

Bryophyte flora of Albania: an updated checklist with new records

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Abstract. The updated checklist of the bryophyte flora of Albania (SE Europe), with the addition of eighteen new records (and several regional ones) presented here, comprises 583 taxa (species, subspecies, varieties) representing 212 genera and 96 families. The main list includes tabular distributional data by region. Reports after 1950 are differentiated from the earlier ones. The list is organized taxonomically (hornworts, liverworts and mosses) and in alphabetical order within each division. Updated synonymy and a systematic synopsis are presented at the end.

Key words: Hornworts, liverworts, mosses, Southeast Europe, Western Balkans

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Introduction

When a preliminary checklist of the bryophyte flora of Albania was published seventeen years ago (Colacino & Sabovljević 2006), Albania was one of the less known regions of Europe in relation to its bryophyte flora, as it was stated in earlier papers (e.g., Colacino 2004). That checklist was based on literature references and was prepared as a base for the assessment of several collections made during field trips in Albania in the preceding years (partially published in Colacino & Marka 2009, and Colacino 2023). Since the publication of that preliminary check-list, interest in the Albanian bryophyte flora has considerably

increased (Blockeel & al. 2007, 2009; Colacino 2009; Papp & al. 2010, 2018; Marka & Sabovljević 2011; Marka & Xhulaj 2011; Ellis & al. 2012, 2013; Marka & al. 2013, 2018; Puglisi & al. 2013; van Zanten 2013; Marka & Zaloshnja 2017; Anđić & al. 2018; Kashta & al. 2023). Other papers revising various groups taxonomically have included species from Albania (Maier 2002; Orgaz & al. 2013; Ellis & Price 2015).

The new records have been collected during a phytosociological study carried out in several areas of Albania by G. Fanelli and colleagues in 2016-2018 (unpublished). Several collections of bryophytes have been sent to the author at HLUC for determination, the work is still in progress.

In the present paper, all new collections - since the publication of the preliminary checklist - are considered. In the updated checklist, the presence of each taxon is indicated at the regional level (Qarqe, Prefecture), as in 2006. It has become necessary to compile a new checklist not only because numerous studies have considerably increased the bryological knowledge of Albania, but also because the recent publica-

tion of *An annotated checklist of bryophytes of Europe, Macaronesia and Cyprus* (Hodgetts & al. 2020) dramatically changed the systematics and taxonomy of the European bryophyte flora, including that of Albania. Several recent molecular and taxonomical works have brought numerous changes to the systematics and nomenclature of many species, genera, and even entire families.

Locality Reference Numbers for the New Records

Ref.	Region	Locality	Coll.#	Date.	Vegetation	Coordinates	Altitude (m)
1	Berat	Tomorr	A32-842	22.07.2016	-	40°41'26.4"N 20°00'36.1"E	100
2	Berat	Tomorr	51-943	20.07.2016	31	40°34'22.4"N 20°10'19.6"E	600
3	Berat	Tomorr	0-831	22.07.2016	12	40°34'37.1"N 20°10'10.6"E	619
4	Berat	Tomorr	1-978	18.06.2016	3	40°40'07.0"N 20°07'51.6"E	820
5	Berat	Tomorr	2-977	18.06.2016	17	40°40'16.9"N 20°07'53.9"E	830
6	Berat	Tomorr	A43-827	23.07.2016	21	40°44'20.6"N 20°07'45.9"E	950
7	Berat	Tomorr	4-987	19.06.2016	23	40°42'19.9"N 20°06'42.1"E	1220
8	Berat	Tomorr	5-988	19.06.2016	5	40°42'18.1"N 20°06'39.1"E	1220
9	Berat	Tomorr	2-985	19.06.2016	21	40°42'18.0"N 20°06'42.8"E	1220
10	Berat	Tomorr	59-1308	21.07.2016	33	-	1336
11	Berat	Tomorr	6-982	18.06.2016	21	-	1676
12	Berat	Tomorr	1-1000	14.05.2016	24	40°43'30.1"N 20°08'48.3"E	1680
13	Berat	Tomorr	60-1309	21.07.2016	-	40°40'28.7"N 20°10'11.2"E	1820
14	Berat	Tomorr	63-1305	21.07.2016	25	40°41'46.8"N 20°09'42.2"E	1860
15	Berat	Tomorr	4-974	17.06.2016	20b	40°38'15.3"N 20°09'39.7"E	2300
16	Berat	Tomorr	33-925	18.07.2016	30	40°38'18.3"N 20°09'30.3"E	2320
17	Berat	Tomorr	2-972	17.06.2016	20	40°38'12.6"N 20°09'45.1"E	2380
18	Dibër	Korab	29-1082	26.07.2016	12	41°42'03.7"N 20°29'06.8"E	1040
19	Dibër	Korab	47-801	27.07.2016	19	41°47'20.2"N 20°27'55.6"E	1600
20	Dibër	Korab	4-959	27.05.2016	24	41°38'34.7"N 20°31'18.3"E	2100
21	Dibër	Korab	3-958	27.05.2016	28	41°38'36.7"N 20°31'19.9"E	2110
22	Dibër	Korab	46-2081	27.07.2016	2	41°47'09.5"N 20°28'04.6"E	1617
23	Dibër	Korab	7-1328	25.06.2016	6	41°49'08.2"N 20°33'30.1"E	2060
24	Dibër	Korab	40-1090	27.05.2016	27	-	2135
25	Dibër	Korab	2-957	27.05.2016	28	41°38'38.9"N 20°31'21.4"E	2354
26	Dibër	Korab	39-1089	27.05.2016	13	41°49'02.9"N 20°29'27.6"E	1360

Ref.	Region	Locality	Coll.#	Date.	Vegetation	Coordinates	Altitude (m)
27	Fier	Karavasta	6-1008	18.06.2016	8	40°59'31.9"N 19°29'48.7"E	30
28	Gjirokaštër	Hotova	42-1357	22.06.2016	30	40°14'59.5"N 20°26'20.1"E	580
29	Gjirokaštër	Hotova	32-1348	21.06.2016	1	40°21'25.7"N 20°24'14.6"E	1260
30	Kukës	Gjallica	471097	28.07.2017	29	42°00'10.9"N 20°28'12.7"E	2040
31	Kukës	Korab	63-1111	29.07.2017	32	41°54'55.8"N 20°32'25.4"E	1750
32	Kukës	Korab	66-1114	29.07.2017	14	41°54'19.9"N 20°32'33.4"E	1900
33	Kukës	Korab 2	17-772	26.07.2016	16	41°56'48.9"N 20°34'25.8"E	1300
34	Kukës	Korab 2	14-769	26.07.2016	11	41°56'51.6"N 20°34'29.0"E	1450
35	Kukës	Korab	29-784	26.07.2016	10	41°59'14.2"N 20°33'05.8"E	1200
36	Vlorë	Çika Mt.	43-1195	01.07.2018	12	40°12'35.0"N 19°37'03.4"E	1837
37	Vlorë	Çika Mt.	48-1200	01.07.2018	7	40°11'54.9"N 19°38'17.3"E	1941
38	Vlorë	Llogora	54-1038	27.06.2017	18	40°07'38.9"N 19°44'40.6"E	248
39	Vlorë	Llogora	64-1146	29.06.2017	18	40°12'29.0"N 19°35'10.2"E	840
40	Vlorë	Llogora	66-1148	29.06.2017	26	40°12'39.0"N 19°35'06.3"E	940
41	Vlorë	Llogora	16-1168	07.06.2018	1	40°13'19.8"N 19°33'16.2"E	960
42	Vlorë	Llogora	14-1166	07.06.2018	15	40°13'02.1"N 19°33'45.9"E	980
43	Vlorë	Llogora	15-1167	07.06.2018	15	40°13'04.6"N 19°33'37.4"E	990
44	Vlorë	Llogora	13-1165	07.06.2018	1	40°13'01.9"N 19°33'46.1"E	1000
45	Vlorë	Llogora	100-1251	26.07.2018	18	40°11'49.7"N 19°35'50.1"E	1044
46	Vlorë	Llogora	81-1232	25.07.2018	9	40°12'44.4"N 19°32'51.0"E	1200
47	Vlorë	Llogora	32-1184	29.06.2018	18	40°11'60.0"N 19°34'57.4"E	1200
48	Vlorë	Llogora	31-1183	29.06.2018	4	40°11'57.6"N 19°34'44.4"E	1240
49	Vlorë	Llogora	52-1036	27.06.2017	1	40°07'44.9"N 19°50'41.9"E	1250
50	Vlorë	Karaburun	-1205	03.07.2018	22	40°12'58.6"N 19°28'30.1"E	20
51	Vlorë	Karaburun	58-1210	04.07.2018	15	40°15'06.0"N 19°29'32.3"E	1280

Tomorr: Tomorri Mountain National Park; **Korab:** Korab-Koritni National Park;

Korab 2: Korab-Koritni National Park (Liqeni Novosej); **Karavasta:** Divjake-Karavasta National Park;

Hotova: Fir of Hotova National Park; **Llogara:** Llogora National Park.

Legit Fanelli & al. Determinavit C. Colacino. All collections at HLUC.

Vegetation: 1. *Abies borisii-regis* forest; 2. *Achillea ageratifolia* community; 3. *Adiantum capillus veneris* community; 4. *Buxus* shrubs; 5. *Campanula aureliana* rock community; 6. *Carex otrubae* community; 7. *Danthoniastrum compactum* stable scree; 8. *Dasyphyrum villosum* grassland; 9. *Dryopteris villarii* rock community; 10. *Festuca bosniaca* community; 11. *Festuca valesiaca* community; 12. Festuco-Brometea grassland; 13. *Juniperus sabina* community; 14. *Narthecium scardicum* community; 15. *Ostrya carpinifolia* wood; 16. *Phylonotis fontana* community; 17. *Pinus heldreichii* - *Carpinus orientalis* degraded woodlands; 18. *Pinus nigra* woodland; 19. *Pinus peuce* woodland; 20. *Potentilla apennina-Saxifraga paniculata* community; 20b. *Potentilla speciosa* rock community; 21. *Pteroccephalon perennis* rock community; 22. *Quercus ilex* wood; 23. *Ramonda serbica* rock community; 24. Rock vegetation; 25. Rocks with *Crepis baldacci*; 26. *Salix eleagnos* woodland; 27. *Satureja montana* garrigue; 28. *Saxifraga paniculata* rock community; 29. *Sesleria* sp. Grassland; 30. Thero-Brachypodium; 31. *Trachynia distachia* community; 32. *Trisetum flavescens* grassland; 33. Limestone pavements.

Materials and methods

All reports of new taxa for Albania at the national and the regional level have been considered, the nomenclature follows Hodgetts & al. (2020). Occasionally, online resources have been consulted too, namely Tropicos (Tropicos.org, Missouri Botanical Garden, 30 Jun 2023 <<https://tropicos.org>>), bryonames.org, GBIF—the Global Biodiversity Information Facility (gbif.org), and The Catalog of Life.

The checklist (Table 1) is supplemented with a Systematic synopsis (Appendix) and synonyms.

In the map (Fig. 1) acronyms of the administrative units of the country (prefectures/regions) are indicated.

In 2006, besides the 12 main *qarqe* units (prefecture/county/region), the administrative units of Albania included some more on a lower administrative level: *rreth* (district) - 36 units, as well as communes (308), and municipalities (65). The new administrative subdivision of Albania, implemented in June 2015, abolished the districts and remapped them into 61 municipalities (*bashkia*), and 373 lower administrative units. Districts are still referred to in post-2015 papers, though.

Results

Eighteen new taxa are reported. The present report features the taxa new to Albania at the national and the regional level, as well as some more. The locality reference number is put in parenthesis after the scientific name; a three-letter acronym for each region is used in the regional reports (see Fig.1).

New records for Albania: *Brachythecium campestre* (49), *Campylium stellatum* (14), *Dicranella crispa* (14), *Dicranum elongatum* (7), *Dicranum spadiceum* (12), *Drepanium fastigiatus* (29), *Homomallium incurvatus* (33, 34), *Hypnum andoi* (51), *Jochenia pallescens* (13, 14), *Lescuraea mutabilis* (25), *Microhypnum sauteri* (39), *Neckera oligocarpa* (49), *Neckera pennata* (42), *Philonotis rigida* (23), *Plagiomnium medium* (49),

Polytrichum perigoniale (17), *Scorpidium revolvens* (32), and *Syntrichia princeps* (25).

