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## Bryophyte flora of Albania: A Preliminary Check-List

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**Résumé** – Un inventaire préliminaire de la flore des bryophytes d'Albanie (Sud-Est de l'Europe) est présenté. La flore des bryophytes de l'Albanie comprend 327 taxons représentant 141 genres et 62 familles. La liste est basée sur des travaux réalisés à partir de 1888; elle représente le premier inventaire des bryophytes du pays. Une distinction a été établie entre les références antérieures à 1950 et celles plus récentes. Quelques taxons indiqués comme présents en Albanie, mais situés hors des limites territoriales actuelles du pays, ont été exclus. Les synonymes relevés dans les travaux originels utilisés ont été listés.

**Abstract** – A preliminary check-list of the bryoflora of Albania (SE Europe) within its political boundaries is presented. It consists of 327 taxa representing 141 genera and 62 families. This list is based on literature reports from 1888, and it represents the first check-list for the bryophytes of this country. Reports before 1950 are distinguished from those based on more recent records. Some taxa previously reported for Albania, but from localities actually outside Albanian present-day political borders are indicated and excluded. Synonyms from the works considered are reported.

**Albania / South-Eastern Europe / Balkans / Flora / Bryophytes / Mosses / Liverworts / Hornworts / Check-list**

### INTRODUCTION

Albania represents one of the less known areas of Europe in relation to its bryophyte flora (see, for instance Stewart, 1995; Söderström *et al.*, 1998; Sabovljević *et al.*, 2001; Söderström *et al.*, 2002; as well as Bego & Koni, 1999). No check-list has ever been prepared for this group of plants, perhaps also because of a lack of local bryologists. In his studies on European bryophytes,

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Düll (1983, 1984, 1985, 1992) lists 3 hornworts, 63 liverworts and 109 moss species in the Albanian flora. Söderström *et al.* (2002) list 3 hornworts and 89 liverwort species for Albania. A much higher bryophyte diversity is likely to be present in Albania. All bryological studies have been carried out by foreign scientists or collectors, often as part of studies covering a wider area, especially for the older records, in a period when Albania was still an integral part of the Ottoman Empire, the so called Turkey in Europe. These older works covered mainly the border area between Albania and Montenegro or Serbia (Kosova/Kosovo).

This check-list has been prepared because one us (Senior Author) has collected extensively during recent years in Albania, the need of a check-list including all previous records from the literature became apparent. It is hoped this work will fill the gap and stimulate further bryological investigations in Albania. It should be emphasized that this is not a specimen based list, distribution is based solely upon the literature references.

## MATERIALS AND METHODS

The check-list (Table 1, which includes also the excluded taxa, and notes) is supplemented by a systematic synopsis of genera (Table 2), and synonyms (Table 3).

The following symbols are used:

△ = report based on collections made before 1950.

▲ = report based on collections made after 1950.

For synonyms and accepted names we have referred to Corley *et al.*, 1981; Corley *et Crundwell*, 1991; Cortini Pedrotti, 2001a, 2001b, 2006; Dierßen, 2001; Düll, 1983, 1984, 1985, 1992; Grolle & Long, 2000; Podpěra, 1954; Schumacker & Váňa, 2005; Smith, 2004; Zander, 1993 (for Pottiaceae), and consulted the on line data base TROPICOS [<http://mobot.mobot.org/W3T/Search/most.html>] of the Missouri Botanical Garden, which is based on the information contained in *Index Muscorum* (Wijk, Margadant & Florschuetz, 1959, 1962, 1964, 1967, 1969), *Index Muscorum supplementa* (Bauer & Crosby 1986; Crosby 1977, 1979; Crosby & Bauer 1981, 1983, 1987), in the various editions of *Index of Mosses* (Crosby *et al.*, 1992; Crosby & Magill, 1994, 1997, 2000, 2004, 2005), and is continually updated.

In the maps (Figs 1, 2 & 3) are shown, respectively, the names of the administrative division of the country (Prefectures), the number of taxa of liverworts and hornworts, and the number of taxa of mosses, in parenthesis is indicated the number of collections (records). The lower administrative subdivisions (not represented) are: Rreth (District), and Komunë/Bashki (Commune/Municipality). For most collections an attempt has been made to determine their localization at the lower administrative level, sometime even more precisely. These data are not presented here, though.

For each taxon we state the distribution in Albania, the number of accepted records (collections), literature references, and excluded records (localities outside Albanian present-day political borders).

## Bryoflora of Albania: A Preliminary Check-List

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Table 1. Check-List of Albanian Bryophytes.  
 (The distribution is given in relation to the main administrative subdivisions of the country, for their acronyms and localization refer to fig. 1)

ANTHOCEROTOPHYTA	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
1 <i>Anthoceros punctatus</i> L.											▲			1	c	
2 <i>Phaeoceros bulbiculosus</i> (Brot.) Posk.						▲								1	c	
3 <i>Phaeoceros laevis</i> (L.) Prosk.											▲			3	c, n	
MARCHANTIOPHYTA	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
1 <i>Aneura pinguis</i> (L.) Dumort.		△										▲		2	h, q	
2 <i>Athalamia hyalina</i> (Sommerf.) S.Hatt.	▲								▲					3	l, n, o	
3 <i>Athalamia spathysii</i> (Lindenb.) S.Hatt.											▲			2	c	
4 <i>Barbilophozia barbata</i> (Schmidel ex Schreb.) Loeske	▲													1	m	
5 <i>Barbilophozia lycopodioides</i> (Wallr.) Loeske	▲								▲					3	n	
6 <i>Bazzania tricenata</i> (Wahlenb.) Lindb.				△										1	q	
7 <i>Bazzania trilobata</i> (L.) Gray				△										1	q	
8 <i>Calyptogeia azurea</i> Stotler & Crotz		△												1	q	
9 <i>Calyptogeia fissa</i> (L.) Raddi						▲								1	c	
10 <i>Cephalozia bicauspitata</i> (L.) Dumort.						▲								1	c	
11 <i>Cephalozia baumgartneri</i> Schiffn.					▲	▲								27	c	
12 <i>Cephalozia divaricata</i> (Sm.) Schiffn. var. <i>divaricata</i> (1)						▲								1	c	
13 <i>Cephalozia stellulifera</i> (Taylor ex Spruce) Schiffn.						▲								3	c	
14 <i>Cephalozia turneri</i> (Hook.) Müll. Frib.						▲								2	c	
15 <i>Chiloscyphus polyanthos</i> (L.) Corda				△										1	q	
16 <i>Cololejeunea calcaria</i> (Lib.) Schiffn.										▲				1	c	
17 <i>Cololejeunea rossettiana</i> (C.Massal.) Schiffn.										▲				5	c, l, m	
18 <i>Conocephalum conicum</i> (L.) Dumort.	▲					▲				▲	▲			11	c, h, l, m, n, q	
19 <i>Corsinia coriandrina</i> (Spreng.) Lindb.	▲				▲	▲				▲				8	c	
20 <i>Fossombronia angulosa</i> (Diels.) Raddi						▲				▲				3	c	
21 <i>Fossombronia caespitiformis</i> De Not. ex Rabenh.	▲				▲	▲				▲				13	c	
22 <i>Fruillania dilatata</i> (L.) Dumort.	▲	△	△			▲				▲				26	c, h, j, k, m, n, o, q	
23 <i>Fruillania fragilifolia</i> (Taylor) Gottsche, Lindemb. & Nees	▲					▲								1	c	
24 <i>Fruillania inflata</i> Gottsche														2	l, m	
25 <i>Fruillania tamarisci</i> (L.) Dumort.			△			▲				▲				4	c, k, n	ql: KS
26 <i>Gongylanthus ericetorum</i> (Raddi) Nees						▲								2	c	

MARCHANTIOPHYTA Tab. 1 (cont.)		SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
27	<i>Junggermannia atrovirens</i> Dumort.	▲									▲				6	c, m, n	
28	<i>Junggermannia gracillima</i> Sm.		△												1	q	
29	<i>Junggermannia hyalina</i> Lyell					▲									1	c	
30	<i>Junggermannia leiantha</i> Grolle	△													1	q	
31	<i>Junggermannia polaris</i> Lindb.					▲				▲					2	c, n	
32	<i>Leiocolea badensis</i> (Gottsche) Jörg.					▲									1	n	
33	<i>Leiocolea collaris</i> (Nees) Schljakov	▲				▲									18	c, m, n	
34	<i>Leiocolea turbinata</i> (Raddi) H. Buch.					▲									23	c, l, m, n	
35	<i>Lejeunea cavifolia</i> (Ehrh.) Lindb.														1	q	
36	<i>Lophocolea bidentata</i> (L.) Dumort.	△				▲									10	c, h, o	
37	<i>Lophocolea heterophylla</i> (Schröd.) Dumort.					▲									2	n, q	
38	<i>Lophocolea minor</i> Nees			△						▲					1	n	
39	<i>Lophozia excisa</i> (Dicks.) Dumort.									▲					1	q	
40	<i>Lophozia incisa</i> (Schröd.) Dumort.		△												1	q	
41	<i>Lophozia ventricosa</i> (Dicks.) Dumort.			△											1	q	
42	<i>Lunularia cruciata</i> (L.) Lindb.	▲				▲				▲					46	c, m, n	
43	<i>Mannia androgyna</i> (L.) A. Evans	▲				▲				▲					14	c, m	
44	<i>Mannia triandra</i> (Scop.) Grolle	▲				▲				▲					3	a, c	
45	<i>Marchantia paleacea</i> Bertol. (2)					▲									2	c	
46	<i>Marchantia polymorpha</i> L. (3)	▲				▲				▲					3	h, n	q1: KS
47	<i>Metzgeria furcata</i> (L.) Dumort.		△			▲									7	c, n, q	q1: MN
48	<i>Oxymitra incrassata</i> (Brot.) Sérgio & Sim-Sim														1	c	
49	<i>Pedinophyllum interruptum</i> (Nees) Kaal.	▲													1	m	
50	<i>Pellia endivifolia</i> (Dicks.) Dumort.	▲				▲				▲					26	c, h, l, m, n, q	q1: KS
51	<i>Plagioclasma rupestre</i> (J.R. Forst. & G. Forst.) Steph.														9	c, h	
52	<i>Plagioclasma rupestre</i> (J.R. Forst. & G. Forst.) Dumort. (4)	▲	△			▲									5	c, n, q	q2: 2KS
53	<i>Plagioclasma rupestre</i> (Torrey ex Nees) Lindemb. (4)														3	m, n	
54	<i>Porella arboris-vitae</i> (With.) Grolle														2	l, m	
55	<i>Porella cordataana</i> (Huebener) Moore	△													3	a, n	
56	<i>Porella planiphylla</i> (L.) Pfeiff.	▲				▲				▲					11	c, h, l, m, n, q	q1: MN
57	<i>Porella baueri</i> (Schiffn.) C.E.O. Jens.				△										2	j	
58	<i>Preissia quadrata</i> (Scop.) Nees	▲				▲									9	a, c, m, n	q1: KS
59	<i>Ptilidium ciliare</i> (L.) Hampe		△												1	q	
60	<i>Radula complanata</i> (L.) Dumort.		△	△											16	c, j, k, m, n, q	

