum</i> Hedw.
<i>Polytrichastrum longisetum</i> (Brid.) G. L. Sm.	<i>Polytrichum longisetum</i> Sw. ex Brid.
<i>Polytrichum alpestre</i> Hoppe	<i>Polytrichum stricnum</i> Brid.
<i>Polytrichum angustatum</i> Brid.	<i>Atrichum angustatum</i> (Brid.) Bruch et Schimp.
<i>Polytrichum attenuatum</i> Menzies ex Brid.	<i>Polytrichum formosum</i> Hedw.
<i>Polytrichum gracile</i> Dicks.	<i>Polytrichum longisetum</i> Sw. ex Brid.
<i>Pottia heimii</i> (Hedw.) Hampe	<i>Desmatodon heimii</i> (Hedw.) Mitten
<i>Pottia truncatula</i> (With.) Buse	<i>Pottia truncata</i> (Hedw.) Bruch et Schimp.
<i>Pseudephemerum axillare</i> (Lindb.) I. Hagen	<i>Pseudephemerum nitidum</i> (Hedw.) Reimers
<i>Pseudocalliergon lycopodioides</i> (Brid.) Hedenäs	<i>Drepanocladus lycopodioides</i> (Brid.) Warnst.
<i>Pseudoisothecium myosuroides</i> (Brid.) Grout	<i>Isothecium myosuroides</i> Brid.
<i>Pseudoleskea illyrica</i> Glowacki	<i>Pseudoleskea saviana</i> (De Not.) Latzel
<i>Pseudoscleropodium purum</i> (Hedw.) M. Fleisch. ex Broth.	<i>Scleropodium purum</i> (Hedw.) Limpr.
<i>Pterogonium ornithopodioides</i> (F. Weber et D. Mohr) Lindb.	<i>Pterogonium gracile</i> (Hedw.) Sm.
<i>Pterygoneurum cavifolium</i> Jur.	<i>Pterygoneurum ovatum</i> (Hedw.) Dixon
<i>Pterygoneurum pusillum</i> (Lindb.) C. E. O. Jensen	<i>Pterygoneurum ovatum</i> (Hedw.) Dixon
<i>Racomitrium protensum</i> (A. Braun) Huebener	<i>Racomitrium aquaticum</i> (Schrad.) Brid.
<i>Rhabdoweisia schisti</i> (F. Weber et D. Mohr) Bruch et Schimp.	<i>Cnestrum schisti</i> (F. Weber et D. Mohr) I. Hagen
<i>Rhabdoweisia striata</i> (Schrad.) Lindb.	<i>Rhabdoweisia fugax</i> (Hedw.) Bruch et Schimp.
<i>Rhodobryum spathulatum</i> auct.	<i>Rhodobryum ontariense</i> (Kindb.) Kindb.
<i>Rhynchostegiella algeriana</i> (P. Beauv.) Warnst.	<i>Rhynchostegiella tenella</i> (Dicks.) Limpr.
<i>Rhynchostegiella compacta</i> (Müll. Hal.) Loeske	<i>Conardia compacta</i> (Müll. Hal.) H. Rob.

SYNONYM	ACCEPTED NAME
<i>Rhynchostegiella jacquinii</i> (Garov.) Limpr.	<i>Rhynchostegiella teneriffae</i> (Mont.) Dirkse et Bouman
<i>Rhynchostegiella pallidirostra</i> (Brid.) Loeske	<i>Eurhynchium pumilum</i> (Wilson) Schimp.
<i>Rhynchostegium riparioides</i> (Hedw.) Cardot	<i>Platyhypnidium riparioides</i> (Hedw.) Dixon
<i>Saelania caesia</i> (P. Beauv.) Lindb.	<i>Saelania glaucescens</i> (Hedw.) Broth.
<i>Schistidium apocarpum</i> var. <i>brunnescens</i> (Limpr.) Loeske	<i>Schistidium brunnescens</i> Limpr.
<i>Schistidium pulvinatum</i> auct. non (Hedw.) Brid.	<i>Schistidium flaccidum</i> (De Not.) Ochyra
<i>Schistidium pulvinatum</i> var. <i>flaccidum</i> (De Not.) De Not.	<i>Schistidium flaccidum</i> (De Not.) Ochyra
<i>Scorpidium cossonii</i> (Schimp.) Hedenäs	<i>Drepanocladus cossonii</i> (Schimp.) Loeske
<i>Seligeria setacea</i> Lindb.	<i>Seligeria recurvata</i> (Hedw.) Bruch et Schimp.
<i>Sharpiella seligeri</i> (Brid.) Z. Iwats.	<i>Herzogiella seligeri</i> (Brid.) Z. Iwats.