New regional reports: *Barbula unguiculata* (2, 35, KUK), *Campylium protensum* (6 - BER), *Dicranella heteromalla* (14 - BER), *Didymodon insulanus* (25, 30 - DIB, KUK), *Encalypta streptocarpa* (3, 12, 14 - BER), *Grimmia lisae* (46 - VLO), *Habrodon perpusillus* (24 - DIB), *Hygrohypnum luridum* (27 - FIE), *Hymenoloma crispulum* (15, 50 - BER, VLO), *Orthotrichum diaphanum* 24 - DIB), *Oxyrrhynchium speciosum* (13 - BER), *Palustriella falcata* (23, 40 - DIB), *Pseudocrossidium hornschurchianum* (21 - DIB), *Pterigynandrum filiforme* (42 - VLO), *Ptychostomum creberrimum* (14 - BER), *Ptychostomum pallescens* (17 - BER), *Streblotrichum convolutum* (1, 7, 12, 14, 22, 28 - BER, DIB), *Syntrichia virescens* (24, 28 - DIB), *Thamnobryum alopecurum* (31, 49 - KUK), *Tortella densa* (37) VLO), *Tortella humilis* (16, 18, 46 - BER, DIB, VLO), *Tortella inflexa* (45 - VLO), *Tortella tortuosa* (3, 5, 9, 10, 11, 14, 25, 26 - BER), and *Tortula inermis* (19 - DIB).

Confirmation of pre-1950 record: *Polytrichum juniperinum* (20 - DIB).

Other collected mosses: *Alleniella complanata* (44), *Brachytheciastrum velutinum* (49), *Cratoneuron filicinum* (4), *Ctenidium molluscum* (38), *Exsertotheca crispa* (38, 47, 49), *Fisidens taxifolius* subsp. *taxifolius* (45), *Homalothrcium sericeum* (5, 7, 8, 10, 11, 29, 36, 46, 48), *Isothecium alopecuroides* (47), *Isothecium myusuroides* (38), *Ptychostomum capillare* (36), *Ptychostomum pseudotriquetrum* (23), *Rhynchostegium confertum* (41, 43, 44, 48), *Rhytidiadelphus squarrosus* (31), *Syntrichia montana* (2), and *Tortula subulata* (21).

Of the 327 taxa reported in 2006 for Albania, only 314 are recognized today. Moreover, most new records for Albania have been published with reference to the old taxonomy. In the present work, taxonomy has been updated and a total of 269 new records are reported at the national level (with many more at the regional level). A total of 583 taxa are reported for Albania (Table 1), which represents an increase of more than 85% since 2006.

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.
▲ = report based on collections made after 1950.													
▲1 = records with a numbered note, perhaps doubtful.													
△ = report based on collections made before and including 1950.													
<i>Fossombronia wondraczekii</i> (Corda) Dumort. ex Lindb.		▲											
<i>Frullania cleistostoma</i> Schiffl. & W.Wollny												▲	
<i>Frullania dilatata</i> (L.) Dumort.	▲	▲	▲			▲	▲	▲	▲		▲	▲	▲
<i>Frullania fragilifolia</i> (Taylor) Gottsche, Lindenb. & Nees						▲							
<i>Frullania tamarisci</i> (L.) Dumort.			△			▲		▲	▲		▲		
<i>Fuscocephaloziopsis pleniceps</i> (Austin) Váňa & L.Söderstr.		▲											
<i>Gongylanthus ericetorum</i> (Raddi) Nees						▲							
<i>Jungermannia atrovirens</i> Dumort.	▲					▲			▲	▲			
<i>Jungermannia calcicola</i> Konstant. & Vilnet.		▲											
<i>Jungermannia polaris</i> Lindb.						▲			▲				
<i>Jungermannia pumila</i> With.		▲											
<i>Lejeunea cavifolia</i> (Ehrh.) Lindb.						▲	▲	▲			▲	▲	
<i>Liochlaena lanceolata</i> Nees	△												
<i>Lophocolea bidentata</i> (L.) Dumort.	△								▲				
<i>Lophocolea heterophylla</i> (Schrad.) Dumort.					▲	▲	▲	▲	▲		▲	▲	
<i>Lophocolea minor</i> Nees				△			▲		▲				
<i>Lophozia ascendens</i> (Warnst.) R.M.Schust.		▲											
<i>Lophozia ventricosa</i> (Dicks.) Dumort.				△									
<i>Lophozia wenzelii</i> (Nees) Steph.		▲											
<i>Lophoziopsis excisa</i> (Dicks.) Konstant. & Vilnet									▲				
<i>Lophoziopsis longidens</i> (Lindb.) Konstant. & Vilnet		▲											
<i>Lunularia cruciata</i> (L.) Lindb.	▲		▲		▲	▲		▲		▲	▲	▲	
<i>Mannia androgyna</i> (L.) A. Evans	▲	▲			▲	▲					▲	▲	
<i>Mannia gracilis</i> (F.Weber) D.B.Schill & D.G.Long		▲											
<i>Mannia triandra</i> (Scop.) Grolle	▲					▲							
<i>Marchantia paleacea</i> Bertol.						▲					▲		
<i>Marchantia polymorpha</i> L.	▲					▲			▲		▲		
<i>Marchantia polymorpha</i> subsp. <i>montivagans</i> Bischn. & Boissel.-Dub.									▲				
<i>Marchantia quadrata</i> Scop.	▲	▲				▲							
<i>Marsupella emarginata</i> (Ehrh.) Dumort.			▲										
<i>Marsupella funckii</i> (F.Weber & D.Mohr) Dumort.		▲											
<i>Mesoptychia badensis</i> (Gottsche ex Rabenh.) L.Söderstr. & Váňa									▲				
<i>Mesoptychia collaris</i> (Nees) L.Söderstr. & Váňa						▲			▲				
<i>Mesoptychia heterocolpos</i> (Thed. ex Hartm.) L.Söderstr.		▲											
<i>Mesoptychia turbinata</i> (Raddi) L.Söderstr. & Váňa	▲				▲	▲		▲	▲	▲	▲	▲	
<i>Metzgeria furcata</i> (L.) Dumort.	△												
<i>Nardia geoscyphus</i> (De Not.) Lindb.		▲											
<i>Nardia scalaris</i> Gray		▲											
<i>Neoorthocaulis floerkei</i> (F.Weber & D.Mohr) L. Söderstr.									▲				
<i>Nowellia curvifolia</i> (Dicks.) Mitt.		▲											
<i>Oxymitra incrassata</i> (Brot.) Sérgio & Sim-Sim											▲		

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.
▲ = report based on collections made after 1950.													
▲1 = records with a numbered note, perhaps doubtful.													
△ = report based on collections made before and including 1950.													
<i>Schistochilopsis incisa</i> (Schrad.) Konstant.		△											
<i>Solenostoma gracillimum</i> (Sm.) R.M.Schust.		△											
<i>Solenostoma hyalinum</i> (Lyell) Mitt.						▲							
<i>Southbya nigrella</i> (De Not.) Henriq.	▲				▲	▲		▲			▲	▲	
<i>Southbya tophacea</i> (Spruce) Spruce	▲				▲	▲			▲	▲	▲	▲	
<i>Targionia hypophylla</i> L.	▲				▲	▲					▲	▲	
<i>Targionia lorbeeriana</i> Müll. Frib.											▲	▲	
Bryophyta													
<i>Abietinella abietina</i> (Hedw.) M. Fleisch.	▲			▲			▲		▲				
<i>Alleniella besseri</i> (Lobarz.) S. Olsson, Enroth & D. Quandt	▲						▲		▲				
<i>Alleniella complanata</i> (Hedw.) S. Olsson, Enroth & D. Quandt	▲	△				△	▲		▲		▲	▲	
<i>Aloina aloides</i> (Koch ex Schultz) Kindb.			▲					▲		▲	▲	▲	
<i>Aloina ambigua</i> (Bruch & Schimp.) Limpr.	△											▲	
<i>Amblystegium serpens</i> (Hedw.) Schimp.	▲	△				▲		▲	▲			▲	
<i>Amphidium lapponicum</i> (Hedw.) Schimp.		▲											
<i>Amphidium mougeotii</i> (Schimp.) Schimp.							▲		▲				
<i>Andreaea rupestris</i> Hedw.		▲											
<i>Anoetangium aestivum</i> (Hedw.) Mitt.	▲					▲							
<i>Anomobryum julaceum</i> (Schrad. ex P.Gaertn. et al.) Schimp.						▲							
<i>Anomodon longifolius</i> (Schleich. ex Brid.) Hartm.	△												
<i>Anomodon viticulosus</i> (Hedw.) Hook. & Taylor	▲	△	△		▲	▲			▲	▲	▲	▲	
<i>Antitrichia curtipendula</i> (Hedw.) Brid.	△	△											
<i>Atrichum angustatum</i> (Brid.) Bruch & Schimp.		▲											
<i>Atrichum undulatum</i> (Hedw.) P.Beauv.		▲	▲										
<i>Aulacomnium androgynum</i> (Hedw.) Schwägr.										▲			
<i>Aulacomnium palustre</i> (Hedw.) Schägr.		▲											
<i>Barbula unguiculata</i> Hedw.	▲	▲	▲			▲	▲	▲	▲	▲	▲	▲	
<i>Bartramia aprica</i> Müll. Hall. (a)	△												
<i>Bartramia ithyphylla</i> Brid.			▲						▲		▲	▲	
<i>Bartramia pomiformis</i> Hedw.		△	▲										
<i>Blindia acuta</i> (Hedw.) Bruch & Schimp.		▲											
<i>Blindiadelphus recurvatus</i> (Hedw.) Fedosov & Ignatov									▲				
<i>Brachytheciastrum dieckei</i> (Röll) Ignatov & Huttunen								▲					
<i>Brachytheciastrum olympicum</i> (Jur.) Vanderp., Ignatov, Huttunen & Goffinet					▲								
<i>Brachytheciastrum velutinum</i> (Hedw.) Ignatov & Huttunen		△	▲	▲	▲	▲	▲		▲		▲	▲	
<i>Brachythecium albicans</i> (Hedw.) Schimp.			▲	▲				▲	▲				
<i>Brachythecium campestre</i> (Müll.Hal.) Schimp.											▲		

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GII	Und.
▲ = report based on collections made after 1950. ▲1 = records with a numbered note, perhaps doubtful. △ = report based on collections made before and including 1950.													
<i>Brachythecium geheebii</i> Milde				▲									
<i>Brachythecium glareosum</i> (Bruch ex Spruce) Schimp.				▲			▲		▲				
<i>Brachythecium mildeanum</i> (Schimp.) Schimp.							▲		▲				
<i>Brachythecium rivulare</i> Schimp.	△								▲		▲	▲	
<i>Brachythecium rutabulum</i> (Hedw.) Schimp.	▲		▲	▲	▲		▲	▲	▲		▲	▲	
<i>Brachythecium salebrosum</i> (Weber & D. Mohr) Schimp.	▲		▲					▲	▲				△
<i>Brachythecium tenuicaule</i> (Spruce) Kindb.						▲							
<i>Brachythecium tommasinii</i> (Sendtn. ex Boulay) Ignatov & Huttunen			▲										
<i>Bryoerythrophyllum recurvirostrum</i> (Hedw.) P.C.Chen	▲						▲		▲				
<i>Bryum argenteum</i> Hedw.	▲		▲	▲		▲	▲		▲	▲		▲	
<i>Bryum canariense</i> Brid.	△								▲		▲		
<i>Bryum dichotomum</i> Hedw.	▲		▲				▲	▲	▲	▲	▲		
<i>Bryum gemmiparum</i> De Not.	▲								▲				
<i>Bryum klinggraeffii</i> Schimp.		▲									▲		
<i>Bryum radiculosum</i> Brid.	△		▲										
<i>Bryum ruderale</i> Crundw. & Nyholm											▲		
<i>Bryum versicolor</i> A.Braun ex Bruch & Schimp.								▲					
<i>Buckia vaucheri</i> (Lesq.) D.Rios, M.T.Gallego & J.Guerra									▲				
<i>Buxbaumia aphylla</i> Hedw.		△											
<i>Buxbaumia viridis</i> (Moug. ex Lam. & DC.) Moug. & Nestl.											▲		
<i>Calliergonella cuspidata</i> (Hedw.) Loeske	▲			▲			▲	▲	▲				
<i>Campyliadelphus chrysophyllus</i> (Brid.) R.S. Chopra	▲								▲			▲	
<i>Campyliadelphus elodes</i> (Lindb.) Kanda	▲												
<i>Campylium protensum</i> (Brid.) Kindb.	▲			▲			▲			▲			
<i>Campylium stellatum</i> (Hedw.) C.E.O. Jensen										▲			
<i>Campylophyllopsis calcarea</i> (Crundw. & Nyholm) Ochyra									▲			▲	
<i>Campylophyllopsis sommerfeltii</i> (Myrin) Ochyra	△												
<i>Campylopus flexuosus</i> (Hedw.) Brid.		▲											
<i>Ceratodon purpureus</i> (Hedw.) Brid.		△	▲	▲			▲		▲				
<i>Cheilothela chloropus</i> (Brid.) Broth.	△										▲	▲	
<i>Chionoloma tenuirostre</i> (Hook. & Taylor) M.Alonso, M.J.Cano & J.A.Jiménez									▲				
<i>Cinclidotus aquaticus</i> (Hedw.) Bruch & Schimp.	▲		△								▲	▲	
<i>Cinclidotus fontinaloides</i> (Hedw.) P.Beauv.	▲	△								▲		▲	
<i>Cinclidotus riparius</i> (Host ex Brid.) Arnott	▲												
<i>Cirriphyllum crassinervium</i> (Taylor) Loeske & M.Fleisch.	▲	△					▲		▲			▲	
<i>Climacium dendroides</i> (Hedw.) F.Weber & D.Mohr		▲											
<i>Coscinodon cribrosus</i> (Hedw.) Spruce			▲										
<i>Cratoneuron filicinum</i> (Hedw.) Spruce	▲		▲	▲			▲		▲	▲	▲	▲	