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MARCHANTIOPHYTA Tab. 1 (cont.)	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
<i>Radula lindenbergiana</i> Gotsche ex C.Hartm.	▲		▲		▲			▲			▲	▲		5	c, m	
<i>Reboulia hemisphaerica</i> (L.) Raddi	▲				▲	▲		▲			▲	▲		64	a, c, h, m, n	
<i>Riccardia multifida</i> (L.) Gray														1	c	
<i>Riccardia palmata</i> (Hedw.) Carruth.		△												1	q	
<i>Riccia bicarinata</i> Lindb.											▲	▲		2	c	
<i>Riccia bifurca</i> Hoffm.	▲										▲	▲		2	c, n	
<i>Riccia ciliata</i> Hoffm.	▲					▲		▲			▲	▲		6	c	
<i>Riccia ciliifera</i> Link ex Lindenb.	▲													1	n	
<i>Riccia crozalsii</i> Levier	▲					▲		▲			▲	▲		3	c	
<i>Riccia crystallina</i> L. emend. Raddi					▲	▲					▲	▲		2	c	
<i>Riccia glauca</i> L.					▲	▲					▲	▲		2	c	
<i>Riccia macrocarpa</i> Levier											▲	▲		1	c	
<i>Riccia michelii</i> Raddi	▲							▲			▲	▲		6	c	
<i>Riccia nigrella</i> DC.	▲					▲		▲			▲	▲		4	c	
<i>Riccia sorocarpa</i> Bisch. var. <i>sorocarpa</i> (5)					▲	▲		▲			▲	▲		3	c	
<i>Riccia subifurca</i> Wamst. ex Croz.					▲	▲		▲			▲	▲		3	c	
<i>Riccia trabutiana</i> Steph.			▲									▲		2	c	
<i>Scapania aequiloba</i> (Schwägr.) Dumort.	▲	▲												3	m	
<i>Scapania aspera</i> Bernet & M. Bernet	▲	▲							▲		▲			4	m, n	
<i>Scapania calcicola</i> (Arnell & J.Perss.) Ingham									▲					1	n	
<i>Scapania compacta</i> (A.Roth) Dumort.						▲					▲			2	c	
<i>Scapania nemorea</i> (L.) Grolle		△				▲								2	c, q	
<i>Scapania umbrosa</i> (Schrad.) Dumort.			△			▲								1	q	
<i>Southbya nigrella</i> (De Not.) Henriq.	▲				▲	▲		▲			▲	▲		33	c	
<i>Southbya tophacea</i> (Spruce) Spruce	▲				▲	▲					▲	▲		14	c, m	
<i>Targionia hypophylla</i> L.	▲				▲	▲					▲	▲		26	c, h	

BRYOPHYTA	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
<i>Aloina ambigua</i> (Bruch & Schimp.) Limpr.	△													1	f	
<i>Amblystegium serpens</i> (Hedw.) Schimp.	▲	△												4	g, h, q	
<i>Anomodon attenuatus</i> (Hedw.) Hueb.		△												1	q	
<i>Anomodon longifolius</i> (Schleich. ex Brid.) Hartm.	△													1	a	
<i>Anomodon viticulosus</i> (Hedw.) Hook. & Taylor	▲	△	△		▲	△								9	a, g, h, i, k, l, n, q	

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
<b>BRYOPHYTA (Tab. 1 cont.)</b>																
6	△	△												2	a, q	
<i>Anitrichia curtipendula</i> (Hedw.) Brid.														2	f, n	
7	△								▲					2	f, n	
<i>Barbula convoluta</i> Hedw.														6	f, h	q!; MN
8	▲					▲								1	n	
<i>Barbula unguiculata</i> Hedw.									▲					1	q	
9														1	g	
<i>Bartramia ithyphylla</i> Brid.														5	h, q	
10		△												1	n	
<i>Bartramia pomiformis</i> Hedw.														1	q	
11	△													1	g	
<i>Bartramia stricta</i> Brid.		△				▲								5	h, q	
12									▲					1	n	
<i>Brachythecium velutinum</i> (Hedw.) Ignatov & Huttunen														2	a, m	
13									▲					5	f, h, n	
<i>Brachythecium albicans</i> (Hedw.) Schimp.														2	g, h	q!; MN
14	△													2	n	
<i>Brachythecium rivulare</i> Schimp.														1	q	
15	▲													6	a, f, h, q	q!; MN
<i>Brachythecium rotabulum</i> (Hedw.) Schimp.									▲					4	f, h, n, q	
16	▲													3	a, f, n	
<i>Brachythecium salebrosum</i> (Hoffm. ex F. Web. & D. Mohr) Schimp.														4	f, h, n	
17														2	f, n	
<i>Brachythecium recurvirostre</i> (Hedw.) P.C. Chen														2	f, n	
18									▲					1	h	
<i>Bryoerythrophyllum recurvirostre</i> (Hedw.) P.C. Chen														1	q	
19														6	a, f, h, q	q!; MN
<i>Bryum algovicum</i> Sendtn. ex Müll. Hal.		△												4	f, h, n, q	
20	△													3	a, f, n	
<i>Bryum argenteum</i> Hedw.														4	f, h, n, q	
21	▲													3	a, f, n	
<i>Bryum caespiticium</i> Hedw.														4	f, h, n	
22	△													2	f, n	
<i>Bryum canariense</i> var. <i>provinciale</i> (H. Philib.) Husn.														2	f, n	
23	▲													1	h	
<i>Bryum capillare</i> Hedw.														1	q	
24	△													2	n, q	
<i>Bryum donianum</i> Grev.														2	a, f	
25	▲													1	n	
<i>Bryum gemmiparum</i> De Not.														1	a	
26														1	o	
<i>Bryum kunzei</i> Homsch.														2	a, f	
27														1	q	
<i>Bryum pallens</i> Sw.		△												2	a, f	
28	△													2	a, f	
<i>Bryum pseudotriquetrum</i> (Hedw.) P. Gaertn., B. Mey. & Scherb.														1	n	
29	▲													1	a	
<i>Bryum radiculosum</i> Brid.														1	o	
30	△													2	a, f	
<i>Bryum schleicheri</i> Schwägr.														1	q	
31														1	o	
<i>Bryum schleicheri</i> var. <i>latifolium</i> (Schwägr.) Schimp.														2	a, f	
32														1	q	
<i>Bryum strittonii</i> Schimp.														1	o	
33	△													2	a, f	
<i>Bryum torquescens</i> Bruch ex De Not.														1	q	
34		△												1	o	
<i>Buxbaumia aphylla</i> Hedw.														5	h, k, n, q	
35	▲													5	h, k, n, q	
<i>Buxbaumia viridis</i> (Moug. ex Lam. & DC.) Moug. & Nestl.														5	h, k, n, q	
35	▲													5	h, k, n, q	
<i>Calliergonella cuspidata</i> (Hedw.) Loeske		△												5	h, k, n, q	

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	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
<b>BRYOPHYTA (Tab. 1 cont.)</b>																
36 <i>Campyladelphus chrysophyllus</i> (Brid.) R.S.Chopra	▲													1	h	
37 <i>Campyllum protensum</i> (Brid.) Kindb.	▲													2	n	
38 <i>Campylophyllum sommerfeltii</i> (Myrin) Hedenäs (6)	△													1	g	
39 <i>Ceratodon purpureus</i> (Hedw.) Brid.	△		△											2	k, q	
40 <i>Cheilanthes chloropus</i> (Brid.) Lindb. ex Broth.	△													1	f	
41 <i>Cinclidotus aquaticus</i> (Hedw.) Bruch & Schimp.	▲		△											2	k, n	
42 <i>Cinclidotus fontinaloides</i> (Hedw.) P.Beauv.	▲	△												3	a, n, q	
43 <i>Cinclidotus fontinaloides</i> var. <i>lorenzianus</i> Mol. (7)	▲													1	n	
44 <i>Cinclidotus riparius</i> (Host ex Brid.) Arnott	▲													1	n	
45 <i>Coscinodon eribrosus</i> (Hedw.) Spruce	▲	△												1	k	
46 <i>Cratoneuron filicinum</i> (Hedw.) Spruce	▲		△					▲	▲					7	a, g, n, q	q1: KS
47 <i>Cratoneuron filicinum</i> var. <i>atrovirens</i> (Brid.) Ochyra									▲					3	n	
48 <i>Crossidium squamiferum</i> (Viv.) Jur.							△							1	k	
49 <i>Ctenidium molluscum</i> (Hedw.) Mitt.	▲		△			△								4	i, n	q1: KS
50 <i>Dialytrichia mucronata</i> (Brid.) Broth.	△													3	a, f	
51 <i>Dichodontium pellucidum</i> (Hedw.) Schimp.	▲													1	n	
52 <i>Dicranella heteromalla</i> (Hedw.) Schimp.								▲						1	h	
53 <i>Dicranella varia</i> (Hedw.) Schimp.	△													1	f	
54 <i>Dicranoweisia cirrata</i> (Hedw.) Lindb. ex Milde	△													1	a	
55 <i>Dicranoweisia crispula</i> (Hedw.) Milde		△												1	q	
56 <i>Dicranum majus</i> Sm.		△												1	q	
57 <i>Dicranum polysetum</i> Sw.		△												1	q	
58 <i>Dicranum scoparium</i> Hedw.	▲		△				△		▲					7	a, k, n, q	q3: MN; 2KS
59 <i>Didymodon acutus</i> (Brid.) K.Saito	▲						▲							5	f, h, n	
60 <i>Didymodon fallax</i> (Hedw.) Zander	▲													2	h	q1: KS
61 <i>Didymodon luridus</i> Hornsch. ex Spreng.	△													3	f, h	
62 <i>Didymodon rigidulus</i> Hedw.			△											1	q	
63 <i>Didymodon sinuosus</i> (Mitt.) Delogne	▲													1	q	
64 <i>Didymodon tophaceus</i> (Brid.) Lissa	▲								▲					5	f, h, n	
65 <i>Didymodon vinealis</i> (Brid.) Zander	△													3	f, h	
66 <i>Dislichium capillaceum</i> (Hedw.) Bruch & Schimp.	▲	△							▲					5	n, q	q1: KS
67 <i>Ditrichum flexicaule</i> (Schwäger.) Hampe	▲								▲					3	a, n	q1: KS
68 <i>Drepanoctadus aduncus</i> (Hedw.) Wamst.	▲													1	h	

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
<b>BRYOPHYTA (Tab. 1 cont.)</b>														1	n	
<i>Encalypta alpina</i> Sim.									▲					3	n, q	q! : KS
<i>Encalypta ciliata</i> Hedw.	△			△					▲					1	a	
<i>Encalypta rhiptocarpa</i> Schwäger.														1	f	
<i>Encalypta rhiptocarpa</i> var. <i>trachymitria</i> (Ripart) Wijk & Margad.	▲								▲					5	h, n, q	
<i>Encalypta streptocarpa</i> Hedw.	▲			△		▲			▲					6	f, h, n, q	
<i>Encalypta vulgaris</i> Hedw.	▲			△		▲			▲					3	n	
<i>Encalypta vulgaris</i> var. <i>obtusata</i> Nees & Hornsch.	▲								▲					4	h, n	q! : KS
<i>Eucladium verticillatum</i> (Brid.) Schimp.	▲								▲					4	a, g, h, q	
<i>Eurhynchium crassinervium</i> (Taylor) Schimp.	▲								▲					5	h	
<i>Eurhynchium hians</i> (Hedw.) Sande Lac	▲								▲					1	h	
<i>Eurhynchium hians</i> var. <i>rigidum</i> (Boul.) Düll	▲								▲					1	n	
<i>Eurhynchium meridionale</i> (Schimp.) De Not.	△													2	g	
<i>Eurhynchium praelongum</i> (Hedw.) Schimp.	▲													3	h	
<i>Eurhynchium pulchellum</i> (Hedw.) Jenn.	▲													2	n	
<i>Eurhynchium pulchellum</i> var. <i>diversifolium</i> (Schimp.) C.E.O.Jens.	▲								▲					1	g	
<i>Eurhynchium pumilum</i> (Wils.) Schimp.	△													1	h	
<i>Eurhynchium schleicheri</i> (Hedw. f.) Jur.	▲													1	n	
<i>Eurhynchium striatum</i> (Spruce) Schimp.						△								1	q	
<i>Eurhynchium striatum</i> (Schreb. ex Hedw.) Schimp.														6	n	
<i>Fissidens bryoides</i> Hedw.	△													1	h	
<i>Fissidens dubius</i> P.Beauv.	▲								▲					2	h	
<i>Fissidens dubius</i> var. <i>mucronatus</i> (Bridl. ex Limpr.) Kartt., Hedenäs & Söderstr.														2	h	
<i>Fissidens taxifolius</i> Hedw.														2	h	
<i>Fontinalis antipyretica</i> Hedw.	▲													5	a, f, h, k, q	q! : MN
<i>Funaria hygrometrica</i> Hedw.	△			△		▲								6	f, h, n	
<i>Funaria multenbergii</i> Turner	▲					▲			▲					1	a	
<i>Grimmia alpestris</i> (F. Weber & D. Mohr) Schleich.	△													1	q	
<i>Grimmia crinita</i> Brid.														1	h	
<i>Grimmia hartmannii</i> Schimp.														1	f	
<i>Grimmia laevigata</i> (Brid.) Brid.	△													1	f	
<i>Grimmia muehlenbeckii</i> Schimp.	△													1	f	
<i>Grimmia pulvinata</i> (Hedw.) Sm. ex Sm. & Sowerby	▲													7	a, f, h, k, n	q! : KS
<i>Grimmia tergestina</i> Tømm. ex Bruch & Schimp.	△													1	f	