<i>Sphagnum acutifolium</i> Ehrh. ex Schrad.	<i>Sphagnum capillifolium</i> (Ehrh.) Hedw.
<i>Sphagnum nemoreum</i> auct.	<i>Sphagnum capillifolium</i> (Ehrh.) Hedw.
<i>Sphagnum parvifolium</i> (Warnst.) Warnst.	<i>Sphagnum angustifolium</i> (Warnst.) C. E. O. Jensen
<i>Sphagnum plumulosum</i> Roell	<i>Sphagnum subnitens</i> Russow et Warnst.
<i>Sphagnum recurvum</i> P. Beauv. var. <i>amblyphyllum</i> (Russow) Warnst.	<i>Sphagnum flexuosum</i> Dozy et Moik.
<i>Sphagnum recurvum</i> P. Beauv. var. <i>mucronatum</i> (Russow) Warnst.	<i>Sphagnum fallax</i> (H. Klinggräff) H. Klinggräff
<i>Sphagnum robustum</i> (Warnst.) Roell	<i>Sphagnum russowii</i> Warnst.
<i>Sphagnum rufescens</i> (Nees et Hornsch.) Warnst.)	<i>Sphagnum denticulatum</i> var. <i>denticulatum</i> Brid.
<i>Sphagnum subbicolor</i> auct. non Hampe	<i>Sphagnum centrale</i> C. E. O. Jensen
<i>Slachnobryum wrightii</i> Müll. Hal.	<i>Slachnobryum obtusum</i> (Brid.) Müll. Hal.
<i>Steppomitra hungarica</i> (Boros) Vondraček et Hadač	<i>Entosthodon hungaricus</i> (Boros) Loeske
<i>Straminergon stramineum</i> (Brid.) Hedenäs	<i>Calliergon stramineum</i> (Brid.) Kindb.
<i>Streblotrichum convolutum</i> (Hedw.) P. Beauv.	<i>Barbula convoluta</i> Hedw.
<i>Swartzia montana</i> Lindb.	<i>Distichium capillaceum</i> (Hedw.) Bruch et Schimp.
<i>Syntrichia calcicola</i> J. J. Amann	<i>Tortula calcicolens</i> W. A. Kramer
<i>Syntrichia inermis</i> (Brid.) Bruch	<i>Tortula inermis</i> (Brid.) Mont.
<i>Syntrichia intermedia</i> Brid.	<i>Tortula crinita</i> (De Not.) De Not.
<i>Syntrichia laevipila</i> Brid.	<i>Tortula laevipila</i> (Brid.) Schwägr.
<i>Syntrichia latifolia</i> (Hartm.) Huebener	<i>Tortula latifolia</i> Bruch ex Hartm.
<i>Syntrichia montana</i> Nees	<i>Tortula crinita</i> (De Not.) De Not.
<i>Syntrichia mucronifolia</i> (Schwägr.) Brid.	<i>Tortula mucronifolia</i> Schwägr.
<i>Syntrichia norvegica</i> F. Weber	<i>Tortula norvegica</i> (F. Weber) Lindb.
<i>Syntrichia papillosa</i> (Wilson) Jur.	<i>Tortula papillosa</i> Wilson
<i>Syntrichia princeps</i> (De Not.) Mitt.	<i>Tortula princeps</i> De Not.
<i>Syntrichia ruralis</i> (Hedw.) F. Weber et D. Mohr	<i>Tortula ruralis</i> (Hedw.) P. Gaertn., B. Mey. et Scherb.
<i>Syntrichia ruralis</i> var. <i>arenicola</i> (Braithw.) Amann	<i>Tortula ruraliformis</i> (Besch.) Ingham
<i>Syntrichia ruralis</i> var. <i>hirsuta</i> (Venturi) Podp.	<i>Tortula papillosissima</i> (Copp.) Broth.

SYNONYM	ACCEPTED NAME
<i>Syntrichia ruralis</i> var. <i>ruraliformis</i> (Besch.) Durand	<i>Tortula ruraliformis</i> (Besch.) Ingham
<i>Syntrichia ruralis</i> var. <i>submamillosa</i> (W. A. Kramer) R. H. Zander	<i>Tortula papillosissima</i> (Copp.) Broth.
<i>Syntrichia subulata</i> (Hedw.) F. Weber et D. Mohr	<i>Tortula subulata</i> Hedw.
<i>Syntrichia virescens</i> (De Not.) Ochyra	<i>Tortula virescens</i> (De Not.) De Not.
<i>Taxiphyllum depressum</i> (Brid.) Reimers	<i>Taxiphyllum wissgrillii</i> (Garov.) Wijk et Margad.
<i>Thamnium alopecurum</i> (Hedw.) Schimp.	<i>Thamnobryum alopecurum</i> (Hedw.) Gangulee
<i>Thuidium erectum</i> Duby	<i>Thuidium delicatulum</i> (Hedw.) Schimp.