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<i>Crossidium squamiferum</i> (Viv.) Jur.							▲		▲	▲		▲	
<i>Cryphaea heteromalla</i> (Hedw.) D.Mohr	▲					▲					▲		
<i>Ctenidium molluscum</i> (Hedw.) Mitt.	▲			△		▲	▲		▲	▲	▲	▲	
<i>Dialytrichia mucronata</i> (Brid.) Broth.	△		▲								▲	▲	
<i>Dichodontium pellucidum</i> (Hedw.) Schimp.	▲								▲				
<i>Dicranella crispa</i> (Hedw.) Schimp										▲			
<i>Dicranella heteromalla</i> (Hedw.) Schimp.						▲		▲		▲	▲		
<i>Dicranella howei</i> Renault & Cardot			▲				▲	▲	▲	▲	▲	▲	
<i>Dicranella rufescens</i> (Dicks.) Schimp.		▲											
<i>Dicranella subulata</i> (Hedw.) Schimp.		▲											
<i>Dicranella varia</i> (Hedw.) Schimp.	△						▲		▲			▲	
<i>Dicranoweisia cirrata</i> (Hedw.) Lindb. ex Milde	△											▲	
<i>Dicranum brevifolium</i> (Lindb.) Lindb.				▲									
<i>Dicranum elongatum</i> Schlich. ex Schwägr.										▲			
<i>Dicranum majus</i> Sm.		△											
<i>Dicranum polysetum</i> Sw.		△											
<i>Dicranum scoparium</i> Hedw.	▲			▲			▲	▲	▲				
<i>Dicranum spadiceum</i> J.E.Zetterst.										▲			
<i>Dicranum tauricum</i> Sapjegin				▲									
<i>Didymodon acutus</i> (Brid.) K.Saito	▲					▲	▲		▲	▲		▲	
<i>Didymodon cordatus</i> Jur.	▲												
<i>Didymodon fallax</i> (Hedw.) R. H. Zander	▲				▲	▲			▲	▲		▲	
<i>Didymodon ferrugineus</i> (Schimp. ex Besch.) M.O.Hill									▲				
<i>Didymodon insulanus</i> (De Not.) M O.Hill	▲	▲	▲	▲	▲	▲			▲			▲	
<i>Didymodon luridus</i> Hornsch.		▲	▲		▲	▲	▲	▲	▲	▲	▲	▲	
<i>Didymodon nicholsonii</i> Culm.		▲			▲	▲							
<i>Didymodon rigidulus</i> Hedw.			▲	△					▲				
<i>Didymodon sinuosus</i> (Mitt.) Delogne	▲				▲				▲		▲	▲	
<i>Didymodon spadiceus</i> (Mitt.) Limpr.	▲								▲				
<i>Didymodon tophaceus</i> (Brid.) Lisa	▲			▲	▲	▲		▲	▲	▲	▲	▲	
<i>Didymodon tophaceus</i> subsp. <i>erosus</i> (J.A.Jiménez & J.Guerra) Jan Kučera		▲											
<i>Didymodon tophaceus</i> subsp. <i>sicculus</i> (M.J.Cano, Ros, García-Zam. & J.Guerra) Jan Kučera											▲	▲	
<i>Didymodon vinealis</i> (Brid.) Zander	△				▲	▲		▲	▲	▲	▲	▲	
<i>Diobelonella palustris</i> (Dicks.) Ochyra		▲											
<i>Distichium capillaceum</i> (Hedw.) Bruch & Schimp.	▲	△		△					▲				
<i>Distichium inclinatum</i> (Hedw.) Bruch & Schimp.	▲												
<i>Ditrichum heteromallum</i> (Hedw.) E. Britton								▲					
<i>Ditrichum pusillum</i> (Hedw.) Hampe		▲					▲						

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<i>Ditrichum zonatum</i> (Brid.) Limpr.			▲										
<i>Drepanium fastigiatum</i> (Hampe) C.E.O.Jensen												▲	
<i>Drepanocladus aduncus</i> (Hedw.) Warnst.	▲								▲				
<i>Drepanocladus polygamus</i> (Schimp.) Hedenäs									▲			▲	
<i>Encalypta alpina</i> Sm.									▲				
<i>Encalypta ciliata</i> Hedw.				△					▲				
<i>Encalypta microstoma</i> Bals.-Criv. & De Not.		▲											
<i>Encalypta rhaptocarpa</i> Schwägr.	△											▲	
<i>Encalypta streptocarpa</i> Hedw.	▲			△		▲	▲		▲	▲		▲	
<i>Encalypta trachymitria</i> Ripart	△												
<i>Encalypta vulgaris</i> Hedw.	▲			△		▲			▲	▲		▲	
<i>Entosthodon muhlenbergii</i> (Turner) Fife	▲					▲	▲		▲		▲	▲	
<i>Entosthodon pulchellus</i> (H. Philib.) Brugués	▲											▲	
<i>Ephemerum recurvifolium</i> (Dicks.) Boulay	▲										▲		
<i>Ephemerum stoloniferum</i> (Dicks. ex Hedw.) L.T. Ellis & M.J. Price (b)		▲											
<i>Eucladium verticillatum</i> (With.) Bruch & Schimp.									▲	▲		▲	
<i>Eurhynchiastrum diversifolium</i> (Schimp.) J.Guerra	▲								▲				
<i>Eurhynchiastrum pulchellum</i> (Hedw.) Ignat. & Huttunen	▲						▲		▲			▲	
<i>Eurhynchium striatum</i> (Hedw.) Schimp.						△			▲				
<i>Exsertotheca crispa</i> (Hedw.) S.Olsson, Enroth & D. Quandt	▲	▲				▲	▲		▲		▲		
<i>Fabronia pusilla</i> Raddi									▲			▲	
<i>Fissidens adianthoides</i> Hedw.							▲						
<i>Fissidens bryoides</i> Hedw.	△						▲		▲		▲	▲	
<i>Fissidens crassipes</i> Wilson ex Bruch & Schimp.												▲	
<i>Fissidens curvatus</i> Hornsch.							▲		▲			▲	
<i>Fissidens dubius</i> P.Beauv.	▲		▲	▲		▲	▲	▲	▲		▲	▲	
<i>Fissidens dubius</i> var. <i>mucronatus</i> (Breidl. ex Limpr.) Kartt., Hedenäs & Söderstr.						▲							
<i>Fissidens gracilifolius</i> Brugg.-Nann. & Nyholm									▲				
<i>Fissidens pusillus</i> (Wilson) Milde									▲				
<i>Fissidens rufulus</i> Bruch & Schimp.	▲												
<i>Fissidens taxifolius</i> Hedw.			▲				▲	▲	▲		▲	▲	
<i>Fissidens viridulus</i> (Sw.) Wahlenb.							▲		▲	▲	▲	▲	
<i>Flexitrichum flexicaule</i> (Schwägr.) Ignatov & Fedosov	▲								▲			▲	
<i>Flexitrichum gracile</i> (Mitt.) Ignatov & Fedosov									▲			▲	
<i>Fontinalis antipyretica</i> Hedw.	▲												
<i>Funaria hygrometrica</i> Hedw.	▲		▲	▲		▲	△	▲	▲	▲	▲		
<i>Grimmia alpestris</i> (F. Weber & D. Mohr) Schleich.	△			▲									
<i>Grimmia anodon</i> Bruch & Schimp.									▲				

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<i>Hygroamblystegium humile</i> (P.Beauv.) Vanderp., Goffinet & Hedenäs	▲												
<i>Hygroamblystegium tenax</i> (Hedw.) Jenn.			▲			▲			▲				
<i>Hygroamblystegium varium</i> (Hedw.) Mönk.	▲												
<i>Hygrohypnum luridum</i> (Hedw.) Jenn.	▲					▲	▲	▲	▲				
<i>Hylocomiadelphus triquetrus</i> (Hedw.) Ochyra & Stebel	▲	△					▲		▲				
<i>Hylocomium splendens</i> (Hedw.) Schimp.	▲	△					▲		▲				
<i>Hymenoloma crispulum</i> (Hedw.) Ochyra		△								▲	▲		
<i>Hymenostylium recurvirostrum</i> (Hedw.) Dixon	▲												
<i>Hypnum andoi</i> A.J.E. Sm.											▲		
<i>Hypnum cupressiforme</i> Hedw.	▲	▲	▲	▲		▲	▲	▲	▲		▲	▲	
<i>Hypnum cupressiforme</i> var. <i>lacunosum</i> Brid.			▲	▲			▲			▲		▲	
<i>Hypnum resupinatum</i> Taylor		▲				▲							
<i>Imbriobryum alpinum</i> (Huds. ex With.) N.Pedersen			▲	▲		▲	▲		▲			▲	
<i>Imbriobryum mildeanum</i> (Jur.) J. R. Spence	▲						▲					▲	
<i>Imbriobryum muehlenbeckii</i> (Bruch & Schimp.) N.Pedersen		▲											
<i>Isothecium alopecuroides</i> (Lam. ex Dubois.) Isov.	▲		△	▲			▲		▲		▲		
<i>Isothecium myosuroides</i> Brid.									▲		▲		
<i>Jochenia pallescens</i> (Hedw.) Hedenäs, Schlesak & D. Quandt										▲			
<i>Kiaeria blyttii</i> (Bruch & Schimp.) Broth.		▲											
<i>Kiaeria starkei</i> (F.Weber & D.Mohr) I.Hagen		▲											
<i>Kindbergia praelonga</i> (Hedw.) Ochyra (c)	▲			▲							▲		
<i>Leptobarbula berica</i> (De Not.) Schimp.	▲												
<i>Leptodictyum riparium</i> (Hedw.) Warnst.	▲							▲			▲		
<i>Leptodon smithii</i> (Hedw.) Weber & D. Mohr	▲		▲			△		▲	▲	▲	▲	▲	
<i>Lescuraea incurvata</i> (Hedw.) E.Lawton	▲			△				▲	▲				
<i>Lescuraea mutabilis</i> (Brid.) Lindb. ex I.Hagen				▲									
<i>Lescuraea patens</i> Lindb.		▲											
<i>Lescuraea plicata</i> (Schleich. ex F.Weber & D.Mohr) Broth.	▲												
<i>Lescuraea radicata</i> (Mitt.) Mönk.	▲			▲					▲				
<i>Lescuraea saviana</i> (De Not.) E.Lawton				▲					▲				
<i>Leskea polycarpa</i> Hedw.	△												
<i>Leucodon sciuroides</i> (Hedw.) Schwägr.	▲	△	▲	△		▲	▲		▲	▲		▲	
<i>Lewinskya acuminata</i> (H.Philib.) F.Lara, Garilleti & Goffinet		▲	▲										
<i>Lewinskya affinis</i> (Schrad. ex Brid.) F.Lara, Garilleti & Goffinet		△	▲			▲	▲		▲			▲	
<i>Lewinskya rupestris</i> (Schleich. ex Schwägr.) F.Lara, Garilleti & Goffinet			▲	▲			▲	▲		▲		▲	
<i>Lewinskya shawii</i> (Wilson) F.Lara, Garilleti & Goffinet						▲	▲		▲				
<i>Lewinskya speciosa</i> (Nees) F.Lara, Garilleti & Goffinet	▲	△					▲		▲	▲			