## Bryoflora of Albania: A Preliminary Check-List

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	BRYOPHYTA (Tab. 1 cont.)	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
102	<i>Gymnostomum aeruginosum</i> Sm.	△													1	a	
103	<i>Gymnostomum calcareum</i> Nees & Hornsch.	△													1	f	
104	<i>Gymnostomum viridulum</i> Brid.										▲				1	n	
105	<i>Habrodon perpusillus</i> (De Not.) Lindb.										▲				1	n	
106	<i>Herzogiella seligeri</i> (Brid.) Z. Iwats. (8)										▲				2	n, q	
107	<i>Homalia besseri</i> Lob.	▲													1	n	
108	<i>Homalothecium aureum</i> (Lag. ex Spruce) H. Rob.					▲									3	h	
109	<i>Homalothecium lutescens</i> (Hedw.) H. Rob.				△					▲					4	i, n	
110	<i>Homalothecium lutescens</i> var. <i>fallax</i> (Philib. ex Schimp.) Hedenäs & Söderstr.									▲					2	n	
111	<i>Homalothecium philippeanum</i> (Spruce) Bruch & Schimp.									▲					1	n	
112	<i>Homalothecium sericeum</i> (Hedw.) Schimp.	▲	△											▲	10	a, h, i, n, q	q3:MN;2KS
113	<i>Hygroamblystegium varium</i> (Hedw.) Mönk.	▲													1	h	
114	<i>Hygrohypnum luridum</i> (Hedw.) Jenn.	△													1	a	
115	<i>Hygrohypnum luridum</i> var. <i>subspaeiticarpon</i> (Schleich. ex Brid.) C.F.O.Jens.	▲													2	n	
116	<i>Hytocomium splendens</i> (Hedw.) Schimp.	▲	△							▲					3	n, q	
117	<i>Hymenosyrium recurvirostre</i> (Hedw.) Dixon	▲													1	a	
118	<i>Hypnum cupressiforme</i> Hedw.	▲	△												9	g, h, i, n, q	q2:MN, KS
119	<i>Isoetecium alopecuroides</i> (Lam. ex Dubois.) Isov.	▲	△												3	k, n	q1:KS
120	<i>Leptodictyum riparium</i> (Hedw.) Warnst.	▲							▲						2	h	
121	<i>Leptodon smithii</i> (Hedw.) F. Web. & D. Mohr	▲					△								7	g, h, k, l, n	
122	<i>Leskea polycarpa</i> Ehrh. ex Hedw.	△													1	g	
123	<i>Leucodon sciuroides</i> (Hedw.) Schwägr.	▲	△												10	a, g, h, i, n, q	
124	<i>Leucodon sciuroides</i> var. <i>morensis</i> (Schwägr.) De Not.						△								1	i	
125	<i>Mnium stellare</i> Reichard ex Hedw.	▲	△												5	n, q	q1:KS
126	<i>Mnium thomsonii</i> Schimp.	▲													1	n	
127	<i>Myurella julacea</i> (Schwägr.) Schimp.	▲								▲					3	n	
128	<i>Neckera cephalonica</i> Jur. & Unger.														1	o	
129	<i>Neckera complanata</i> (Hedw.) Hueb.		△												3	i, n, q	
130	<i>Neckera crispa</i> Hedw.	▲	△												4	i, n, q	q1:MN
131	<i>Orthothecium rufescens</i> (Diels. ex Brid.) Schimp.	▲													1	n	
132	<i>Orthothecium affine</i> Schrad. ex Brid.		△												1	q	
133	<i>Orthotrichum anomalum</i> Hedw.	▲													3	a, f, h	q1:MN

	SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
<b>BRYOPHYTA (Tab. 1 cont.)</b>																
134 <i>Orthotrichum cupulatum</i> Hoffm. ex Brid.	△													2	a, f	
135 <i>Orthotrichum cupulatum</i> var. <i>sardaganum</i> (Vent.) Vent	△													1	f	
136 <i>Orthotrichum diaphanum</i> Schrad. ex Brid.	△													1	f	q! : KS
137 <i>Orthotrichum shawii</i> Wilson in Schimp.	▲				▲									1	h	
138 <i>Orthotrichum speciosum</i> Nees ex Sturm.						△			▲					5	h, i, n, q	
139 <i>Orthotrichum stramineum</i> Hornsch. ex Brid.						△								2	i, k	
140 <i>Orthotrichum striatum</i> Hedw.						△								2	i	
141 <i>Palustritella commutata</i> (Hedw.) Ochyra	▲								▲		▲			6	a, h, l, n	q! : KS
142 <i>Palustritella commutata</i> var. <i>fluctuans</i> (Schimp.) Ochyra														1	n	
143 <i>Palustritella commutata</i> var. <i>psychodioides</i> (G. Roth) Ochyra														1	h	
144 <i>Palustritella decipiens</i> (De Not.) Ochyra	▲													1	n	
145 <i>Palustritella falcata</i> (Brid.) Hedenis	▲								▲					4	a, h, n	
146 <i>Paraleucobryum longifolium</i> (Ehrh. ex Hedw.) Loeske		△												1	q	
147 <i>Philonotis calcareo</i> (Bruch & Schimp.) Schimp. (9)	▲								▲					4	n, q	
148 <i>Philonotis fontana</i> (Hedw.) Brid.						△								1	q	
149 <i>Philonotis marchica</i> (Hedw.) Brid.						△								1	q	q! : KS
150 <i>Philonotis seriata</i> Mitt. (9)		△				△								5	q	
151 <i>Plagiomnium affine</i> (Bland. ex Funck) T.J.Kop.	△	△									▲			3	g, n, q	
152 <i>Plagiomnium cuspidatum</i> (Hedw.) T.J.Kop.	△					△								2	k, q	
153 <i>Plagiomnium rostratum</i> (Schrad.) T.J.Kop.	△													1	q	
154 <i>Plagiomnium undulatum</i> (Hedw.) T.J.Kop.	△					△								5	h, n, q	
155 <i>Plagiopus oedertianus</i> (Sw.) Crum & Anders.	▲					△								3	n, q	q! : KS
156 <i>Platydictya subtilis</i> (Mitt.) A. Jaeger						△								1	q	
157 <i>Platydictya subtilis</i> (Hedw.) H.A.Crum						△								1	q	
158 <i>Pleurochaete squarrosa</i> (Brid.) Lindb.	△													6	f, h, n	
159 <i>Pleurozium schreberi</i> (Willd. ex Brid.) Mitt.		△												1	q	
160 <i>Pohlia atropurpurea</i> (Wahlenb.) H.Lindb.	△													1	f	
161 <i>Pohlia cruda</i> (Hedw.) Lindb.	▲													3	n	
162 <i>Bryum alpinum</i> var. <i>latifolium</i> Mönk.	▲								▲					1	n	
163 <i>Pohlia wahlenbergii</i> (F. Web. & D. Mohr) Andr.	▲													1	n	
164 <i>Polytrichastrum alpinum</i> (Hedw.) G.L.Sm.	▲								▲					2	n	
165 <i>Polytrichum juniperinum</i> Hedw.	▲								▲					6	a, n, q	
166 <i>Polytrichum piliferum</i> Hedw.	▲	△							▲					3	h, k	
167 <i>Pseudocrossidium revolutum</i> (Brid.) Zander	▲													2	h	
168 <i>Pseudoleskea incurvata</i> (Hedw.) Loeske	▲								▲					3	n, q	

## Bryoflora of Albania: A Preliminary Check-List

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BRYOPHYTA (Tab. 1 cont.)		SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
169	<i>Pseudoleskea radicoso</i> (Mitt.) Macoun & Kindb.	▲								▲					2	n	
170	<i>Pseudoleskea saviana</i> (De Not.) Latzel		△												4	i	
171	<i>Pseudoleskeella catenulata</i> (Brid. ex Schrad.) Kindb.					△									1	i	
172	<i>Pseudoscleropodium purum</i> (Hedw.) M.Fleisch.								▲	▲		▲			2	n	q!; KS
173	<i>Pterigynandrum filiforme</i> Hedw.		△	△					▲	▲					9	i, k, n, q	
174	<i>Pterogonium gracile</i> (Hedw.) Sm.	△													1	a	
175	<i>Ptilium crista-castrensis</i> (Hedw.) De Not.		△												1	q	
176	<i>Psychodium plicatum</i> (Schleich. ex F. Web. & D. Mohr) Schimp.	▲													2	n	
177	<i>Racomitrium canescens</i> (Hedw. ex Hedw.) Brid.	▲				▲			▲						5	h, k, n	
178	<i>Racomitrium ericoides</i> (Web. ex Brid.) Web.	△	△												2	a, q	
179	<i>Rhizomnium punctatum</i> (Hedw.) T. Kop.								▲	▲					1	n	q!; MN
180	<i>Rhynchostegiella curviseta</i> (Brid.) Limpr.										▲				1	h	
181	<i>Rhynchostegiella litorea</i> (De Not.) Limpr.	▲						▲							3	h, n	
182	<i>Rhynchostegiella tenella</i> (Dicks.) Limpr.	▲						▲							5	g, h	
183	<i>Rhynchostegium alopecuroides</i> (Brid.) A.J.E. Smith								▲						1	n	
184	<i>Rhynchostegium confertum</i> (Dicks.) Schimp.	△							▲						3	g, h	
185	<i>Rhynchostegium megapolitanum</i> (Blandow ex F. Web. & D. Mohr) Schimp.	▲					▲		▲						5	g, h	
186	<i>Rhynchostegium megapolitanum</i> var. <i>meridionale</i> Schimp.	▲													1	h	
187	<i>Rhynchostegium murale</i> (Hedw.) Schimp.		△												1	h	
188	<i>Rhynchostegium riparioides</i> (Hedw.) Cardot		△												3	i, n, q	
189	<i>Rhynchostegium riparioides</i> fo. <i>atlanticum</i> (Brid.) Drüll														1	n	
190	<i>Rhytidadelphus triquetrus</i> (Hedw.) Warnst.									▲					4	n, q	
191	<i>Rhytidium rugosum</i> (Hedw.) Kindb.	▲	△												1	n	
192	<i>Saelania glaucescens</i> (Hedw.) Broth. ex Bom. & Broth.	▲							▲						2	n	
193	<i>Santonia uncinata</i> (Hedw.) Loeske	▲							▲						1	n	
194	<i>Schistidium agassizii</i> Sull. & Lesq. ex Sull.	▲							▲						2	f, n	
195	<i>Schistidium apocarpum</i> (Hedw.) Bruch & Schimp.	▲													12	a, h, k, n, q	q!; MN
196	<i>Sciuro-hypnum glaciale</i> var. <i>geliatum</i> (Bryhn) Ochyra & Żamowiec	▲							▲	▲					1	n	
197	<i>Scleropodium touretii</i> (Brid.) L.F. Koch	▲													4	g, h	
198	<i>Scorpiurium circinatum</i> (Brid.) M.Fleisch. & Loeske	▲													7	g, h	
199	<i>Scorpiurium deflexifolium</i> (Solms.) M.Fleisch. & Loeske	▲													1	n	
200	<i>Sphagnum palustre</i> L.		△												1	i	
201	<i>Syntrichia calcicola</i> J.J. Amann	▲													1	h	
202	<i>Syntrichia intermedia</i> Brid.	▲													8	a, f, h, k	
203	<i>Syntrichia intermedia</i> var. <i>calva</i> (Dur. & Sag.) Delogne	△													1	f	