<i>Thuidium lanatum</i> (Brid.) I. Hagen	<i>Helodium blandowii</i> (F. Weber et D. Mohr) Warnst.
<i>Thuidium tamariscifolium</i> Lindb.	<i>Thuidium tamariscinum</i> (Hedw.) Schimp.
<i>Tortella cylindrica</i> (Brid.) Loeske	<i>Oxystegus tenuirostris</i> (Hook. et Taylor) A. J. E. Sm.
<i>Tortula acaulon</i> (With.) R. H. Zander	<i>Phascum cuspidatum</i> Hedw.
<i>Tortula caninervis</i> subsp. <i>spuria</i> var. <i>gypsophila</i> (Roth) W. A. Kramer	<i>Tortula caninervis</i> (Mitt.) Broth. subs. <i>spuria</i> (J. Amann) W. A. Kramer
<i>Tortula cernua</i> (Huebener) Lindb.	<i>Desmatodon cernuus</i> (Huebener) Bruch et Schimp.
<i>Tortula desertorum</i> Broth.	<i>Tortula caninervis</i> (Mitt.) Broth. subs. <i>spuria</i> (J. Amann) W. A. Kramer
<i>Tortula intermedia</i> (Brid.) Berk.	<i>Tortula crinita</i> (De Not.) De Not.
<i>Tortula lanceola</i> R. H. Zander	<i>Pottia lanceolata</i> (Hedw.) Müll. Hal.
<i>Tortula modica</i> R. H. Zander	<i>Pottia intermedia</i> (Turner) Fűrnr.
<i>Tortula muralis</i> var. <i>obtusifolia</i> (Schwaeagr.) Boros	<i>Tortula obtusifolia</i> (Schwäger.) Mathieu
<i>Tortula protobryoides</i> R. H. Zander	<i>Pottia bryoides</i> (Dicks.) Mitt.
<i>Tortula rhizophylla</i> (Sakurai) Z. Iwats. et K. Saito	<i>Phascum leptophyllum</i> Müll. Hal.
<i>Tortula ruralis</i> var. <i>arenicola</i> Braithw.	<i>Tortula ruraliformis</i> (Besch.) Ingham
<i>Tortula ruralis</i> var. <i>calcicola</i> (J. J. Amann) Barkman	<i>Tortula calcicolens</i> W. A. Kramer
<i>Tortula truncata</i> (Hedw.) Mitt.	<i>Pottia truncata</i> (Hedw.) Bruch et Schimp.
<i>Tortula velenovskyi</i> Schiffn.	<i>Hilpertia velenovskyi</i> (Schiffn.) R. H. Zander
<i>Trichodon cylindricum</i> (Hedw.) Schimp.	<i>Ditrichum cylindricum</i> (Hedw.) Grout
<i>Trichostomum cylindricum</i> (Brid.) Müll. Hal.	<i>Oxystegus tenuirostris</i> (Hook. et Taylor) A. J. E. Sm.
<i>Trichostomum tenuirostre</i> (Hook. et Taylor) Lindb.	<i>Oxystegus tenuirostris</i> (Hook. et Taylor) A. J. E. Sm.
<i>Ulota americana</i> (P. Beauv.) Limpr.	<i>Ulota hutchinsiae</i> (Sm.) Hammar
<i>Ulota crispa</i> var. <i>norvegica</i> (Grönv.) A. J. E. Sm. et M. O. Hill	<i>Ulota bruchii</i> Brid.
<i>Ulota crispula</i> Brid.	<i>Ulota crispa</i> (Hedw.) Brid.
<i>Ulota ludwigii</i> (Brid.) Brid.	<i>Ulota coarctata</i> (P. Beauv.) Hammar
<i>Ulota ulophylla</i> Broth.	<i>Ulota crispa</i> (Hedw.) Brid.

SYNONYM	ACCEPTED NAME
<i>Weissia controversa</i> var. <i>crispata</i> (Nees et Hornsch.) Nyholm	<i>Weissia fallax</i> Sehm.
<i>Weissia microstoma</i> (Hedw.) Müll. Hal.	<i>Weissia brachycarpa</i> (Nees et Hornsch.) Jur.
<i>Weissia tortilis</i> (Schwägr.) Müll. Hal.	<i>Weissia condensa</i> (Voit) Lindb.
<i>Weissia tortilis</i> var. <i>fallax</i> (Sehm.) Mönk.	<i>Weissia fallax</i> Sehm.
<i>Weissia viridula</i> Brid.	<i>Weissia controversa</i> Hedw.
<i>Zygodon viridissimus</i> var. <i>vulgaris</i> Malta	<i>Zygodon rupestris</i> Lorentz