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<i>Philonotis caespitosa</i> Jur.			▲						▲	▲			
<i>Philonotis calcarea</i> (Bruch & Schimp.) Schimp.	▲								▲		▲		
<i>Philonotis capillaris</i> Lindb.			▲				▲			▲			
<i>Philonotis fontana</i> (Hedw.) Brid.			▲	△					▲				
<i>Philonotis marchica</i> (Hedw.) Brid.			▲	△							▲		
<i>Philonotis rigida</i> Brid.				▲									
<i>Philonotis seriata</i> Mitt.		△		△									
<i>Philonotis tomentella</i> Molendo		▲											
<i>Physcomitrium pyriforme</i> (Hedw.) Brid.											▲		
<i>Plagiomnium affine</i> (Bland. ex Funck) T.J.Kop.	△	△							▲		▲		
<i>Plagiomnium cuspidatum</i> (Hedw.) T.J.Kop.	△					△							
<i>Plagiomnium elatum</i> (Bruch & Schimp.) T.J.Kop.									▲				
<i>Plagiomnium ellipticum</i> (Brid.) T.J.Kop.						▲							
<i>Plagiomnium medium</i> (Bruch & Schimp.) T.J.Kop.											▲		
<i>Plagiomnium rostratum</i> (Schräd.) T.J.Kop.	△												
<i>Plagiomnium undulatum</i> (Hedw.) T.J.Kop.	△			△					▲		▲	▲	
<i>Plagiopus oederianus</i> (Sw.) H.A.Crum & L.E.Anderson	▲			△					▲				
<i>Plagiothecium cavifolium</i> (Brid.) Z.Iwats.									▲				
<i>Plagiothecium curvifolium</i> Schlieph. ex Limpr.				▲									
<i>Plagiothecium denticulatum</i> (Hedw.) Schimp.				▲		▲			▲				
<i>Plagiothecium laetum</i> Schimp.		▲											
<i>Plagiothecium nemorale</i> (Mitt.) A.Jaeger				△									
<i>Plagiothecium succulentum</i> (Wilson) Lindb.									▲				
<i>Plasteurhynchium meridionale</i> (Schimp.) M.Fleisch.											▲		
<i>Plasteurhynchium striatulum</i> (Spruce) M. Fleisch.									▲		▲	▲	
<i>Platydictya jungermannioides</i> (Brid.) H.A.Crum	▲												
<i>Pleuroidium acuminatum</i> Lindb.									▲				
<i>Pleuroidium subulatum</i> (Hedw.) Rabenh.						▲							
<i>Pleurozium schreberi</i> (Willd. ex Brid.) Mitt.		△											
<i>Pogonatum aloides</i> (Hedw.) P. Beauv.							▲		▲				
<i>Pogonatum urnigerum</i> (Hedw.) P. Beauv.			▲				▲						
<i>Pohlia andalusica</i> (Höhn.) Broth.		▲											
<i>Pohlia annotina</i> (Hedw.) Lindb.		▲											
<i>Pohlia atropurpurea</i> (Wahlenb.) H.Lindb.	△												
<i>Pohlia cruda</i> (Hedw.) Lindb.	▲		▲	▲					▲				
<i>Pohlia drummondii</i> (Müll.Hal.) A.L.Andrews		▲											
<i>Pohlia lutescens</i> (Limpr.) H.Lindb.		▲											
<i>Pohlia melanodon</i> (Brid.) A.J.Shaw			▲					▲	▲	▲		▲	

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<i>Pohlia nutans</i> (Hedw.) Lindb.									▲				
<i>Pohlia wahlenbergii</i> (F. Weber & D. Mohr) A. L. Andrews	▲								▲	▲		▲	
<i>Polytrichastrum alpinum</i> (Hedw.) G.L.Sm.	▲			▲					▲				
<i>Polytrichum juniperinum</i> Hedw.	▲			▲			▲		▲				
<i>Polytrichum perigoniale</i> Michx.										▲			
<i>Polytrichum piliferum</i> Hedw.		△	▲			▲							
<i>Pseudanomodon attenuatus</i> (Hedw.) Ignatov & Fedosov		△											
<i>Pseudoamblystegium subtile</i> (Hedw.) Vanderp. & Hedenäs		△											
<i>Pseudocrossidium hornschurchianum</i> (Schultz) R.H.Zander		▲		▲					▲				
<i>Pseudocrossidium revolutum</i> (Brid.) R.H.Zander	▲				▲				▲				
<i>Pseudoleskeella catenulata</i> (Brid. ex Schrad.) Kindb.						△			▲				
<i>Pseudoleskeella nervosa</i> (Brid.) Nyholm	▲			▲				▲	▲				
<i>Pseudoleskeella rupestris</i> (Berggr.) Hedenäs & L. Söderstr.							▲		▲				
<i>Pseudoleskeella tectorum</i> (Funck ex Brid.) Kindb. ex Broth.									▲				
<i>Pseudoscleropodium purum</i> (Hedw.) M.Fleisch.				▲			▲	▲	▲		▲	▲	
<i>Pterigynandrum filiforme</i> Hedw.		△	▲	▲		▲	▲		▲		▲	▲	
<i>Pterygoneurum ovatum</i> (Hedw.) Dixon									▲				
<i>Ptilium crista-castrensis</i> (Hedw.) De Not.		△											
<i>Ptychostomum capillare</i> (Hedw.) Holyoak & N.Pedersen	▲		▲	▲		▲	▲	▲	▲	▲	▲		△
<i>Ptychostomum compactum</i> Hornsch.	▲			△									
<i>Ptychostomum creberrimum</i> (Taylor) J.R.Spence & H.P.Ramsay						▲			▲	▲			
<i>Ptychostomum donianum</i> (Grev.) Holyoak & N.Pedersen	△						▲				▲	▲	
<i>Ptychostomum elegans</i> (Nees.) D.Bell & Holyoak	▲						▲		▲				
<i>Ptychostomum imbricatum</i> (Müll.Hal.) Holyoak & N.Pedersen	▲		▲	▲		▲		▲	▲	▲	▲	▲	
<i>Ptychostomum inclinatum</i> (Sw. ex Brid.) J.R.Spence									▲				
<i>Ptychostomum kunzei</i> (Hornsch.) J.R.Spence									▲				
<i>Ptychostomum moravicum</i> (Podp.) Ros & Mazimpaka									▲				
<i>Ptychostomum pallens</i> (Sw. ex anon.) J.R.Spence	▲		▲	△		▲		▲			▲		
<i>Ptychostomum pallescens</i> (Schleich. ex Schwägr.) J.R.Spence									▲	▲			
<i>Ptychostomum pseudotriquetrum</i> (Hedw.) J.R.Spence & H.P.Ramsay & N.Pedersen	▲		▲2	▲			▲		▲			▲	
<i>Ptychostomum rubens</i> (Mitt.) Holyoak & N.Pedersen		▲	▲								▲		
<i>Ptychostomum schleicheri</i> (DC.) J.R. Spence var. <i>latifolium</i> (Schwägr.) D.Bell & Holyoak. (d)	▲												
<i>Ptychostomum torquescens</i> (Bruch & Schimp.) Ros & Mazimpaka	△			▲						▲	▲		
<i>Ptychostomum turbinatum</i> (Hedw.) J.R.Spence	▲		▲3						▲				
<i>Ptychostomum zieri</i> (Hedw.) Holyoak & N.Pedersen									▲				
<i>Pulvigerella lyellii</i> (Hook. & Taylor) Plášek, Sawicki & Ochyra			▲			▲		▲	▲	▲		▲	
<i>Pylaisia polyantha</i> (Hedw.) Schimp.								▲					

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GII	Und.
▲ = report based on collections made after 1950.													
▲ 1 = records with a numbered note, perhaps doubtful.													
△ = report based on collections made before and including 1950.													
<i>Racomitrium affine</i> (F.Weber & D.Mohr) Lindb.		▲											
<i>Racomitrium aquaticum</i> (Brid. ex Schrad.) Brid.		▲											
<i>Racomitrium canescens</i> (Hedw.) Brid.	▲		▲	▲		▲	▲		▲				
<i>Racomitrium elongatum</i> Ehrh. ex Frisvoll				▲									
<i>Racomitrium ericoides</i> (Brid.) Brid.	△	△											
<i>Racomitrium heterostichum</i> (Hedw.) Brid.			▲										
<i>Racomitrium sudeticum</i> (Funck) Bruch & Schimp.		▲											
<i>Rhizomnium magnifolium</i> (Horik.) T.J.Kop.		▲											
<i>Rhizomnium pseudopunctatum</i> (Bruch & Schimp.) T.J.Kop.		▲											
<i>Rhizomnium punctatum</i> (Hedw.) T. Kop.				▲					▲				
<i>Rhynchostegiella curviseta</i> (Brid.) Limpr.	▲							▲		▲	▲	▲	
<i>Rhynchostegiella litorea</i> (De Not.) Limpr.	▲						▲	▲			▲		
<i>Rhynchostegiella tenella</i> (Dicks.) Limpr.	▲						▲		▲		▲	▲	
<i>Rhynchostegiella teneriffae</i> (Mont.) Dirkse & Bouman											▲		
<i>Rhynchostegium alopecuroides</i> (Brid.) A.J.E.Smith									▲				
<i>Rhynchostegium confertum</i> (Dicks.) Schimp.	△		▲		▲	▲		▲			▲	▲	
<i>Rhynchostegium megapolitanum</i> (Blandow ex F.Web. & D.Mohr) Schimp.	▲		▲			▲	▲	▲			▲	▲	
<i>Rhynchostegium megapolitanum</i> var. <i>meridionale</i> Schimp.	▲							▲					
<i>Rhynchostegium murale</i> (Hedw.) Schimp.		△											
<i>Rhynchostegium riparioides</i> (Hedw.) Cardot		△					▲		▲		▲	▲	▲
<i>Rhytidiadelphus squarrosus</i> (Hedw.) Warnst.		▲											
<i>Rhytidium rugosum</i> (Hedw.) Kindb.	▲												
<i>Roaldia revoluta</i> (Mitt.) P.E.A.S.Câmara & M.Carvalho-Silva (e)									▲				
<i>Saelania glaucescens</i> (Hedw.) Broth.	▲		▲				▲		▲				
<i>Sanionia uncinata</i> (Hedw.) Loeske	▲												
<i>Sarmentypnum exannulatum</i> (Schimp.) Hedenäs		▲											
<i>Schistidium agassizii</i> Sull. & Lesq.	▲												
<i>Schistidium apocarpum</i> (Hedw.) Bruch & Schimp.	▲	△			▲	▲	▲		▲				
<i>Schistidium atrofusum</i> (Schimp.) Limpr.									▲				
<i>Schistidium brunnescens</i> Hedw.									▲				
<i>Schistidium brunnescens</i> subsp. <i>griseum</i> (Nees & Hornsch.) H.H.Blom						▲	▲		▲			▲	
<i>Schistidium confertum</i> (Funck) Bruch & Schimp.				▲					▲				
<i>Schistidium crassipilum</i> H.H.Blom	▲		▲	▲		▲	▲		▲	▲		▲	
<i>Schistidium dupretii</i> (Thér.) W.A.Weber	▲	▲				▲							
<i>Schistidium elegantulum</i> H.H.Blom									▲				
<i>Schistidium elegantulum</i> ssp. <i>wilsonii</i> H.H.Blom	▲												
<i>Schistidium flaccidum</i> (De Not.) Ochyra							▲		▲				

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GII	Und.
▲ = report based on collections made after 1950.													
▲1 = records with a numbered note, perhaps doubtful.													
△ = report based on collections made before and including 1950.													
<i>Syntrichia ruraliformis</i> (Besch.) Mans.	▲		▲						▲				
<i>Syntrichia ruralis</i> (Hedw.) F. Web. & D. Mohr	▲	▲	▲	▲		▲	▲		▲	▲		▲	
<i>Syntrichia virescens</i> (De Not.) Ochyra			▲	▲			▲		▲			▲	
<i>Taxiphyllum wissgrillii</i> (Garov.) Wijk & Margad	▲	▲											
<i>Tetraphis pellucida</i> Hedw.	▲	▲											
<i>Thamnobryum alopecurum</i> (Hedw.) Gangulee		▲							▲		▲		
<i>Thuidium assimile</i> (Mitt.) A. Jaeger	▲												
<i>Thuidium delicatulum</i> (Hedw.) Schimp.	▲												
<i>Thuidium recognitum</i> (Hedw.) Lindb.		△							▲				
<i>Timmia austriaca</i> Hedw.	▲								▲				
<i>Timmia bavarica</i> Hessel.				△					▲				
<i>Timmia norvegica</i> J.E. Zetterst.		▲											
<i>Timmiella anomala</i> (Bruch. & Schimp.) Limpr.	▲												
<i>Timmiella barbuloides</i> (Brid.) Mönk.												▲	
<i>Tortella densa</i> (Lorentz & Molendo) Crundw. & Nyholm						▲						▲	
<i>Tortella fasciculata</i> (Culm.) Culm.							▲						
<i>Tortella flavovirens</i> (Bruch) Broth.	▲		▲					▲					
<i>Tortella humilis</i> (Hedw.) Jenn.				▲		▲		▲	▲	▲	▲		
<i>Tortella inclinata</i> (R. Hedw.) Limpr.						▲	▲	▲	▲				
<i>Tortella inflexa</i> (Bruch) Broth.												▲	▲
<i>Tortella nitida</i> (Lindb.) Broth.	▲					▲						▲	▲
<i>Tortella pseudofragilis</i> (Thér.) Köckinger & Hedenäs		▲											
<i>Tortella squarrosa</i> (Brid.) Limpr.	▲					▲	▲	▲	▲			▲	▲
<i>Tortella tortuosa</i> (Hedw.) Limpr.	▲			▲		▲	▲	▲	▲	▲			▲
<i>Tortella tortuosa</i> (Hedw.) Limpr. var. <i>fragilifolia</i> (Jur.) Limpr. (g)							▲	▲					
<i>Tortula acaulon</i> (With.) R.H. Zander									▲				
<i>Tortula atrovirens</i> (Sm.) Lindb.		▲											
<i>Tortula canescens</i> Mont.						▲							
<i>Tortula caucasica</i> Broth.	▲												
<i>Tortula cuneifolia</i> (Dicks.) Turn.	△												
<i>Tortula hoppeana</i> (Schultz.) Ochyra	▲								▲				
<i>Tortula inermis</i> (Brid.) Mont.				▲			▲		▲				▲
<i>Tortula marginata</i> (Bruch & Schimp.) Spruce	▲											▲	
<i>Tortula muralis</i> Hedw. subsp. <i>muralis</i> var. <i>muralis</i> (h)	▲		▲		▲	▲	▲		▲	▲	▲	▲	
<i>Tortula muralis</i> Hedw. subsp. <i>muralis</i> var. <i>aestiva</i> Hedw.	△		▲				▲						▲
<i>Tortula muralis</i> Hedw. subsp. <i>obtusifolia</i> (Schwägr.) Culm.									▲				
<i>Tortula solmsii</i> (Schimp.) Limpr.	△												
<i>Tortula subulata</i> Hedw.	▲		▲	▲		▲	▲		▲				▲