BRYOPHYTA (Tab. 1 cont.)		SHK	KUK	LZH	DIB	DUR	TIR	ELB	FIE	KOR	BER	VLO	GJI	Und.	N. of Records	References	Records excluded
204	<i>Syntrichia norvegica</i> Web.	▲								▲					2	n	
205	<i>Syntrichia ruraliformis</i> (Besch.) Cardot	▲								▲					1	n	
206	<i>Syntrichia ruralis</i> (Hedw.) F. Web. & D. Mohr	▲			△					▲					7	a, f, k, n	q! : MN
207	<i>Thamnobryum alopecurum</i> (Hedw.) Nieuwl. ex Gangulee	▲										▲			2	h, n	
208	<i>Thuidium delicatulum</i> (Hedw.) Schimp.	▲													1	n	q! : KS
209	<i>Thuidium philiberti</i> Limpr.	▲													1	n	
210	<i>Thuidium recognitum</i> (Hedw.) Lindb.	▲	△							▲					2	n, q	
211	<i>Timmia austriaca</i> Hedw.	▲								▲					2	n	
212	<i>Timmia bavarica</i> Hessel.	▲			△										1	i	
213	<i>Timmia barbuloidea</i> (Brid.) Mönkem.	▲										▲			1	n	
214	<i>Tortella flavovirens</i> (Bruch) Broth.	▲	▲						▲						4	h	
215	<i>Tortella flavovirens</i> var. <i>viridiflava</i> (De Not.) Cas.-Gil.	▲	▲												2	h	
216	<i>Tortella inclinata</i> (Hedw. f.) Limpr.	▲					▲								1	n	
217	<i>Tortella nitida</i> (Lindb.) Broth	▲					▲								3	h	
218	<i>Tortella tortuosa</i> (Hedw.) Limpr.	▲					▲								9	h, i, l, n, q	q! : KS
219	<i>Tortella tortuosa</i> var. <i>fragillifolia</i> (Jur.) Limpr.	△			△										1	f	
220	<i>Tortula canescens</i> Mont.						▲								1	h	
221	<i>Tortula cuneifolia</i> (Dicks. ex With.) Tum. (10)	△													1	f	
222	<i>Tortula encalyprata</i> Lindb.	▲								▲					2	n	
223	<i>Tortula inermis</i> (Brid.) Mont.												▲		2	h	
224	<i>Tortula lanceola</i> var. <i>angustata</i> (Bruch & Schimp.) Zander	△													1	f	
225	<i>Tortula marginata</i> (Bruch & Schimp.) Spruce											▲			1	n	
226	<i>Tortula muralis</i> Hedw.	▲					▲								7	a, f, h	q! : MN
227	<i>Tortula muralis</i> var. <i>aestiva</i> Brid. ex Hedw.	△													1	f	
228	<i>Tortula obtusifolia</i> (Schwägr.) Mathieu									▲					1	n	
229	<i>Tortula solmsii</i> (Schimp.) Limpr.	△													1	f	
230	<i>Tortula subulata</i> Hedw.	▲					▲								4	f, h, n	q! : MN
231	<i>Trichostomum brachydontium</i> Bruch	▲					▲								4	f, h, n	
232	<i>Trichostomum crispulum</i> Bruch	▲					▲								7	a, f, h	
233	<i>Trichostomum crispulum</i> var. <i>brevifolium</i> (Müll. Hall.) Bruch & Schimp.	▲													1	h	
234	<i>Uloa crispa</i> (Hedw.) Brid.		△												1	k	
235	<i>Uloa curvifolia</i> (Wahlenb.) Lili.		△												1	k	
236	<i>Warnstorfia fluitans</i> (Hedw.) Loeske				△										2	q	
237	<i>Weissia condensata</i> (Voit ex Sturm) Lindb.	▲													5	f, h	
238	<i>Weissia controversa</i> Hedw.				△										3	h, q	

**EXCLUDED TAXA****Bryophyta**

		Locality is in	Reference
1	<i>Atrichum undulatum</i> var. <i>minus</i> (Hedw.) Paris	KOSOVA	q
2	<i>Barbula unguiculata</i> f. <i>obtusifolia</i> Mönk.	KOSOVA	q
3	<i>Campylophyllum calcareum</i> (Crundw. & Nyholm) Hedenäs (6)	(11)	d
4	<i>Desmatodon heimii</i> (Hedw.) Mitt.	KOSOVA	q
5	<i>Didymodon cordatus</i> Jur. (12)	(11)	d
6	<i>Didymodon vinealis</i> var. <i>flaccida</i> (Bruch & Schimp.) Zander (13)	(11)	d
7	<i>Fissidens adiantoides</i> Hedw.	KOSOVA	q
8	<i>Grimmia hartmannii</i> var. <i>montenegrina</i> Beck & Szysz. (14)	MONTENEGRO	b, d
9	<i>Hypnum cupressiforme</i> var. <i>lacunosum</i> Brid. (13)	(11)	e
10	<i>Hypnum julandicum</i> Holmen & Warnke	KOSOVA	q
11	<i>Pogonatum aloides</i> var. <i>ximinimum</i> (Crome) Molendo	MONTENEGRO	q
12	<i>Thuidium abietinum</i> (Hedw.) Schimp.	KOSOVA	q
13	<i>Thuidium tamariscinum</i> (Hedw.) Schimp.	KOSOVA	q
14	<i>Tortula lingulata</i> subsp. <i>montenegrina</i> (Breidl. & Szysz.) Podp.	MONTENEGRO	b, p
15	<i>Tortula mucronifolia</i> Schwägr.	KOSOVA	q
16	<i>Weissia controversa</i> var. <i>crispata</i> (Nees & Hornsch.) Nyh.	MONTENEGRO	f (15)

**Marchantiophyta**

1	<i>Leiocolea heterocolpos</i> (Thed. ex Hartm.) H. Buch.	MONTENEGRO	q
2	<i>Porella obtusata</i> (Taylor) Trevis	(11)	(16)
3	<i>Riccia lanellosa</i> Raddi	(11)	(17)

**References in the check-list are indicated as follows:**

**a.** Baumgartner (1915); **b.** Beck & Szyszłowicz (1888); **c.** Bischler & al. (1980); **d.** Düll (1984); **e.** Düll (1985); **f.** Höhnel (1893); **g.** Höhnel (1894); **h.** Kárpáti & Vajda (1961); **i.** Markgraf (1927a); **j.** Markgraf (1927b); **k.** Markgraf (1931); **l.** Meyer & Grolle (1963); **m.** Meyer & Grolle (1968); **n.** Petrov (1960); **o.** Petrov (1962); **p.** Podpěra (1954); **q.** Szepesfalvy (1926).

**Records excluded:** References as above, the number following the reference indicates the number of records excluded, the acronym(s) which follow(s) refer to Montenegro (MN), and Kosova (KS). For instance, "q3;MN;2KS" means 3 records excluded from reference q (Szepesfalvy 1926) because localities are actually one in Montenegro, and the other 2 in Kosova.

**Notes to table 1:**

- (1) The variety is indicated in a more recent work (Bischler 2004) and not in the original work cited (Bischler & al. 1980).
- (2) Not indicated for Albania in a more recent work, but Albania indicated on distribution map therein (Bischler 2004)
- (3) According to Söderström & al. (2002) it should be referred to *Marchantia paleacea* ssp. *ruderalis* Bisch. & Boisselier.
- (4) In the original work (Bischler & al. 1980) *Plagiochila asplenoides* (with the indication "incl. var.") was indicated as the species collected, in a more recent work *Plagiochila porelloides* instead is indicated as the one collected, while *P. asplenoides* is reported as present in Albania but not collected (Bischler 2004).
- (5) Bischler does not distinguish between varieties of this species in the original work (Bischler & al. 1980), in a more recent one, though, she does differentiate a var. *sorocarpa* (which she indicates she did collect) and a var. *hegii* Schiffn., which she only reports as recorded from Albania (Bischler 2004).
- (6) *Hypnum sommerfeltii* Myr., the species reported by Höhnel, is the basionym of *Campylophylum sommerfeltii* (Myrin) Hedenäs, a subarctic species. According to Smith (2004), Cortini (2006), Düll (1995), though, European authors using that combination may have been rather referring to *Campylophylum calcareum* (Crundw. & Nyholm) Hedenäs. There's a report of *C. calcareum* for Albania by Düll (1985), but with no indication of locality.
- (7) Variety with doubtful taxonomic value (Düll 1992).
- (8) In Cortini Pedrotti (2001a): *Plagiothecium silesiacum* (P. Beauv.) Bryol. eur. = *Haplodymenium triste* (Ces.) Kindb. (Probably a mistake).
- (9) In TROPICOS *Philonotis calcaria* and *Ph. seriata* are considered as synonyms of *Ph. fontana*.
- (10) Höhnel (1893) refers also to a var. *luteomarginata* Höhn. which he mentions he had collected also in Corsica in 1889.
- (11) No voucher or reference to locality is available.
- (12) Possibly in Albania (Düll, pers. comm.)
- (13) Likely to be present in Albania (Düll, pers. comm.)
- (14) Düll (1984) and Podpěra (1954) report it for Albania based on a collection made by Glowacki in 1886 (in Beck and Szyszycowicz, 1888): the locality is actually in Montenegro.
- (15) The locality indicated (West coast of Lake Scutari) was within the borders of Albania from 1885 to 1891, presently is in Montenegro.
- (16) Reported by M. Shehu in an unpublished thesis (Söderström, pers. comm. ); probably from the Ersekë area (Korçë), no voucher, thesis at Tirana University (A.Miho, pers. comm.)
- (17) Reported by Jovet-Ast 1986 for Albania (with a question mark). Not confirmed by Bischler 2004. Reported as doubtful for Albania by Söderström & al. (2002) based on Jovet-Ast's paper.

Table 2. Systematic synopsis of Albanian bryophytes.

Arrangement follows Crandall-Stotler & Stotler (2000) for liverworts (with the addition of *Leiocolea* within the Jungermanniaceae), Grolle & Long (2000) for hornworts; Buck and Goffinet (2000) for mosses (with the addition of *Brachytheciastrum* and *Sciuro-hypnum* within the Brachytheciaceae). Bryophytes (s.l.) are considered as three distinct lineages (Divisions). The number following the genus indicates number of taxa. Order of genera in families is alphabetical, except for Pottiaceae (\*) arranged according to Zander (1993).