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FLE	KOR	BER	VLO	GJI	Und.
▲ = report based on collections made after 1950. ▲ 1 = records with a numbered note, perhaps doubtful. △ = report based on collections made before and including 1950.													
<i>Tortula wilsonii</i> (Hook.) R.H. Zander	△												
<i>Trichodon cylindricus</i> (Hedw.) Schimp.		▲							▲				
<i>Trichostomum brachydontium</i> Bruch	▲		▲		▲	▲	▲				▲	▲	
<i>Trichostomum crispulum</i> Bruch	▲		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
<i>Ulota crispa</i> (Hedw.) Brid.			△										
<i>Ulota curvifolia</i> (Wahlenb.) Lilj.			△										
<i>Warnstorfia fluitans</i> (Hedw.) Loeske				△									
<i>Weissia brachycarpa</i> (Nees & Hornsch.) Jur.									▲		▲		
<i>Weissia condensa</i> (Voit) Lindb.	▲					▲	▲		▲	▲	▲	▲	
<i>Weissia controversa</i> Hedw.			▲	▲	▲	▲	▲		▲				
<i>Weissia controversa</i> var. <i>crispata</i> (Nees & Hornsch.) Nyholm			▲					▲					
<i>Weissia longifolia</i> Mitt.								▲			▲		
<i>Weissia squarrosa</i> (Nees & Hornsch.) Müll.Hal.			▲										
<i>Zygodon rupestris</i> Schimp. ex Lorentz	▲								▲				
<i>Zygodon viridissimus</i> (Dicks.) Brid.			▲										

Notes to Table 1

Note 1: Reported by van Zanten (2013) for LZH as *Pellia epiphylla/neesiana*.

Note 2: Reported by van Zanten (2013) for LZH as *Bryum* cfr. *neodamens*.

Note 3: Reported by van Zanten (2013) for LZH as *Bryum* cfr. *turbinatum*.

Note 4: Reported by Marka & Xhulaj (2011) for DIB as *Syntrichia* cfr. *montana*.

Note (a): According to the phylogenetic analyses by Damayanti & al. (2012), *Bartramia rosamrosiae* is the name to be applied to *B. stricta* in the Mediterranean and western North America; Müller (2014) used *B. rosamrosiae* as a synonym to *B. aprica*. The two taxa, however, seem distinct (Hodgett & al. (2020).

Note (b): A synonym of *Eurhynchium hians* var. *rigidum* (Boulay) Düll ≠ *Eurhynchium hians* var. *rigidum* (Boulay) J.-P. Frahm [*Kindbergia praelonga* (Hedw.)

Ochyra in GBIF Secretariat. GBIF Backbone Taxonomy. Checklist dataset <https://doi.org/10.15468/39omei> accessed via GBIF.org on 2023-10-13].

Note (c): *Ephemerum stoloniferum*: Indicated for Albania (AL) as DD* (Data Deficient, but recently reported*). VU in Montenegro (MN - old record) and Bulgaria (BG), reported for Greece (GR) but not in the other bordering countries (Kosova KS, North Macedonia NM). In the checklist by Hodgetts (2015), *E. serratum* and *E. recurvifolium* were both reported as DD for AL. According to Flora Briofítica Ibèrica (Heras 2010): Spores of *E. serratum* (now *E. stoloniferum*): 35-75(85) µm, without a hyaline veil, verrucose, papillose. Spores of *E. minutissimum* (now *E. serratum*): 45-80(85) µm, with a hyaline veil, finely papillose.

Marka & Sabovljevic (2011) stated that their specimen is *E. serratum sensu stricto*, this is now according to Ellis & Price (2015) *E. stoloniferum*. (Beáta Papp pers. comm.).

Note (d): From Baumgartner (1915) as var. *latifolia*, which is actually limited to Austria. More likely var. *schleicheri* (Beáta Papp pers. comm.)

Note (e): According to Câmara & al. (2023), data do not unequivocally support the recent separation of the former intraspecific taxon *Hypnum revolutum* var. *dolomiticum* at the species level as *Roaldia dolomitica*.

Note (f): According to the phylogenetic analyses by Kučera et al. (2013), it is clearly separated from *Streblotrichum convolutum* (Hedw.) P.Beauv. It is reported as *S. convolutum* var. *commutatum* (Jur.) J.J. Amann by Hodgetts et al. (2020) and by Hodgetts & Lockhart (2020).

Note (g): In general, the name var. *fragilifolia* has been used for morphs of *Tortella tortuosa* with fragile leaves (Hodgetts et al. 2020). Even though its taxonomic validity is questionable, it is included in this checklist as it has been reported as such from several localities.

Note (h): It was not reported as a variety for Albania by Hodgetts & Lockhart (2020).

Species in Hodgetts & Lockhart (2020) not included in this checklist

Haplocladium angustifolium: In the Balkans, it is reported only for NM as DD (and HU, as CR).

Hedwigia ciliata: It was not mentioned for AL by Ros & al. (2013) nor by Hodgetts (2015). However, as it is present in all Balkan countries, it is likely present in AL.

Ptychostomum schleicheri: Reported for all Balkan countries, it is likely to be present in AL. In this checklist, the var. *latifolium* is reported (v. also note **d** above).

Roaldia dolomitica: Reported in the Balkans for AL as RE (Regionally Extinct), as well as for Bosnia and Herzegovina (BH) and Slovenia (SL). No reports for any of the countries bordering AL. No reports for Albania by Ros et al. (2013), or by Hodgetts (2015). In this checklist, only *Roaldia revoluta* is reported [v. also Note **e** above].

Seligeria trifaria: Reported for GR and MN, not for KS

and NM. In this checklist, var. *longifolia* is reported. *Tortula lindbergii*: Reported in Sabovljević & al. 2008, as *Tortula lanceola*, and indicated there as present in all Balkan countries except MK. Likely present in Albania, but no original paper and locality found.

Trilophozia quinqueidentata and *Riccia papillosa* Moris: Both species have been reported for AL by Södeström et al. (2007) based on Sabovljević & Natcheva (2006). Both species are not included in the preliminary checklist for Albania published later the same year (Colacino & Sabovljević 2006), even though one of

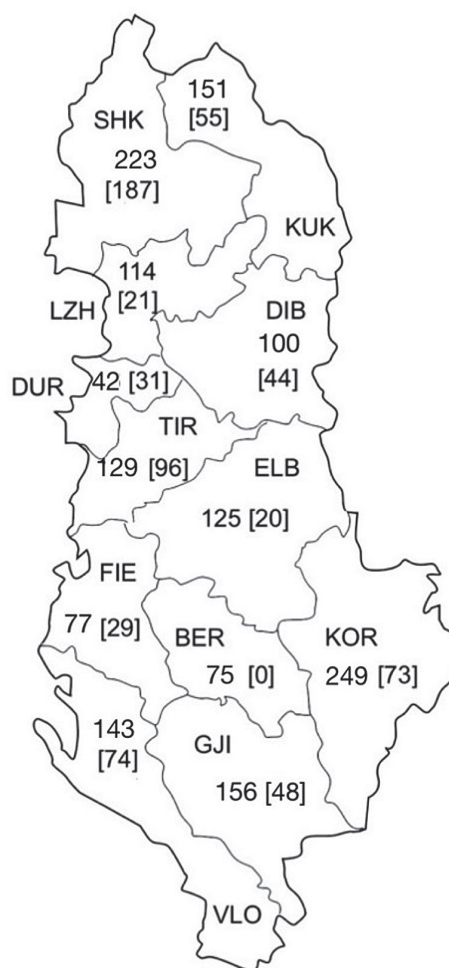


Fig.1. In the map, the names and boundaries of the administrative units of the country (prefectures/regions) are given with the total number of recorded taxa (in brackets the values in 2006). The prefectures are indicated with the following acronyms, from north to south:

SHK = Shkodër; KUK = Kukës; LZH = Lezhë; DIB = Dibër; DUR = Durrës; TIR = Tiranë; ELB = Elbasan; FIE = Fier; KOR = Korçë; BER = Berat; VLO = Vlorë; GJI = Gjirokastër.

the authors contributed to both papers. Apparently, *T. quinquedentata* and *R. papillosa* have been included in successive checklists on the basis of that unique report from 2006 (e.g., by Ros & al. 2007; Hodgetts 2015, etc.). *T. quinquedentata* is reported for all Balkan countries (except KS), while *R. papillosa* is reported only for MN and GR. Both are likely present in AL.

Species in this checklist not included in Hodgetts & Lockhart (2020)

Liverworts: *Calyptogeia integristipula*, *Riella macrocarpa*, *Targionia lorbeeriana*.

Mosses: *Anoetangium aestivum*, *Brachythecium campestre*, *Bryum versicolor*, *Campylium stellatum*, *Dicranella crispa*, *Dicranum elongatum*, *Dicranum spadiceum*, *Didymodon cordatus*, *Drepanium fastigiatum*, *Homomallium incurvatum*, *Hypnum andoi*, *Hypnum resupinatum*, *Jochenia pallescens*, *Leptobarbula berica*, *Lescurea mutabilis*, *Microhypnum sauteri*, *Neckera oligocarpa*, *Neckera pennata*, *Orthotrichum pulchellum*, *Philonotis rigida*, *Plagiomnium medium*, *Pogonatum urnigerum*, *Polytrichum perigoniale*, *Ptychostomum schleicheri* var. *latifolium*, *Rhynchostegium megapolitanum* var. *meridionale*, *Schistidium elegantulum* subsp. *wilsonii*, *Sciuro-hypnum populeum*, *Scorpidium revolvens*, *Seligeria trifaria* var. *longifolia*, *Syntrichia princeps*, *Timmiella anomala*, *Tortella densa*, *Tortella tortuosa* var. *fragilifolia*, *Tortula caucasica*, *Tortula wilsonii*, and *Weissia squarrosa*.

Discussion

In the seventeen years passed by the publication of the preliminary checklist (Colacino & Sabovljević 2006), the number of taxa reported for Albania has increased from 314 to 583 (both lists have been reworked according to the currently accepted taxonomy), with an increase of 269 taxa, or ca. 85%. These taxa belong to 96 families and 212 genera.

The total number of records has substantially increased (see Table 2). From a regional point of view,

however, the country has not been explored evenly. Recently visited regions, like Dibër and Kukës, have 28% and 30% of the taxa recorded before 1950, respectively (100% for liverworts in Dibër). Shkodër comes next with 19% (20% for mosses, and 11% for liverworts and hornworts). Considering all twelve regions, 8% of the records are pre-1950 for mosses and 7% for liverworts (and hornworts). The region of Durrës, with all its records after 1950, has been less concerned by recent collections and the number of taxa reported has increased only from 31 to 42. Korça, on the other hand, has been recently explored thoroughly, yielding a three-time increase in the number of reported taxa (from 73 to 249). The same applies to Gjirokastër. Vlorë has almost doubled its taxa. Reports from other regions (Lezhë, Elbasan, Berat) show multiple increases because of the low collection numbers reported in 2006. A recent checklist of European bryophytes (Hodgett & Lockhart 2020) reports 537 taxa for Albania. For eight of them, no original reference or locality was found and they are not included in this checklist, while thirty-nine taxa, not reported in that paper, are reported here. Details are given at the end of Table 1. Considering their size and the diversity of habitats, the countries bordering Albania show a comparable number of taxa: Montenegro (MN) 757, Kosova (KS) 330, North Macedonia (NM) 568, Greece (GR) 745 (Hodgetts & Lockhart 2020). Quite likely, the number of taxa for Albania may eventually reach values close to those reported for Montenegro and Greece.

Regarding the species at risk, data are still insufficient, nor the covered territory wide enough for a red list, at least for the entire country. It could suffice though for some of the best explored regions, such as Korça. The considerations made by Marka & al. (2012) still stand, though. Records before 1950 apparently cannot be used as an indication of risk (or rarity), as there are too many underexplored areas, and the older collections often do not have a voucher.

It is interesting to mention that several species considered and proposed for inclusion in a red list in the above-mentioned paper have been reported in the IUCN Red List for Europe (Hodgett & al. 2019) as NT (Near Threatened) or VU (Vulnerable), particularly *Campyliadelphus elodes*, and *Clevea spathysii* (both

Table 2. Number of mosses, liverworts and hornworts for each region. Changes 2006-2023.

Percentages are rounded off to the nearest integer. **Und.** = Undetermined (continuation from the preliminary checklist) is used whenever localization is impossible, e.g., “Everywhere in the mountains above 1000 m”, mostly in the earlier literature (unchanged from 2006).

	SHK	KUK	IZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	Records
Mosses	187	110	99	92	24	84	114	57	218	68	102	123	5	1283
Before 1950	38	37	4	20	0	5	1	0	0	0	0	0	3	108
%	20	34	4	22	0	6	1	0	0	0	0	0	60	8
Liverworts and hornworts	36	41	15	8	18	45	11	20	31	7	41	33	3	309
Before 1950	4	8	1	8	0	1	0	0	0	0	0	0	0	22
%	11	20	7	100	0	2	0	0	0	0	0	0	0	7
2023 Bryophytes (Total)	223	151	114	100	42	129	125	77	249	75	143	156	8	1592
Before 1950	42	45	5	28	0	6	1	0	0	0	0	0	3	130
%	19	30	4	28	0	5	1	0	0	0	0	0	38	8
2006 Bryophytes (Total)	187	55	21	44	31	96	20	29	73	0	74	48	8	686
Before 1950	42	45	7	44	0	7	1	0	0	0	0	0	3	149
%	22	82	33	100	0	7	5	0	0	0	0	0	38	22
2006-2023 increase	36	96	93	56	11	33	105	48	176	75	69	108	0	906
%	19	175	443	127	35	34	525	166	241	0	93	225	0	132

NT), as well as *Grimmia crinita*, *Mannia triandra*, *Marchantia paleacea*, *Philonotis rigida*, and *Schistidium flaccidum* (all with a VU status, confirmed in the 2020 update).

More generally, most hepatics and liverworts in this checklist – at the European level – are LC, with some exceptions, the recently found *Riella macrocarpa*, for instance, is EN (Endangered) and widens its distribution in the Eastern Mediterranean (Kashta & al. 2023). The European endemic *Frullania cleistostoma* is also EN (EN in Hungary). There is a couple of species with a VU status: *Marchantia paleacea* (VU in Serbia), and *Mannia triandra* (EN in Bulgaria, Hungary; VU in Romania). *Phaeoceros carolinianus* (CR - Critically

Endangered in Romania), *Clevea spathysii* (not included in any red list for the Balkans, but suggested for Albania, as already mentioned above), and *Porella arboris-vitae* (EN in Hungary) are now NT. Furthermore, several taxa reported as LC for Europe, have been also included with diverse statuses (CR, EN, VU) in the red lists of the Balkan countries. Eventually, the probable European endemic *Porella baueri*, which is DD for Europe, is considered VU in Hungary.

In the case of mosses, the European endemic *Bryum versicolor* - EN in Europe - is not included in any Balkan Red List. While the endangered (EN) *Philonotis marchica* is also EN in Bulgaria and NT in Romania and Slovenia.

All following taxa have a VU status in Europe: *At-richum angustatum*, *Brachytheciastrum olympicum* (both not included in any Balkan red list), the European endemic *Brachythecium geheebii* (CR in Romania; EN in Bulgaria), *Grimmia crinita* (CR in Hungary; VU in Bulgaria, Romania), *Grimmia fuscolutea* (CR in Romania; NT in Bulgaria), *Grimmia mollis* (CR in Romania; VU in Bulgaria), *Philonotis rigida* (CR in Romania; VU in Bulgaria and Montenegro), *Ptychostomum turbinatum* (NT in Romania), *Schistidium flaccidum* (CR in Romania; EN in Hungary; NT in Bulgaria), and *Weissia squarrosa* (CR in Romania; EN in Slovenia; VU in Serbia).

Ephemerum recurvifolium (CR in Bulgaria, Romania; VU in Montenegro), *Ephemerum stoloniferum* (EN in Romania, VU in Montenegro and Serbia), the European endemic *Neckera cephalonica* (not reported in any Balkan red list) and *Philonotis calcarea* (DD in Hungary) are NT in Europe.

Several other European endemics are also present in Albania: *Brachythecium tenuicaule* (VU in Romania; DD in Bulgaria and Hungary), *Rhynchostegium alopecuroides* (reported only in Albania for the Balkans), *Tortella fasciculata*, and *Tortella pseudofragilis*.

In the case of mosses, again, several taxa reported as LC for Europe, are included with diverse statuses (CR, EN, VU) in the red lists of the Balkan countries.

It is important to note that the red lists of the neighboring countries (e.g., Sabovljević & al. 2004; Natcheva & al. 2006; Ștefănuț & Goia 2012), referred to above, all need to be updated. A more recent Red List of Bulgaria including several bryophytes (Natcheva & Ganeva 2015), confirms the information already reported in Natcheva & al. (2006), even though part of the VU taxa are not included.

From a chorological viewpoint, temperate and boreal/subboreal elements (50% overall) prevail, as in the checklist of 2006 (Colacino & Sabovljević) analyzed by Colacino (2009). While the vascular flora of Albania is characterized by several Pontic elements, the only one reported here is *Seligeria trifaria* var. *longifolia* (pont-mont) from a single report from Kukës (Marka & al. 2018). The species *S. trifaria*—not reported for Albania - is bor-mont. A detailed chorological analysis is under way.

Appendix 1

Systematic synopsis of Albanian bryophytes.

Arrangement follows Hodgett & al. (2020). Bryophytes (s.l.) are considered as three distinct lineages (Divisions/Phyla). The number following the genus indicates number of taxa.

HORNWORTS. ANTHOCEROTOPHYTA

ANTHOCEROTOPSIDA De Bary ex Jancz.

ANTHOCEROTALES Limpr.

Anthocerotaceae Dumort.

Anthoceros L. **1**

PHYMATOCEROTALES R.J.Duff

Phymatocerotaceae R.J.Duff

Phymatoceros Stotler **1**

Notothyladaceae Müll.Frib. ex Prosk.

Phaeoceros Prosk. **2**

LIVERWORTS. MARCHANTIOPHYTA

JUNGERMANNIOPSIDA Stotler & Grand.-Stotl.

JUNGERMANNIALES H.Klinggr.

Anastrophyllaceae L.Söderstr., De Roo & Hedd.

Barbilophozia Loeske **4**

Neoorthocaulis L.Söderstr. **1**

Cephaloziaceae Mig.

Cephalozia (Dumort.) Dumort. **1**

Fuscocephaloziopsis Fulford **1**

Nowellia Mitt. **1**

Cephaloziellaceae Douin

Cephaloziella (Spruce) Schiffn. **6**

Lophoziaceae Cavers

Lophozia (Dumort.) Dumort **3**

Lophoziopsis Konstant. & Vilnet **2**

Scapaniaceae Mig.

Scapania (Dumort.) Dumort **11**,

Schistochilopsis (N.Kitag.) Konstant. **1**

Calypogeiaceae Mig.

Calypogeia Raddi **4**

Gymnomitriaceae H.Klinggr.

Marsupella Dumort. **2**

Nardia Gray **2**

Jungermanniaceae Rchb.

Liochlaena Nees **1**

Jungermannia L. **4**

Mesoptychia (Lindb.) A.Evans 4
 Solenostomataceae Stotler & Crand.-Stotl.
 Solenostoma Mitt. 2
 Southbyaceae Váňa, Crand.-Stotl., Stotler & D.G.Long
 Gongylanthus Nees 1
 Southbya Spruce 2
 Blepharostomataceae W.Frey & M.Stech
 Blepharostoma (Dumort.) Dumort 1
 Lepidoziaceae Müll.Frib.
 Bazzania Gray 2
 Lophocoleaceae van den Bergen
 Chiloscyphus Corda 1
 Lophocolea (Dumort.) Dumort 3
 Plagiochilaceae Müll.Frib.
 Pedinophyllum Lindb. ex Nordst. 1
 Plagiochila (Dumort.) Dumort 2
 PORELLALES Schljakov
 Frullaniaceae Lorch
 Frullania Raddi 4
 Lejeuneaceae Cavers
 Cololejeunea (Spruce) Steph. 2
 Lejeunea Lib. 1
 Porellaceae Cavers
 Porella L. 4
 Radulaceae Müll.Frib.
 Radula Dumort. 2
 PTILIDIALES Schljakov
 Ptilidiaceae H.Klinggr.
 Ptilidium Nees 2
 METZGERIALES Chalaud
 Aneuraceae H.Klinggr.
 Aneura Dumort. 1
 Riccardia Gray 3
 Metzgeriaceae H.Klinggr.
 Metzgeria Raddi 1
 FOSSOMBRONIALES Schljakov
 Fossombroniaceae Hazsl.
 Fossombronia Raddi 4
 PELLIALES He-Nygrén
 Pelliaceae H.Klinggr.
 Apopellia (Grolle) Nebel & D.Quandt 1
 Pellia Raddi 1
 MARCHANTIOPSIDA Cronquist, Takht. & W.Zimm.
 LUNULARIALES H.Klinggr.

Lunulariaceae H.Klinggr.
Lunularia Adans. 1
 MARCHANTIALES Limpr.
 Aytoniaceae Cavers
 Mannia Corda 3
 Plagiochasma Lehm. 1
 Reboulia Raddi 1
 Cleveaceae Cavers
 Clevea Lindb. 2
 Conocephalaceae Müll.Frib. ex Grolle
 Conocephalum Hill 2
 Corsiniaceae Engl.
 Corsinia Raddi 1
 Marchantiaceae Lindl.
 Marchantia L. 4
 Oxymitraceae Müll.Frib. ex Grolle
 Oxymitra Bisch. ex Lindenb. 1
 Ricciaceae Rchb.
 Riccia L. 13
 Targioniaceae Dumort.
 Targionia L. 2
 SPHEROCARPALES Cavers
 Riellaceae Engl.
 Riella Mont. 1

MOSESSES. BRYOPHYTA**SPHAGNOPSISIDA SCHIMP.**

SPHAGNALES Limpr.
 Sphagnaceae Dumort.
 Sphagnum L. 7

ANDREAEOPSIDA J.H.Schaffn.

ANDREAEALES Limpr.
 Andreaeaceae Dumort.
 Andreaea Hedw. 1

TETRAPHIDOPSISIDA Goffinet & W.R.Buck

TETRAPHIDALES M.Fleisch.
 Tetraphidaceae Schimp.
 Tetraphis Hedw. 1

POLYTRICHOPSISIDA Doweld

POLYTRICHALES M.Fleisch.
 Polytrichaceae Schwägr.
 Atrichum P.Beauv. 2

- Pogonatum* P.Beauv. 2
Polytrichastrum G.L.Sm. 1
Polytrichum Hedw. 3
- BRYOPSIDA Pax
 BUXBAUMIALES M.Fleisch.
 Buxbaumiaceae Schimp.
 Buxbaumia Hedw. 2
 TIMMIALES Ochyra
 Timmiaceae Schimp.
Timmia Hedw. 3
 ENCALYPTALES DIXON
 Encalyptaceae Schimp.
 Encalypta Hedw. 7
 FUNARIALES M.Fleisch.
 Funariaceae Schwägr.
 Entosthodon Schwägr. 2
 Funaria Schwägr. 1
 Physcomitrium (Brid.) Brid. 1
 DICRANALES H.Philib ex M.Fleisch.
 Timmiellaceae Y.Inoue & H.Tsubota
 Timmiella (De Not.) Limpr. 2
 Distichiaceae Schimp.
 Distichium Bruch & Schimp. 2
 Hymenolomataceae Ignatov & Fedosov
 Hymenoloma Dusén 1
 Flexitrichaceae Ignatov & Fedosov
 Flexitrichum Ignatov & Fedosov 2
 Leucobryaceae Schimp.
 Campylopus Brid. 1
 Amphidiaceae M.Stech
 Amphidium Schimp. 2
 Aongstroemiaceae De Not.
 Dichodontium Schimp. 1
 Diobelonella Ochyra 1
 Dicranellaceae M.Stech
 Dicranella (Müll.Hal.) Schimp. 6
 Fissidentaceae Schimp.
 Fissidens Hedw. 11
 Dicranaceae Schimp.
 Dicranum Hedw. 7
 Paraleucobryum (Limpr.) Loeske 1
 Rhabdoweisiaceae Limpr.
 Dicranoweisia Milde 1
 Kiaeria I.Hagen 2
- Ditrichaceae Limpr.
 Ceratodon Brid. 1
 Cheilothela Broth. 1
 Ditrichum Timm ex Hampe 3
 Pleuridium Rabenh. 2
 Trichodon Schimp. 1
 Pottiaceae Schimp.
 Pottioideae Broth.
 Aloina Kindb. 2
 Barbula Hedw. 1
 Bryoerythrophyllum P.C.Chen 1
 Cinclidotus P.Beauv. 3
 Crossidium Jur. 1
 Dialytrichia (Schimp.) Limpr. 1
 Didymodon Hedw. 14
 Pseudocrossidium R.S.Williams 2
 Pterygoneurum Jur. 1
 Syntrichia Brid. 11
 Tortula Hedw. 14
 Streblotrichoideae Y. Inoue & H. Tsubota
 Streblotrichum P.Beauv. 2
 Trichostomoideae Broth.
 Anoetangium Schwägr. 1
 Chionoloma Dixon 1
 Ephemerum Hampe 2
 Eucladium Bruch & Schimp. 1
 Gymnostomum Nees & Hornsch. 3
 Gyroweisia Schimp. 1
 Hymenostylium Brid. 1
 Leptobarbula Schimp. 1
 Tortella (Müll.Hal.) Limpr. 11
 Trichostomum Bruch. 2
 Weissia Hedw. 6
 GRIMMIALES M.Fleisch.
 Saelaniaceae Ignatov & Fedosov
 Saelania Lindb. 1
 Seligeriaceae Schimp.
 Blindia Bruch & Schimp. 1
 Blindiadelphus (Lindb.) Fedosov & Ignatov 1
 Seligeria Bruch & Schimp. 2
 Grimmiaceae Arn.
 Racomitrioideae Ochyra & Bedn.-Ochyra
 Racomitrium Brid. 7
 Grimmioideae Broth.
 Coscinodon Spreng. 1