**HORNWORTS. ANTOCEROTOPHYTA.**

## ANTHOCEROTOPSIDA

## ANTHOCEROTALES

**Anthocerotaceae***Anthoceros* 1, *Phaeoceros* 2**LIVERWORTS. MARCHANTIOPHYTA.**

## MARCHANTIOPSIDA

## MARCHANTIALES

**Aytoniaceae***Mannia* 2, *Plagiochasma* 1, *Reboulia* 1**Conocephalaceae***Conocephalum* 1**Lunulariaceae***Lunularia* 1**Marchantiaceae***Marchantia* 2, *Preissia* 1**Cleveaceae***Athalamia* 2**Corsiniaceae***Corsinia* 1**Targioniaceae***Targionia* 1**Oxymitracae***Oxymitra* 1**Ricciaceae***Riccia* 13

## JUNGERMANNIOPSIDA

## FOSSOMBRIONALES

**Fossombroniaceae***Fossombronia* 2**Pelliaceae***Pellia* 1

## METZGERIALES

**Aneuraceae***Aneura* 1, *Riccardia* 2**Mezgeriaceae***Metzgeria* 1**MOSESSES. BRYOPHYTA**

## SPHAGNOPSIDA

## SPHAGNALES

**Sphagnaceae***Sphagnum* 1

## POLYTRICHOPSIDA

## TETRAPHIDALES

**Buxbaumiaceae***Buxbaumia* 2

## Polytrichales

**Polytrichaceae***Polytrichastrum* 1, *Polytrichum* 2

## LEPICOLEALES

**Ptilidiaceae***Ptilidium* 1

## JUNGERMANNIALES

**Geocalyceae***Chiloscyphus* 1, *Lophocolea* 3**Plagiochilaceae***Pedinophyllum* 1, *Plagiochila* 2**Arnelliaceae***Southbya* 2, *Gongylanthus* 1**Calypogeiaceae***Calypogeia* 2**Lepidoziaceae***Bazzania* 2**Cephaloziaceae***Cephalozia* 1**Cephaloziellaceae***Cephaloziella* 4**Jungermanniaceae***Barbilophozia* 2, *Jungermannia* 5, *Leiocolea* 3,*Lophozia* 3**Scapaniaceae***Scapania* 6

## PORELLALES

**Porellaceae***Porella* 4**Jubulaceae***Frullania* 4**Lejeuneaceae***Cololejeunea* 2, *Lejeunea* 1

## RADULALES

**Radulaceae***Radula* 2

## BRYALES

**Bartramiaceae***Bartramia* 4, *Philonotis* 4, *Plagiopus* 1**Bryaceae***Bryum* 16 (incl. 3 var.)**Mniaceae***Mnium* 2, *Plagiomnium* 4, *Pohlia* 3,*Rhizomnium* 1

## HYPNALES

**Amblystegiaceae***Amblystegium* 1, *Hygroamblystegium* 1,*Leptodictyum* 1

Table 2. Systematic synopsis of Albanian bryophytes.

Arrangement follows Crandall-Stotler & Stotler (2000) for liverworts (with the addition of *Leiocolea* within the Jungermanniaceae), Grolle & Long (2000) for hornworts; Buck and Goffinet (2000) for mosses (with the addition of *Brachytheciastrum* and *Sciuro-hypnum* within the Brachytheciaceae). Bryophytes (s.l.) are considered as three distinct lineages (Divisions). The number following the genus indicates number of taxa. Order of genera in families is alphabetical, except for Pottiaceae (\*) arranged according to Zander (1993).

<b>BRYOPSIDA</b>	<b>Cratoneuraceae</b>
<b>TIMMIALES</b>	<i>Cratoneuron</i> 2 (incl. 1 var.)
<b>Timmiaceae</b>	<b>Helodiaceae</b>
<i>Timmia</i> 2	<i>Palustriella</i> 5 (incl. 2 var.)
<b>ENCALYPTALES</b>	<b>Hylocomiaceae</b>
<b>Encalyptaceae</b>	<i>Hylocomium</i> 1, <i>Pleurozium</i> 1,
<i>Encalypta</i> 7 (incl. 2 var.)	<i>Rhytidiadelphus</i> 1
<b>Funariaceae</b>	<b>Rhytidiaceae</b>
<i>Funaria</i> 2	<i>Rhytidium</i> 1
<b>GRIMMIALES</b>	<b>Leskeaceae</b>
<b>Grimmiaceae</b>	<i>Leskea</i> 1, <i>Pseudoleskea</i> 3, <i>Pseudoleskeella</i> 1,
<i>Coscinodon</i> 1, <i>Grimmia</i> 7, <i>Racomitrium</i> 2,	<i>Ptychodium</i> 1
<i>Schistidium</i> 2	<b>Pterigynandraceae</b>
<b>DICRANALES</b>	<i>Habrodon</i> 1, <i>Myurella</i> 1, <i>Pteryginandrum</i> 1
<b>Fissidentaceae</b>	<b>Thuidiaceae</b>
<i>Fissidens</i> 4 (incl. 1 var.)	<i>Thuidium</i> 3
<b>Dicranaceae</b>	<b>Campyliaceae</b>
<i>Dicranella</i> 2, <i>Dicranum</i> 3, <i>Paraleucobryum</i> 1	<i>Campyliadelphus</i> 1, <i>Campylium</i> 1,
<b>Ditrichaceae</b>	<i>Drepanocladus</i> 1, <i>Hygrohypnum</i> 2 (incl. 1
<i>Ceratodon</i> 1, <i>Cheilothela</i> 1, <i>Distichium</i> 1,	var.), <i>Sanionia</i> 1, <i>Warnstorfia</i> 1
<i>Ditrichum</i> 1, <i>Saelania</i> 1	<b>Brachytheciaceae</b>
<b>Rhabdoweisiaceae</b>	<i>Brachytheciastrum</i> 1, <i>Brachythecium</i> 4,
<i>Dichodontium</i> 1, <i>Dicranoweisia</i> 2	<i>Eurhynchium</i> 11 (incl. 2 var.),
<b>POTTIALES</b>	<i>Homalothecium</i> 5 (incl. 1 var.), <i>Isothecium</i> 1,
<b>Pottiaceae</b> (*)	<i>Pseudoscleropodium</i> 1, <i>Rhynchostegiella</i> 3,
<i>Timmia</i> 1, <i>Eucladium</i> 1, <i>Trichostomum</i> 3	<i>Rhynchostegium</i> 7 (incl. 1 var. & 1 form),
(incl. 1 var.), <i>Pleurochaete</i> 1, <i>Tortella</i> 6 (incl. 2	<i>Sciuro-hypnum</i> 1, <i>Scleropodium</i> 1,
var.), <i>Dialytrichia</i> 1, <i>Bryoerythrophyllum</i> 1,	<i>Scorpiurium</i> 2
<i>Pseudocrossidium</i> 1, <i>Hymenostylium</i> 1,	<b>Plagiotheciaceae</b>
<i>Barbula</i> 2, <i>Gymnostomum</i> 3, <i>Didymodon</i> 7,	<i>Plagiothecium</i> 1
<i>Weissia</i> 2, <i>Crossidium</i> 1, <i>Aloina</i> 1, <i>Tortula</i> 11	<b>Fontinalaceae</b>
(incl. 2 var.), <i>Syntrichia</i> 6 (incl. 1 var.)	<i>Fontinalis</i> 1
<b>Cinclidotaceae</b>	<b>Hypnaceae</b>
<i>Cinclidotus</i> 4 (incl. 1 var.)	<i>Campylophyllum</i> 1, <i>Calliergonella</i> 1,
<b>ORTHOTRICHALES</b>	<i>Ctenidium</i> 1, <i>Herzogiella</i> 1, <i>Hypnum</i> 1,
<b>Orthotrichaceae</b>	<i>Orthothecium</i> 1, <i>Platydictya</i> 1, <i>Ptilium</i> 1
<i>Orthotrichum</i> 9 (incl. 1 var.), <i>Ulota</i> 2	<b>Leucodontaceae</b>
	<i>Antitrichia</i> 1, <i>Leucodon</i> 2 (incl. 1 var.)
	<b>Neckeraceae</b>
	<i>Homalia</i> 1, <i>Neckera</i> 3, <i>Thamnobryum</i> 1
	<b>Leptodontaceae</b>
	<i>Leptodon</i> 1
	<b>Anomodontaceae</b>
	<i>Anomodon</i> 3



Table 3. List of synonyms.

The citations in the original works considered have been corrected when wrong, as far as possible. When more than two names are present the last name is the one currently used, the others are synonyms or variants. Synonyms for "excluded taxa" (*i.e.*, those indicated at the end of Table 1) are also included. Some recent synonyms are also included.

**Liverworts**

- Aneura palmata* (Hedw.) Dumort. = *Riccardia palmata* (Hedw.) Carruth.  
*Calypogeia trichomanis* (L.) Corda = *Calypogeia azurea* Stotler & Crotz  
*Chiloscyphus coadunatus* (Sw.) J.J.Engel & R.M.Schust. = *Lophocolea bidentata* (L.) Dumort.  
*Chiloscyphus minor* (Nees) J.J.Engel & R.M.Schust. = *Lophocolea minor* Nees  
*Chiloscyphus profundus* (Nees) J.J.Engel & R.M.Schust. = *Lophocolea heterophylla* (Schrad.) Dumort.  
*Chomiocarpum quadratum* (Scop.) Lindb. = *Preissia quadrata* (Scop.) Nees  
*Clevea hyalina* (Sommerf.) Lindb. = *Athalamya hyalina* (Sommerf.) S.Hatt.  
*Dolichothea silesiaca* (F.Web. & D.Mohr) M.Fleisch. = *Herzogiella seligeri* (Brid.) Z. Iwats.  
*Fegatella conica* (L.) Corda = *Conocephalum conicum* (L.) Dumort.  
*Frullania illyrica* Grolle = *Frullania inflata* Gottsche  
*Haplozia crenulata* (Mitt.) Müll. Frib. = *Aplozia crenulata* (Mitt.) Lindb. = *Jungermannia gracillima* Sm.  
*Haplozia lanceolata* (Nees) Müll. Frib. = *Aplozia lanceolata* (L.) Dumort. = *Jungermannia leiantha* Grolle  
*Jungermannia tristis* Nees = *Jungermannia atrovirens* Dumort.  
*Lophozia badensis* (Gottsche) Schiffn. = *Leiocolea badensis* (Gottsche) Jørg.  
*Lophozia collaris* (Nees) Dumort. = *Leiocolea collaris* (Nees) Schljakov  
*Lophozia heterocolpos* (Thed. ex Hartm.) M.Howe = *Leiocolea heterocolpos* (Thed. ex Hartm.) H.Buch  
*Lophozia turbinata* (Raddi) Steph. = *Leiocolea turbinata* (Raddi) H.Buch  
*Madotheca baueri* Schiffn. = *Porella baueri* (Schiffn.) C.E.O.Jensen  
*Madotheca cordeana* (Hueb.) Dumort. = *Porella cordeana* (Hueb.) Moore  
*Madotheca platyphylla* (L.) Dumort. = *Porella platyphylla* (L.) Pfeiff.  
*Madotheca rivularis* Nees = *Porella cordeana* (Hueb.) Moore  
*Neesiella rupestris* (Nees) Schiffn. = *Mannia triandra* (Scop.) Grolle  
*Oxymitra paleacea* Bisch. ex Lindenb. = *Oxymitra incrassata* (Brot.) Sérgio & Sim-Sim;  
*Pellia fabbronia Raddi* = *Pellia endiviifolia* (Dicks.) Dumort.  
*Plagiochila asplenioides* var. *humilis* Lindenb. = *Plagiochila porelloides* (Torrey ex Nees) Lindenb.  
*Plagiochila asplenioides* var. *minor* Lindenb. = *Plagiochila porelloides* (Torrey ex Nees) Lindenb.  
*Pleuroschisma tricrenata* (Wahlenb.) Dumort. = *Bazzania tricrenata* (Wahlenb.) Lindb.  
*Pleuroschisma trilobatum* (L.) Dumort. = *Bazzania trilobata* (L.) Gray  
*Porella laevigata* (Schrad.) Pfeiff. = *Porella arboris-vitae* (With.) Grolle  
*Preissia commutata* Nees = *Preissia quadrata* (Scop.) Nees  
*Radula lindbergiana* Gottsche ex J.B.Jack = *Radula lindbergiana* Gottsche ex C. Hartm.  
*Riccardia pinguis* (L.) Gray = *Aneura pinguis* (L.) Dumort.  
*Riccia bischoffii* Hueb. = *Riccia ciliifera* Link ex Lindenb.  
*Scapania nemorosa* Dumort. = *Scapania nemorea* (L.) Grolle  
*Solenostoma schiffneri* (Loitl.) Müll. Frib. = *Jungermannia polaris* Lindb.  
*Solenostoma triste* (Nees) Müll. Frib. = *Jungermannia atrovirens* Dumort.  
*Targionia hypophylla* v. *fimbriata* Müll. Frib. = *Targionia hypophylla* L.