- Grimmia* Hedw. 24
Schistidium Bruch & Schimp. 18
- HEDWIGIALES Ochyra
Hedwigiaceae Schimp.
Hedwigia P.Beauv. 1
- BARTRAMIALES D.Quandt, N.E.Bell & M.Stech
Bartramiaceae Schwägr.
Bartramiaceae D.G.Griffin & W.R.Buck
Bartramia Hedw. 3
Plagiopus Brid. 1
Breutelioideae D.G.Griffin & W.R.Buck
Philonotis Brid. 8
- BRYALES Limpr.
Bryaceae Schwägr.
Anomobryum Schimp. 1
Bryum Hedw. 8
Imbriobryum Pedersen 3
Ptychostomum Hornsch. 17
- Mniaceae Schwägr.
Mielichhoferioideae M.Stech & W.Frey
Pohlia Hedw. 9
- Mnioideae L.Söderstr. & N.G.Hodgetts
Mnium Hedw. 3
Plagiomnium T.J.Kop. 7
Rhizomnium (Broth.) T.J.Kop. 3
- ORTHOTRICHALES Dixon
Orthotrichaceae Arn.
Orthotrichoideae Broth.
Lewinskya F.Lara, Garilleti & Goffinet 6
Nyholmiella Holmen & E.Warncke 2
Orthotrichum Hedw. 14
Pulviger Plášek, Sawicki & Ochyra 1
Ulota D.Mohr 2
Zygodon Hook. & Taylor 2
- AULACOMNIALES N.E.Bell, A.E.Newton & D.Quandt
Aulacomniaceae Schimp.
Aulacomnium Schwägr. 2
- HYPNALES W.R.Buck & Vitt
Fontinalaceae Schimp.
Fontinalis Hedw. 1
Herzogiella Broth. 1
- Plagiotheciaceae M.Fleisch.
Plagiothecium Bruch & Schimp. 6
Myurella Bruch & Schimp. 1
Orthothecium Bruch & Schimp. 2
- Platydictya* Berk. 1
Fabroniaceae Schimp.
Fabronia Raddi 1
Pterigynandraceae Schimp.
Pterigynandrum Hedw. 1
Habrodontaceae Schimp.
Habrodon Schimp. 1
Climaciaceae Kindb.
Climacium F.Weber & D.Mohr 1
Amblystegiaceae G.Roth
Cratoneuroideae Vanderp., Hedenäs, C.J.Cox & A.J.Shaw
Cratoneuron (Sull.) Spruce 1
Palustriella Ochyra 3
Amblystegioideae Broth.
Amblystegium Schimp. 1
Campyliadelphus (Kindb.) R.S.Chopra 2
Campylium (Kindb.) R.S.Chopra 2
Campylophyllopsis W.R.Buck 2
Drepanium (Schimp.) C.E.O.Jensen 1
Drepanocladus (Müll.Hal.) G.Roth 2
Hygroamblystegium Loeske 3
Hygrohypnum Lindb. 1
Leptodictyum (Schimp.) Warnst. 1
Microhypnum Jan Kučera & Ignatov 1
Pseudoamblystegium Vanderp. & Hedenäs 1
Sarmentypnum Tuom. & T.J.Kop. 1
Straminergon Hedenäs 1
Warnstorfia Loeske 1
- Scorpidiaceae Ignatov & Ignatova
Sanionia Loeske 1
Scorpidium (Schimp.) Limpr. 1
- Leskeaceae Schimp.
Leskea Hedw. 1
- Pseudoleskeaceae Schimp.
Lescuraea Bruch & Schimp. 6
- Pseudoleskeellaceae Ignatov & Ignatova
Pseudoleskeella Kindb. 4
- Thuidiaceae Schimp.
Abietinella Müll.Hal. 1
Thuidium Bruch & Schimp. 3
- Brachytheciaceae Schimp.
Eurhynchioideae Milde
Eurhynchium Bruch & Schimp. 1
Plasteurhynchium M.Fleisch. 2

Pseudoscleropodium (Limpr.) M.Fleisch. **1**
Rhynchostegium Bruch & Schimp. **6**
Scorpiurium Schimp. **3**
 Helicodontoideae M.Fleisch.
 Cirriphyllum Grout **1**
 Microeurhynchium Ignatov & Vanderp. **3**
 Oxyrrhynchium (Schimp.) Warnst. **3**
 Rhynchostegiella (Schimp.) Limpr. **4**
 Brachythecioideae Lotsy
 Brachytheciastrum Ignatov & Huttunen **3**
 Brachythecium Schimp. **10**
 Eurhynchiastrum Ignatov & Huttunen **2**
 Homalothecium Schimp. **5**
 Kindbergia Ochyra **1**
 Sciuro-hypnum (Hampe) Hampe **3**
 Scleropodium Bruch & Schimp. **1**
 Hypnaceae Schimp.
 Hypnum Hedw. **4**
 Taxiphyllaceae Ignatov
 Taxiphyllum M.Fleisch. **1**
 Jocheniaceae Jan Kučera & Ignatov
 Jochenia Hedenäs, Schlesak & D.Quandt **1**
 Stereodontaceae Hedenäs, Schlesak & D.Quandt
 Stereodon (Brid.) Mitt. **1**
 Pylaisiaceae Schimp.
 Buckia D.Rios, M.T.Gallego & J.Guerra **1**
 Calliergonella Loeske **1**
 Homomallium (Schimp.) Loeske **1**
 Ptilium De Not. **1**
 Pylaisia Schimp. **1**
 Roaldia P.E.A.S.Câmara & Carv.-Silva **1**
 Sematophyllaceae Broth.
 Sematophyllum Mitt. **1**
 Hylocomiaceae M.Fleisch.
 Hylocomiadelphus Ochyra & Stebel **1**
 Hylocomium Bruch & Schimp. **1**
 Pleurozium Mitt. **1**
 Rhytidiadelphus (Limpr.) Warnst. **1**
 Rhytidiaceae Broth.
 Rhytidium (Sull.) Kindb. **1**
 Cryphaeaceae Schimp.
 Cryphaea D.Mohr **1**
 Leucodontaceae Schimp.
 Leucodon Schwägr. **1**
 Nogopterium Crosby & W.R.Buck **1**

Antitrichiaceae Ignatov & Ignatova
 Antitrichia Brid. **1**
 Neckeraceae Schimp.
 Alleniella S.Olsson, Enroth & D.Quandt **2**
 Exsertotheca S.Olsson, Enroth & D.Quandt **1**
 Heterocradiella Ignatov & Fedosov **1**
 Homalia (Brid.) Bruch & Schimp. **1**
 Leptodon D.Mohr **1**
 Neckera Hedw. **5**
 Pseudanomodon (Limpr.) Ignatov & Fedosov **1**
 Thamnobryum Nieuwl. **1**
 Lembophyllaceae Broth.
 Heterocladium Bruch & Schimp. **1**
 Isothecium Brid. **2**
 Myuriaceae M.Fleisch.
 Ctenidium (Schimp.) Mitt. **1**
 Anomodontaceae Kindb.
 Anomodon Hook. & Taylor **2**

Appendix 2

Synopsis of synonyms.

Changes since the 2006 checklist, the accepted names are in **bold**.

Authority indicated only when taxon is not included in the main checklist or for homonyms).

Anthocerotophyta

Phaeoceros bulbiculosus (Brot.) Posk. = ***Phymatoceros bulbiculosus***

Marchantiophyta

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

Athalamia spathysii (Lindenb.) S.Hatt. = ***Clevea spathysii***

Barbilophozia floerkei (F.Weber & D.Mohr) Loeske =

Neoorthocaulis floerkei

Frullania inflata Gottsche = ***Frullania***

cleistostoma

Jungermannia gracillima Sm. = ***Solenostoma gracillimum***
Jungermannia hyalina Lyell = ***Solenostoma hyalinum***
Jungermannia leiantha Grolle = ***Liochlaena lanceolata***
Leiocolea badensis (Gottsche) Jørg. = ***Mesoptychia badensis***
Leiocolea collaris (Nees) Schljakov = ***Mesoptychia collaris***
Leiocolea turbinata (Raddi) H. Buch. = ***Mesoptychia turbinata***
Lophozia excisa (Dicks.) Dumort = ***Lophozia excisa***
Lophozia incisa (Schrad.) Dumort. = ***Schistochilopsis incisa***
Pellia endiviifolia (Dicks.) Dumort. = ***Apopellia endiviifolia***
Preissia quadrata (Scop.) Nees = ***Marchantia quadrata***
Riccia sorocarpa Bisch. var. *sorocarpa* = ***Riccia sorocarpa*** subsp. ***sorocarpa***
Riella helicophylla (Bory & Mont.) Mont. var. *macrocarpa* P. Allorge = ***Riella macrocarpa***
Tritomaria quinquedentata (Huds.) H. Buch = ***Trilophozia quinquedentata*** (Huds.) Bakalin

Bryophyta

Amblystegium tenax (Hedw.) C. E. O. Jensen = ***Hygroamblystegium tenax***
Anomodon attenuatus (Hedw.) Hueb. = ***Pseudanomodon attenuatus***
Barbula convoluta Hedw. = ***Streblotricum convolutum***
Barbula convoluta var. *commutata* (Jur.) Husn. = ***Streblotricum convolutum*** var. ***commutatum*** (Jur.) J.J. Amann = ***Streblotricum commutatum***
Bartramia stricta Brid. = ***Bartramia aprica*** (see note (a) in table 1)
Brachythecium dieckei Röhl = ***Brachytheciastrum dieckei*** - (also as *dieckii*)
Brachythecium glaciale Schimp. = ***Sciuro-hypnum glaciale***
Brachythecium glareosum var. *alpinum* (De Not.) Limpr. = ***Brachythecium glareosum***
Brachythecium populeum (Hedw.) Schimp. = ***Sciuro-hypnum populeum***
Brachythecium reflexum (Starke) Schimp. = ***Sciuro-hypnum reflexum***
Brachythecium salteri Cardot & Dixon = ***Brachytheciastrum dieckei*** - (also *dieckii*)

Brachythecium velutinum (Hedw.) Schimp. = ***Brachytheciastrum velutinum***
Bryum algovicum Sendtn. ex Müll. Hal. = ***Ptychostomum compactum***
Bryum alpinum Huds. ex With. = ***Imbribryum alpinum***
Bryum alpinum var. *latifolium* Mönk. = ***Imbribryum alpinum***
Bryum archangelicum Bruch & Schimp. = ***Ptychostomum inclinatum***
Bryum badium (Brid.) Schimp. = ***Ptychostomum imbricatulum***
Bryum caespiticium Hedw. = ***Ptychostomum imbricatulum***
Bryum canariense var. *provinciale* (H. Philib.) Husn. = ***Bryum canariense***
Bryum capillare Hedw. = ***Ptychostomum capillare***
Bryum creberrimum Taylor = ***Ptychostomum creberrimum***
Bryum donianum Grev. = ***Ptychostomum donianum***
Bryum dunense A.J.E. Sm. & Whitehouse = ***Bryum dichotomum***
Bryum elegans Nees = ***Ptychostomum elegans***
Bryum kunzei Hornsch. = ***Ptychostomum kunzei***
Bryum laevifilum Syed = ***Ptychostomum moravicum***
Bryum lonchocaulon Müll. Hal. = ***Ptychostomum pallescens***
Bryum mildeanum Jur. = ***Imbribryum mildeanum***
Bryum moravicum Podp. = ***Ptychostomum moravicum***
Bryum neodamense Itzigs. ex Müll. = ***Ptychostomum pseudotriquetrum***
Bryum pallens Sw. = ***Ptychostomum pallens***
Bryum pallescens Schleich. ex Schwägr. = ***Ptychostomum pallescens***
Bryum pseudotriquetrum (Hedw.) P. Gaertn., B. Mey. & Scherb. = ***Ptychostomum pseudotriquetrum***
Bryum rubens Mitt. = ***Ptychostomum rubens***
Bryum schleicheri Schwägr. [illegitimate] = ***Bryum schleicheri*** DC. = ***Ptychostomum schleicheri***
Bryum schleicheri var. *latifolium* (Schwägr.) Schimp. = ***Ptychostomum schleicheri*** var. ***latifolium***
Bryum stirtonii Schimp. = ***Ptychostomum elegans***
Bryum subelegans Kindb. = ***Ptychostomum pallens***
Bryum torquescens Bruch ex De Not. = ***Ptychostomum torquescens***
Bryum turbinatum (Hedw.) Turn. = ***Ptychostomum***

- turbinatum**
Bryum zieri Dicks. ex Hedw. = ***Ptychostomum zieri***
Campylidium calcareum (Crundw. & Nyholm)
 Ochyra = ***Campylophyllopsis calcarea***
Campylophyllum sommerfeltii (Myrin) Hedenäs =
Campylophyllopsis sommerfeltii
Cinclidotus fontinaloides var. *lorentzianus* Mol. =
Cinclidotus fontinaloides
Cirriphyllum tommasinii (Boul.) Grout =
Brachythecium tommasinii
Desmatodon latifolius (Hedw.) Brid. = ***Tortula***
hoppeana
Dichodontium palustre (Dicks.) M.Stech = ***Diobelonella***
palustris
Dicranoweisia crispula (Hedw.) Milde = ***Hymenoloma***
crispulum
Didymodon erosus J.A.Jiménez & J.Guerra =
Didymodon tophaceus subsp. ***erosus***
Didymodon sicculus M.J. Cano, Ros, García-Zam. & J.
 Guerra = ***Didymodon tophaceus*** subsp. ***sicculus***
Didymodon vinealis (Brid.) Zander var. *flaccidus*
 (Bruch & Schimp.) Zander = ***Didymodon insulanus***
Ditrichum crispatissimum (Müll. Hal.) Paris =
Flexitrichum gracile
Ditrichum cylindricum (Hedw.) Grout = ***Trichodon***
cylindricus
Ditrichum flexicaule (Schwägr.) Hampe = ***Flexitrichum***
flexicaule
Ditrichum gracile (Mitt.) Kuntze = ***Flexitrichum***
gracile
Dryptodon orbicularis (Bruch ex Wilson) Ochyra &
 Żarnowiec] = ***Grimmia orbicularis***
Dryptodon patens (Hedw.) Brid. = ***Grimmia ramondii***
Encalypta rhaptocarpa var. *trachymitria* (Ripart) Wijk
 & Margad. = ***Encalypta trachymitria***
Encalypta vulgaris var. *obtusata* Nees & Hornsch.=
Encalypta vulgaris
Ephemerum serratum (Schreb. ex Hedw.) Hampe. =
Ephemerum stoloniferum
Eurhynchium crassinervium (Taylor) Schimp. =
Cirriphyllum crassinervium
Eurhynchium hians (Hedw.) Sande Lac =
Oxyrrhynchium hians
Eurhynchium hians var. *rigidum* (Boulay) Düll =
Kindbergia praelonga (see note b in Table 1)
- Eurhynchium meridionale* (Schimp.) De Not. =
Plasteurhynchium meridionale
Eurhynchium praelongum (Hedw.) Schimp. =
Kindbergia praelonga
Eurhynchium pulchellum (Hedw.) Jenn. =
Eurhynchiastrum pulchellum
Eurhynchium pulchellum var. *diversifolium* (Schimp.)
 C.E.O.Jens. = ***Eurhynchiastrum diversifolium***
Eurhynchium pumilum (Wils.) Schimp. =
Microeurhynchium pumilum
Eurhynchium schleicheri (Hedw. f.) Jur. =
Eurhynchium schleicheri (R.Hedw.) Milde =
Oxyrrhynchium schleicheri
Eurhynchium speciosum (Brid.) Jur. =
Oxyrrhynchium speciosum
Eurhynchium striatulum (Spruce) Schimp. =
Plasteurhynchium striatulum
Fissidens algarvicus Solms = ***Fissidens curvatus***
Fissidens bambergeri Schimp. = *F. viridulus* var.
bambergeri (Schimp.) Waldh. = ***Fissidens viridulus***
Funaria muhlenbergii Turner = ***Entosthodon***
muhlenbergii
Gemmabryum badium (Brid.) J.R. Spence =
Ptychostomum imbricatum
Grimmia affinis Hornsch. = ***Grimmia longirostris***
Grimmia curvata (Brid.) De Sloover = ***Grimmia***
ramondii
Grimmia sessitana De Not. = ***Grimmia reflexidens***
Grimmia trichophylla var. *meridionalis* Müll.Hall. =
Grimmia meridionalis
Haplocladium angustifolium (Hampe & Müll. Hal.)
 Broth. = ***Bryohaplocladium angustifolium***
 (Hampe & Müll. Hal.) R. Watan. & Z. Iwats.
Hedwigia ciliata var. *leucophaea* Bruch & Schimp. =
Hedwigia emodica
Heterocladium dimorphum (Brid.) Schimp. =
Heterocladiella dimorpha
Homalia besseri Lob. = ***Alleniella besseri***
Homalothecium lutescens var. *fallax* (H.Philib. ex
 Schimp.) Hedenäs & Söderstr. = ***Homalothecium***
lutescens var. ***fallax***
Hydrogrimmia mollis (Bruch & Schimp.) Loeske =
Grimmia mollis
Hygrohypnum luridum (Hedw.) Jenn. var. *luridum* =
Hygrohypnum luridum

- Hygrohypnum luridum* var. *subsphaericarpon* (Schleich. ex Brid.) C.E.O.Jens. = ***Hygrohypnum luridum***
- Hymenostylium recurvirostre* (Hedw.) Dixon = ***Hymenostylium recurvirostrum***
- Hypnum callichroum* Brid. = ***Stereodon callichroum***
- Hypnum pallescens* (Hedw.) P. Beauv. = ***Jochenia pallescens***
- Hypnum recurvatum* (Lindb. & Arnell) Kindb. = ***Drepanium fastigiatum***
- Hypnum revolutum* (Mitt.) Lindb. = ***Roaldia revoluta***
- Hypnum sauteri* Schimp. = ***Microhypnum sauteri***
- Hypnum vaucheri* Lesq. = ***Buckia vaucheri***
- Isothecium striatulum* (Spruce) Kindb. = ***Plasteurhynchium striatulum***
- Leptodictyum humile* (P. Beauv.) Ochyra = ***Hygroamblystegium humile***
- Leucodon sciuroides* var. *morensis* (Schwägr.) De Not. = ***Leucodon sciuroides***
- Neckera besseri* (Lobarz.) Jur. = ***Alleniella besseri***
- Neckera complanata* (Hedw.) Hueb. = ***Alleniella complanata***
- Neckera crispa* Hedw. = ***Exsertotheca crispa***
- Orthotrichum acuminatum* Brid. = ***Lewinskya acuminata***
- Orthotrichum affine* Schrad. ex Brid. = ***Lewinskya affinis***
- Orthotrichum cupulatum* *subsp. *sardagnanum* (Vent.) Vent. [*not var.] = ***Orthotrichum cupulatum***
- Orthotrichum cupulatum* var. *sardagnanum* (Vent.) Weim. = ***Orthotrichum cupulatum***
- Orthotrichum gymnostomum* Bruch ex Brid. = ***Nyholmiella gymnostoma***
- Orthotrichum lyelli* Hook. & Tayl. = ***Pulvigerella lyellii***
- Orthotrichum obtusifolium* Brid. = ***Nyholmiella obtusifolia***
- Orthotrichum rupestre* Schleich. ex Schwägr. = ***Lewinskya rupestris***
- Orthotrichum shawii* Wilson = ***Lewinskya shawii***
- Orthotrichum speciosum* Nees = ***Lewinskya speciosa***
- Orthotrichum striatum* Hedw. = ***Lewinskya striata***
- Oxyrrhynchium pumilum* (Wilson) Loeske = ***Microerhynchium pumilum***
- Oxystegus tenuirostris* (Hook. & Taylor) A.J.E.Sm. = ***Chionoloma tenuirostre***
- Palustriella commutata* var. *falcata* (Brid.) Ochyra = ***Palustriella falcata***
- Palustriella commutata* var. *fluctuans* (Schimp.) Ochyra = ***Palustriella commutata***
- Palustriella commutata* var. *ptychodioides* (G.Roth) Ochyra = ***Palustriella commutata***
- Palustriella commutata* var. *sulcata* (Lindb.) Ochyra. = ***Palustriella falcata***
- Phascum cuspidatum* Hedw. = ***Tortula acaulon***
- Philonotis arnellii* Husn. = ***Philonotis capillaris***
- Plagiobryum zieri* (Hedw.) Lindb. = ***Ptychostomum zieri***
- Platydictya subtilis* (Hedw.) H.A.Crum = ***Pseudoamblystegium subtile***
- Platyhypnidium riparioides* (Hedw.) Dixon = ***Rhynchostegium riparioides***
- Platyhypnidium riparioides* f. *atlanticum* (Brid.) Podp. = ***Rhynchostegium riparioides***
- Pleurochaete squarrosa* (Brid.) Lindb. = ***Tortella squarrosa***
- Pogonatum urnigerum* var. *humile* Brid. = ***Pogonatum urnigerum***
- Polytrichum commune* var. *humile* Sw. = ***Polytrichum perigoniale***
- Pottia wilsonii* (Hook.) Bruch & Schimp. = ***Tortula wilsonii***
- Pseudoleskea incurvata* (Hedw.) Loeske = ***Lescurea incurvata***
- Pseudoleskea radicata* (Mitt.) Macoun & Kindb. = ***Lescurea radicata***
- Pseudoleskea saviana* (De Not.) Latzel = ***Lescurea saviana***
- Pterogonium gracile* (Hedw.) Sm. = ***Nogopterium gracile***
- Ptychodium plicatum* (Schleich. ex F. Web. & D. Mohr) Schimp. = ***Lescurea plicata***
- Rhynchostegiella jacquinii* (Garov.) Limpr. = ***Rhynchostegiella teneriffae***
- Rhynchostegiella tenuicaulis* (Spruce) Kartt. = ***Brachythecium tenuicaule***
- Rhynchostegium riparioides* fo. *atlanticum* (Brid.) Düll = ***Rhynchostegium riparioides***
- Rhytidiadelphus triquetrus* (Hedw.) Warnst. = ***Hylocomiadelphus triquetrus***
- Sciuro-hypnum glaciale* var. *gelidum* (Bryhn) Ochyra

& *Žarnowiec* = *Sciuro-hypnum glaciale*
Scleropodium purum (Hedw.) Limpr. =
Pseudoscleropodium purum
Seligeria recurvata (Hedw.) Bruch & Schimp. =
Blindiadelphus recurvatus
Streblotrichum convolutum var. *commutatatum* (Jur.)
 J.J. Amann = *Streblotrichum commutatatum*
Syntrichia inermis (Brid.) Bruch = *Tortula inermis*
Syntrichia intermedia Brid. = *Syntrichia montana*
Syntrichia intermedia var. *calva* (Durieu & Sagot)
 Delogne = *Syntrichia montana* var. *calva*
Syntrichia laevipila var. *laevipiliformis* (De Not.)
 Limpr. = *Syntrichia laevipila*
Syntrichia pagorum (Milde) J.J. Amann = *Syntrichia*
laevipila
Syntrichia papillosa (Wils.) Jur. = *Syntrichia*
papillosa (Wils.) Spruce
Syntrichia ruraliformis (Besch.) Cardot = *Syntrichia*
ruraliformis (Besch.) Mans.
Thuidium philibertii Limpr. = *Thuidium assimile*
Tortella flavovirens var. *viridiflava* (De Not.) Cas.-Gil.
 = *Tortella flavovirens*
Tortella tortuosa var. *fragilifolia* (Jur.) Limpr. =
Tortella tortuosa
Tortula calcicolens W.A. Kramer = *Syntrichia*
calcicola
Tortula eucalyptrata Lindb. = *Tortula hoppeana*
Tortula lanceola R.H. Zander = *Tortula lindbergii*
 Kindb. ex Broth
Tortula lanceola var. *angustata* (Bruch & Schimp.)
 R.H. Zander = *Tortula wilsonii*
Tortula obtusifolia (Schwägr.) Mathieu = *Tortula*
muralis subsp. *obtusifolia*
Tortula subulata var. *graeffi* Warnst = *Tortula*
subulata
Trichostomum crispulum var. *brevifolium* (Müll. Hall.)
 Bruch & Schimp. = *Trichostomum crispulum*
Vinealobryum luridum (Hornsch.) R.H. Zander =
Didymodon luridus
Warnstorfia exannulata (Bruch & al.) Loeske =
Sarmentypnum exannulatum
Weissia fallax (Sehlm & Hornsch.) Müll. Hal. =
Weissia fallax Sehlm. = *Weissia controversa* var.
crispata.

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