**Mosses**

- Acrocladium cuspidatum* (Hedw.) Lindb. = *Calliergonella cuspidata* (Hedw.) Loeske  
*Amblystegium filicinum* (Hedw.) De Not. = *Cratoneuron filicinum* (Hedw.) Spruce  
*Amblystegium riparium* (Hedw.) Schimp. = *Leptodictyum riparium* (Hedw.) Warnst.  
*Amblystegium subtile* (Hedw.) Schimp. = *Platydictya subtilis* (Hedw.) Crum  
*Amblystegium varium* (Hedw.) Linbd. = *Hygroamblystegium varium* (Hedw.) Mönk.  
*Barbula acuta* (Brid.) Brid. = *Didymodon acutus* (Brid.) K. Saito  
*Barbula fallax* Hedw. = *Didymodon fallax* (Hedw.) Zander  
*Barbula gracilis* Schwägr. = *Didymodon acutus* (Brid.) K. Saito  
*Barbula lurida* (Hornsch.) Lindb. (≠ *Barbula lurida* Hornsch.) = *Didymodon luridus* Hornsch. ex Spreng.  
*Barbula revoluta* Brid. = *Pseudocrossidium revolutum* (Brid.) Zander  
*Barbula sinuosa* (Wils.) Braithw. = *Barbula sinuosa* (Mitt.) Grav. = *Didymodon sinuosus* (Mitt.) Delogne

Table 3. List of synonyms.

The citations in the original works considered have been corrected when wrong, as far as possible. When more than two names are present the last name is the one currently used, the others are synonyms or variants. Synonyms for “excluded taxa” (*i.e.*, those indicated at the end of Table 1) are also included. Some recent synonyms are also included.

- Barbula tophacea* (Brid.) Mitt. = *Didymodon tophaceus* (Brid.) Lisa  
*Barbula unguiculata* var. *obtusifolia* Bruch & Schimp. = *Barbula obtusifolia* Schultz = *Barbula unguiculata* f. *obtusifolia* Mönk. [Note: *Barbula obtusifolia* Schultz ≠ *Barbula obtusifolia* Schwägr. = *Tortula obtusifolia* (Schwägr.) Mathieu]  
*Barbula vinealis* Brid. = *Didymodon vinealis* (Brid.) Zander  
*Bartramia oederi* Brid. = *Plagiopus oederianus* (Sw.) Crum & Anders.  
*Brachythecium glaciale* var. *gelidum* (Bryhn) Mönk. = *Sciuro-hypnum glaciale* var. *gelidum* (Bryhn) Ochyra & \_arnowicz  
*Brachythecium velutinum* (Hedw.) Schimp. = *Brachytheciastrum velutinum* (Hedw.) Ignatov & Huttunen  
*Bryum atropurpureum* (Wahlenb.) Wahlenb. = *Pohlia atropurpurea* (Wahlenb.) H.Lindb.  
*Bryum caespiticum* var. *kunzei* (Hornsch.) Warnst. = *Bryum kunzei* Hornsch.  
*Bryum capillare* var. *meridionale* Schimp. = *Bryum capillare* subsp. *meridionale* (Schimp.) Podp. = *Bryum capillare* Hedw.  
*Bryum cirratum* (Hedw.) With. = *Dicranoweisia cirrata* (Hedw.) Lindb. ex Milde  
*Bryum elegans* var. *carinthiacum* (Schimp.) Breidl. = *Bryum stirtonii* Schimp.  
*Bryum murale* Wils. ex Hunt. = *Bryum radiculosum* Brid.  
*Bryum pendulum* (Hornsch.) Schimp. = *Bryum algovicum* Sendtn. ex Müll. Hal.  
*Bryum provinciale* H.Philib. = *Bryum canariense* var. *provinciale* (H.Philib.) Husn.  
*Bryum ventricosum* Dicks. = *Bryum pseudotriquetrum* (Hedw.) Gaertn. Meyer & Scherb.  
*Buxbaumia indusiata* Brid. = *Buxbaumia viridis* (Moug. ex Lam. & DC.) Moug. & Nestl.  
*Calliergon cuspidatum* (Hedw.) Kindb. = *Calliergonella cuspidata* (Hedw.) Loeske  
*Camptothecium aureum* (Lag.) Schimp. = *Homalothecium aureum* (Lag. ex Spruce) H.Rob.  
*Camptothecium lutescens* Bruch & Schimp. = *Homalothecium lutescens* (Hedw.) H.Rob.  
*Camptothecium lutescens* var. *fallax* (Philib.) Breidl. = *Homalothecium lutescens* var. *fallax* (Philib. ex Schimp.) Hedenäs & Söderstr.  
*Camptothecium sericeum* (Hedw.) Kindb. = *Homalothecium sericeum* (Hedw.) Schimp.  
*Camptothecium sericeum* f. *tenella* = *Homalothecium sericeum* f. *tenellum* Limpr. = *Homalothecium sericeum* (Hedw.) Schimp.  
*Campyllum calcareum* Crundw. & Nyh. = *Campylophyllum calcareum* (Crundw. & Nyh.) Heden.  
*Campyllum protensum* f. *tenera* Mönk. (= f. *tenua* Podp.) = *Campyllum protensum* (Brid.) Kindb.  
*Catharinae undulata* var. *minor* F.Weber & D.Mohr = *Atrichum undulatum* var. *minus* (Hedw.) Paris  
*Ceratodon chloropus* (Brid.) Brid. = *Cheilothela chloropus* (Brid.) Lindb. ex Broth.  
*Chrysohypnum chrysophyllum* (Brid.) Loeske = *Campyliadelphus chrysophyllum* (Brid.) R.S.Chopra  
*Cinclidotus mucronatus* (Brid.) Guim. = *Dialytrichia mucronata* (Brid.) Broth.  
*Cirriphyllum crassinervium* (Taylor) Loeske & M.Fleisch. = *Eurhynchium crassinervium* (Taylor) Schimp.  
*Cratoneuron commutatum* (Hedw.) Roth. = *Palustriella commutata* (Hedw.) Ochyra  
*Cratoneuron commutatum* var. *falcatum* (Brid.) Mönk. = *Palustriella falcata* (Brid.) Hedenäs  
*Cratoneuron commutatum* var. *irrigatum* (Zett.) Mönk. = *Palustriella commutata* var. *fluctuans* (Schimp.) Ochyra  
*Cratoneuron commutatum* var. *ptychodioides* (G.Roth) Mönk. = *Palustriella commutata* var. *ptychodioides* (G.Roth) Ochyra  
*Cratoneuron decipiens* (De Not.) Loeske = *Palustriella decipiens* (De Not.) Ochyra  
*Cratoneuron filicinum* f. *gracilescens* (Schimp.) Mönk. = *Cratoneuron filicinum* var. *gracilescens* (Brid.) G.Roth = *Cratoneuron filicinum* (Hedw.) Spruce  
*Cratoneuron filicinum* var. *fallax* (Brid.) G.Roth. = *Cratoneuron filicinum* var. *atrovirens* (Brid.) Ochyra  
*Cratoneurum* Spruce ex I. Hagen = *Cratoneuron* (Sull.) Spruce  
*Crossidium squamigerum* (Viv.) Jur. = *Crossidium squamiferum* (Viv.) Jur. [Orthographic variants]  
*Desmatodon latifolius* (Hedw.) Brid. = *Tortula eucalyptata* Lindb.  
*Dialytrichia brebissonii* (Brid.) Limpr. = *Dialytrichia mucronata* (Brid.) Broth.  
*Dicranum longifolium* Ehrh. ex Hedw. = *Paraleucobryum longifolium* (Ehrh. ex Hedw.) Loeske

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- Dicranum scoparium* f. *orthophyllum* (Brid.) Mönk. = *Dicranum scoparium* var. *orthophyllum* Brid.  
= *Dicranum scoparium* Hedw.
- Dicranum undulatum* Ehrh. = *Dicranum polysetum* Sw. [ $\neq$  *Dicranum undulatum* Schrad. ex Brid.  
= *Dicranum bergeri* Bland.]
- Ditrichum flexicaule* (Schleich.) Hampe = *Ditrichum flexicaule* (Schwägr.) Hampe
- Drepanocladus fluitans* (Hedw.) Warnst. = *Warnstorfia fluitans* (Hedw.) Loeske
- Encalypta contorta* Hoppe ex Lindb. = *Encalypta streptocarpa* Hedw.
- Encalypta rhabdocarpa* Schwägr. = *Encalypta rhabdocarpa* Schwägr. (Orthographic variants)
- Encalypta rhabdocarpa* var. *leptodon* Lindb. = *Encalypta rhabdocarpa* var. *trachymitria* (Ripart) Wijk & Margad.
- Erythrophyllum rubellum* Hilp. = *Bryoerythrophyllum recurvirostre* (Hedw.) P.C.Chen
- Eurhynchium circinatum* (Brid.) Schimp. = *Scorpiurium circinatum* (Brid.) M.Fleisch. & Loeske
- Eurhynchium circinatum* var. *deflexifolium* (Solms) Boul. = *Scorpiurium deflexifolium* (Solms.) M.Fleisch. & Loeske
- Eurhynchium striatum* var. *meridionale* Schimp. = *Eurhynchium meridionale* (Schimp.) De Not.
- Eurhynchium strigosum* (Hoffm. ex F.Weber & D.Mohr) Schimp. = *Eurhynchium pulchellum* (Hedw.) Jenn.
- Eurhynchium strigosum* var. *diversifolium* (Schleich.) Mol. & Lorentz. = *Eurhynchium pulchellum* var. *diversifolium* (Schimp.) C.E.O.Jens.
- Eurhynchium swartzii* (Turn.) Curn. = *Erhynchium hians* (Hedw.) Sande Lac.
- Eurhynchium swartzii* var. *abbreviatum* Turn. = *Eurhynchium schleicheri* (Hedw. f.) Jur.
- Eurhynchium swartzii* var. *atrovirens* (Brid.) Dixon = *Erhynchium hians* (Hedw.) Sande Lac.
- Eurhynchium swartzii* var. *robustum* Limpr. = *Eurhynchium hians* var. *rigidum* (Boul.) Düll
- Fissidens cristatus* f. *mucronata* Breidl. = *Fissidens dubius* var. *mucronatus* (Breidl. ex Limpr.) Kartt., Heden. & Söderstr.
- Fissidens cristatus* Wils. ex Mitt. = *Fissidens dubius* P.Beauv.
- Funaria dentata* Crome = *Funaria muhlenbergii* Turn.
- Funaria mediterranea* Lindb. = *Funaria muhlenbergii* Turn.
- Grimmia apocarpa* Hedw. = *Schistidium apocarpum* (Hedw.) Bruch & Schimp.
- Grimmia apocarpa* var. *epilosa* (Warnst.) Paris = *Grimmia apocarpa* Hedw.
- Grimmia leucophaea* Grev. = *Grimmia laevigata* (Brid.) Brid.
- Gymnostomum calcareum* var. *viridulum* (Brid.) Bruch & Schimp. = *Gymnostomum viridulum* Brid.
- Gymnostomum rupestre* Schleich. ex Schwägr. = *Gymnostomum aeruginosum* Sm.
- Herpetineuron toccocae* (Sull. & Lesq.) Cardot = *Anomodon viticulosus* (Hedw.) Hook. & Taylor
- Hygrohypnum palustre* var. *subsphaericarpon* (Schleich. ex Brid.) Loeske = *Hygrohypnum luridum* var. *subsphaericarpon* (Schleich. ex Brid.) C.E.O.Jens.
- Hylacomium schreberi* (Willd. ex Brid.) De Not. = *Pleurozium schreberi* (Willd. ex Brid.) Mitt.
- Hylacomium triquetrum* (Hedw.) Schimp. = *Rhytidadelphus triquetrus* (Hedw.) Warnst.
- Hymenostomum tortile* (Schwägr.) Bruch & Schimp. = *Weissia condensa* (Voit ex Sturm) Lindb.
- Hymenostylium curvirostre* var. *cataractum* (Schimp.) Limpr. = *Hymenostylium recurvirostre* (Hedw.) Dixon
- Hypnum commutatum* Hedw. = *Palustriella commutata* (Hedw.) Ochyra
- Hypnum falcatum* Brid. = *Palustriella commutata* (Hedw.) Ochyra
- Hypnum filicinum* Hedw. = *Cratoneuron filicinum* (Hedw.) Spruce
- Hypnum sommerfeltii* Myr. = *Campylophyllum sommerfeltii* (Myr.) Heden.
- Isohectium filescens* (Brid.) Mönk. = *Eurhynchium striatulum* (Spruce) Schimp.
- Isohectium myurum* Brid. = *Isohectium alopecuroides* (Lam. ex Dubois.) Isov.
- Lescuraea atrovirens* (Dicks. ex Brid.) Kindb. = *Pseudoleskea incurvata* (Hedw.) Loeske
- Lescuraea radicata* (Mitt.) Mönk. = *Pseudoleskea radicata* (Mitt.) Macoun & Kindb.
- Leskea catenulata* (Brid. ex Schrad.) Mitt. = *Pseudoleskeella catenulata* (Brid. ex Schrad.) Kindb.
- Mniobryum albicans* (Wahlenb.) Limpr. = *Pohlia wahlenbergii* (F.Weber & D.Mohr) A.L.Andrews
- Mnium affine* Bland. = *Plagiomnium affine* (Bland. ex Funck) T.J.Kop.
- Mnium cuspidatum* Hedw. = *Plagiomnium cuspidatum* (Hedw.) T.J.Kop.

Table 3. List of synonyms.

The citations in the original works considered have been corrected when wrong, as far as possible. When more than two names are present the last name is the one currently used, the others are synonyms or variants. Synonyms for “excluded taxa” (*i.e.*, those indicated at the end of Table 1) are also included. Some recent synonyms are also included.

- Mnium orthorrhynchum* Brid. = *Mnium thomsonii* Schimp.  
*Mnium punctatum* Hedw. = *Rhizomnium punctatum* (Hedw.) T.J.Kop.  
*Mnium rostratum* Schrad. = *Plagiomnium rostratum* (Schrad.) T.J.Kop.  
*Mnium undulatum* Hedw. = *Plagiomnium undulatum* (Hedw.) T.J.Kop.  
*Myurella julacea* var. *scabrifolia* Lindb. ex Limpr. = *Myurella julacea* (Schwägr.) Schimp.;;  
*Neckera besseri* (Lobarz.) Jur. = *Homalia besseri* Lobarz.  
*Orthotrichum leiocarpum* Bruch & Schimp. = *Orthotrichum striatum* Hedw.  
*Orthotrichum sardagnanum* Vent. = *Orthotrichum cupulatum* var. *sardagnanum* (Vent.) Vent.  
*Orthotrichum saxatile* Brid. = *Orthotrichum anomalum* Hedw.  
*Orthotrichum saxatile* Schimp. = *Orthotrichum anomalum* Hedw.  
*Orthotrichum striatum* var. *shawii* Wils. = *Orthotrichum shawii* Wils. in Schimp.  
*Oxyrrhynchium hians* var. *rigidum* (Boul.) Ochyra & Żarnowiec = *Eurhynchium hians* var. *rigidum* (Boul.) Düll  
*Plagiopus oederi* (Brid.) Limpr. = *Plagiopus oederianus* (Sw.) Crum & Anders.  
*Plagiothecium silesiacum* (F.Weber & D.Mohr) Schimp. = *Herzogiella seligeri* (Brid.) Z.Iwats.  
*Plagiothecium silvaticum* Bruch & Schimp. in Lindb. = *Plagiothecium sylvaticum* (Brid.) Bruch & Schimp. = *Plagiothecium nemorale* (Mitt.) A. Jaeger  
*Platyhypnidium riparioides* (Hedw.) Podp. = *Rhynchostegium riparioides* (Hedw.) Cardot  
*Platyhypnidium rusciforme* (Necker) Fleisch. = *Rhynchostegium riparioides* (Hedw.) Cardot  
*Platyhypnidium rusciforme* var. *alopecuroides* Brid. = *Rhynchostegium alopecuroides* (Brid.) A.J.E.Smith  
*Platyhypnidium rusciforme* var. *atlanticum* Brid. = *Rhynchostegium riparioides* f. *atlanticum* (Brid.) Düll  
*Pogonatum alpinum* (Hedw.) Roehl. = *Polytrichastrum alpinum* (Hedw.) G.L.Sm.  
*Polytrichum juniperinum* Willd. = *Polytrichum juniperinum* Hedw.  
*Polytrichum piliferum* Schreb. = *Polytrichum piliferum* Hedw.  
*Pottia heimii* (Hedw.) Schimp. = *Desmatodon heimii* (Hedw.) Mitt.  
*Pottia lanceolata* var. *angustata* (Bruch & Schimp.) Müll. Hal = *Tortula lanceola* var. *angustata* (Bruch & Schimp.) Zander  
*Pseudoleskea atrovirens* (Dicks.) Schimp. = *Pseudoleskea incurvata* (Hedw.) Loeske  
*Pseudoleskea illyrica* G\_owacki. = *Pseudoleskea saviana* (De Not.) Latzel  
*Racomitrium canescens* var. *ericoides* (Weber) Schimp. = *Racomitrium ericoides* (Weber ex Brid.) Weber  
*Rhynchostegiella algeriana* (Brid.) Broth. = *Rhynchostegiella tenella* (Dicks.) Limpr.  
*Rhynchostegiella algeriana* var. *litorea* (De Not.) Mönk. = *Rhynchostegiella litorea* (De Not.) Limpr.  
*Rhynchostegium rusciforme* (Neck.) Schimp. = *Rhynchostegium riparioides* (Hedw.) Cardot  
*Rhynchostegium tenellum* (Dicks.) Schimp. = *Rhynchostegiella tenella* (Dicks.) Limpr.  
*Rosulabryum capillare* (Hedw.) J.R.Spencer = *Bryum capillare* Hedw.  
*Sanionia uncinata* f. *plumosa* (Schimp.) Mönk. = *Sanionia uncinata* (Hedw.) Loeske  
*Schistidium alpicola* (Hedw.) Limpr. = *Schistidium agassizii* Sull. & Lesq. ex Sull.  
*Scleropodium illecebrum* Schimp. = *Scleropodium touretii* (Brid.) L.Koch  
*Scleropodium purum* (Hedw.) Limpr. = *Pseudoscleropodium purum* (Hedw.) M.Fleisch.  
*Sphagnum cymbifolium* var. *pallescens* Warnst. = *Sphagnum palustre* L.  
*Stereodon cupressiformis* (Hedw.) Brid. ex Mitt. = *Hypnum cupressiforme* Hedw.  
*Stereodon cupressiformis* var. *ericetorum* Schimp. = *Hypnum jutlandicum* Holmen & Warncke  
*Syntrichia inermis* (Brid.) Bruch = *Tortula inermis* (Brid.) Mont.  
*Syntrichia montana* Nees in Raab = *Syntrichia intermedia* Brid.  
*Syntrichia ruralis* ssp. *calcicolens* (W.A.Kramer) Düll = *Syntrichia calcicola* J.J.Amann  
*Syntrichia ruralis* var. *calcicola* Grebe = *Syntrichia calcicola* J.J.Amann  
*Syntrichia ruralis* var. *ruraliformis* (Besch.) Husn. ex T. Durand = *Syntrichia ruraliformis* (Besch.) Cardot  
*Syntrichia ruralis* var. *ruraliformis* Dixon = *Syntrichia ruraliformis* (Besch.) Cardot  
*Syntrichia subulata* (Hedw.) F.Weber & D.Mohr = *Tortula subulata* Hedw.  
*Thamnium alopecurum* (Hedw.) Schimp. = *Thamnobryum alopecurum* (Hedw.) Nieuwl. ex Gangulee  
*Tortella squarrosa* (Brid.) Limpr. = *Pleurochaete squarrosa* (Brid.) Lindb.

Table 3. List of synonyms.

The citations in the original works considered have been corrected when wrong, as far as possible. When more than two names are present the last name is the one currently used, the others are synonyms or variants. Synonyms for "excluded taxa" (*i.e.*, those indicated at the end of Table 1) are also included. Some recent synonyms are also included.

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*Tortella viridiflava* (De Not.) Broth. = *Tortella flavovirens* var. *viridiflava* (De Not.) Cas.-Gil.  
*Tortula aestiva* (Brid. ex Hedw.) P.Beauv. = *Tortula muralis* var. *aestiva* Brid. ex Hedw.  
*Tortula montana* (Nees) Lindb. ( $\neq$  *Tortula montana* Mitt.) = *Syntrichia intermedia* Brid.  
*Tortula montana* var. *calva* (Dur. & Sag.) Limpr. = *Syntrichia intermedia* var. *calva* (Dur. & Sag.) Delogn.  
*Tortula montenegrina* (Breidl. & Szysz.) Broth. = *Tortula lingulata* subsp. *montenegrina* (Breidl. & Szysz.)  
 Podp.  
*Tortula muralis* f. *incana* Sapegen = *Tortula muralis* Hedw.  
*Tortula muralis* var. *rupestris* A. Chev. = *Barbula muralis* var. *rupestris* Schultz = *Tortula muralis* Hedw.  
*Tortula obtusifolia* var. *brevifolia* (Schimp.) G. Roth = *Tortula obtusifolia* (Schwägr.) Mathieu  
*Tortula ruralis* (Hedw.) P.Gaertn., B.Mey. & Scherb. = *Syntrichia ruralis* (Hedw.) F.Weber & D.Mohr  
*Tortula ruralis* subsp. *ruraliformis* (Besch.) Dixon = *Syntrichia ruraliformis* (Besch.) Cardot  
*Trichostomum brevifolium* Sendtn. ex Müll. Hal. = *Trichostomum crispulum* var. *brevifolium* (Müll. Hal.)  
 Bruch & Schimp.  
*Trichostomum mutabile* Bruch = *Trichostomum brachydontium* Bruch  
*Ulota americana* Mitt. = *Ulota curvifolia* (Wahlenb.) Lilj.  
*Weissia crispata* (Nees & Hornsch.) Müll. Hal. = *Weissia controversa* var. *crispata* (Nees & Hornsch.) Nyh.  
*Weissia tortilis* (Schwägr.) Müll. Hal. = *Weissia condensa* (Voit ex Sturm) Lindb.  
*Weissia viridula* Hedw. ex Brid. = *Weissia controversa* Hedw.

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The fluctuation of borders in earlier times is one of the reasons for the exclusion of several records which are outside the present-day borders of Albania (which have not changed since 1921, however). Many records from Szepesfalvy (1926), in particular those which are based on the collections made by Andrasowsky in 1916-17, had to be excluded, as what he called Northern Albania referred actually to areas in Montenegro or Kosova. Some works which included in their title Albania (or, more generally, the Balkans) have been consulted also, but in several cases there were no records of bryophytes for Albania in them. These have been reported too. For three taxa the only record of their presence in Albania is by Düll (1984, 1985). There is no original source, and no locality, and therefore, these have not been included in the list (see also Düll's notes, later). The most recent paper on the liverworts of Albania is that of Bischler *et al.* (1980), which reports about 59 taxa, some of them indicated as new to Albania, although they had already been collected at the turn of the 19<sup>th</sup> Century and reported in works (Baumgartner, 1915; Höhnelt, 1893, 1894) apparently overlooked by Bischler *et al.* (1980).

The determination of the actual localities from the spellings used by the original authors has presented several problems, not least the lack of an official Albanian alphabet, used by all speakers of Albanian, which was agreed upon only in 1915, but entered into general use much later. The existence of two main varieties of Albanian (Gheg and Tosk, the last one becoming the "standard form" only after 1945) sometimes added to these difficulties. Therefore, many localities in the works consulted were indicated with their Turkish language equivalents (*e.g.*, Ipek instead of the currently used Pejë/Peć [Albanian/Serbian, respectively; a town in Kosova]), or with spellings based on German or Slavic languages (Serbian mainly). The use of maps and of gazetteers (for Albania and the

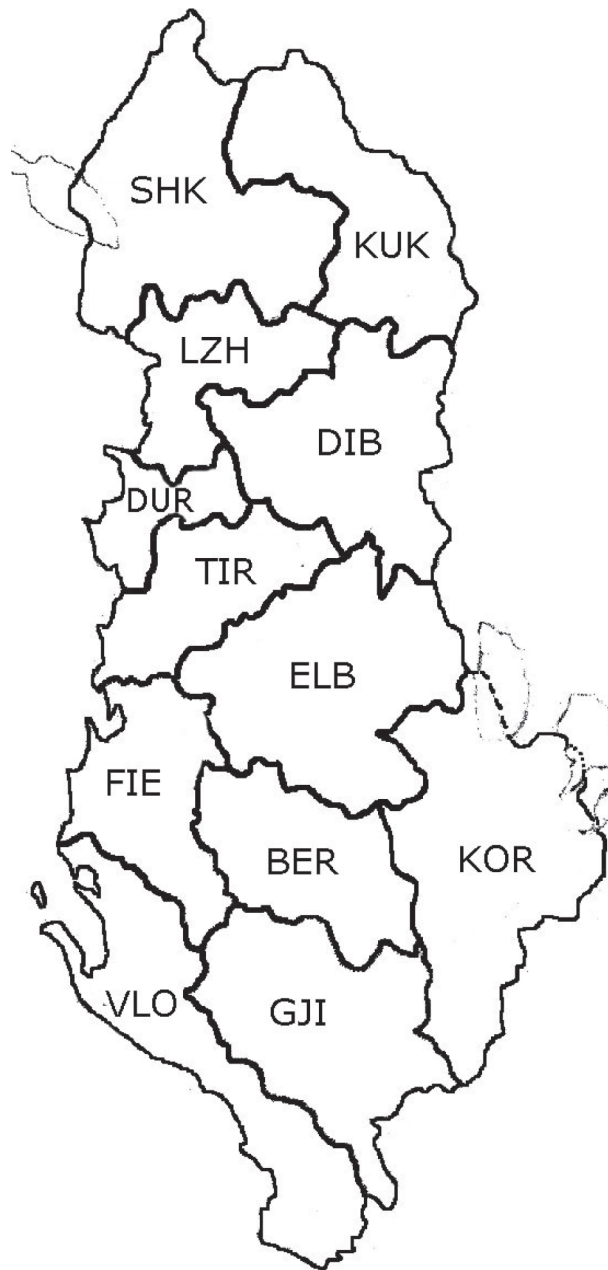


Fig. 1. The administrative boundaries of Albanian Prefectures with their names. – The Prefectures are indicated with the following acronyms, from North to South: SHK = Shkodër; KUK = Kukës; LZH = Lezhë; DIB = Dibër; DUR= Durrës; TIR = Tiranë; ELB = Elbasan; FIE = Fier; KOR = Korçë; BER = Berat; VLO = Vlorë; GJI = Gjirokastër. (Boundaries according to: Harta Administrative [GCC, 1999]).

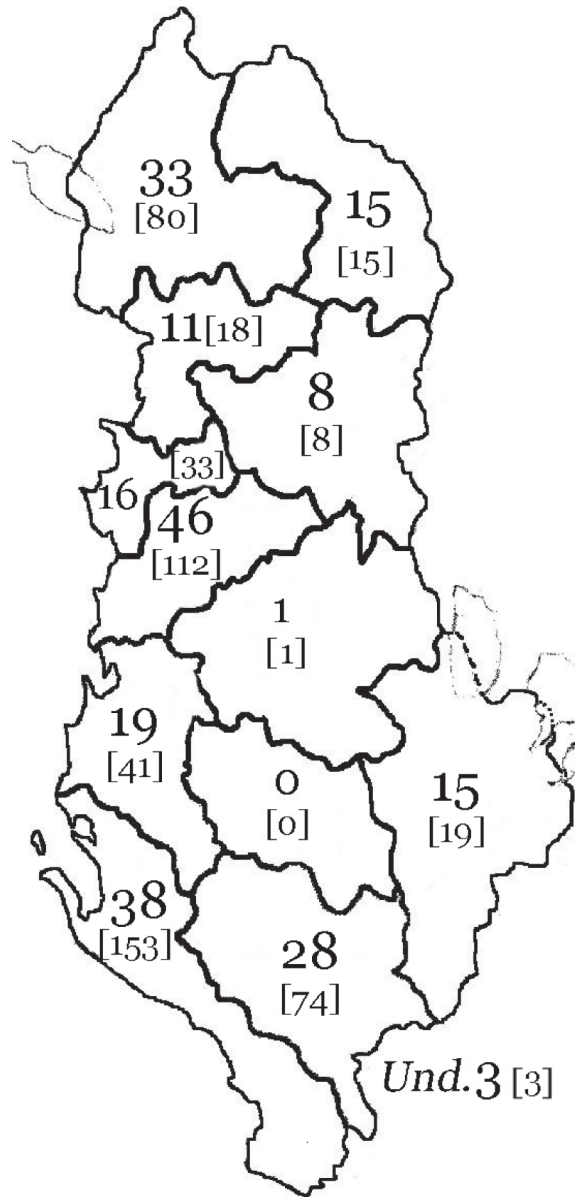


Fig. 2. Number of liverworts (including hornworts) taxa and in brackets number of collections (records). Total for Albania 89 [559]. - Und. = Undetermined, utilized in a few instances when localization was not possible (e.g., "Everywhere in mountains above 1000 m").

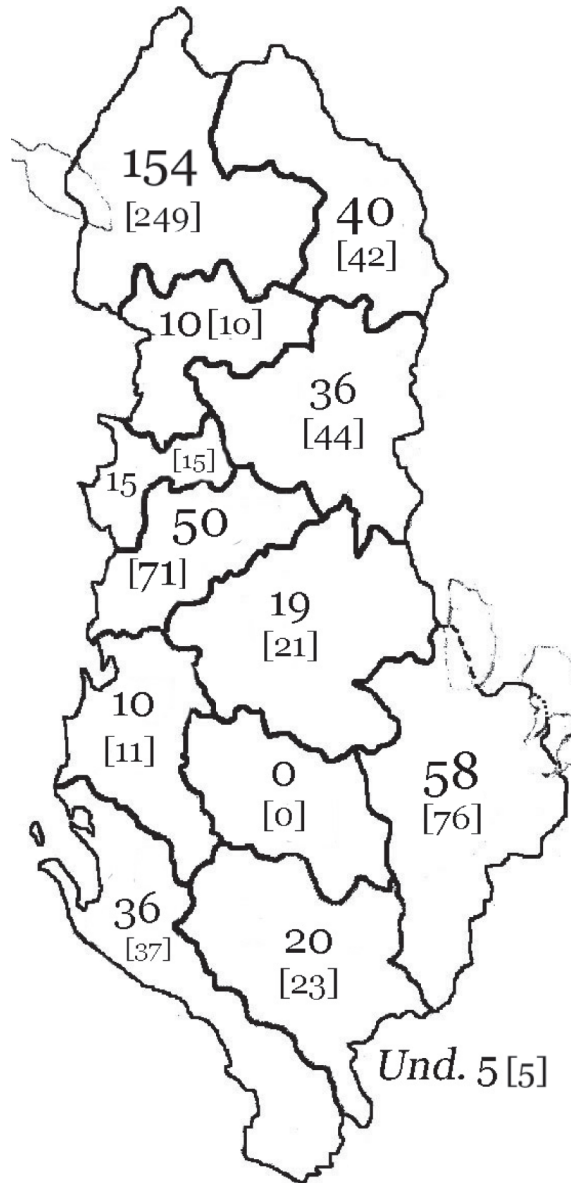


Fig. 3. Number of moss taxa and in brackets number of collections (records); Total for Albania 238 [604]. - Und. = Undetermined, utilized in a few instances when localization was not possible (e.g., "Everywhere in mountains above 1000 m").



bordering countries) has allowed us, however, to locate all localities with the exception of one. The use of a series of topographic maps of Albania at the scale 1:50,000 published by the Russian Army between 1974 and 1988 also has been useful, even though the spellings of Albanian names are reported there in their phonetic rendering in the cyrillic script (Electronic Access from UC Berkeley Library [<http://www.lib.berkeley.edu/EART/albania/albania50k.html>]).

A data base of the bryoflora of Albania, based at the Laboratory of Bryology (Dipartimento di Biologia, Difesa e Biotecnologie Agroforestali) of the University of Basilicata, has been prepared, and it would be appreciated if all new records (and related publications) would be communicated to the corresponding author to keep the data base up to date.

## RESULTS AND DISCUSSION

A Check-list of the Bryophytes of Albania is given in Table 1. We report here 327 taxa (species, subspecies, varieties and in a few instances, forms), which almost doubles the number of records for Albania as indicated by Düll (1983, 1984, 1985), which consisted of 175 entities. In particular, 238 mosses are reported (109 in Düll, 1984, 1985, 1992, including the 4 excluded herein), 86 liverworts, and 3 hornworts (63 + 3 in Düll, 1983). The taxa indicated by Söderström *et al.* (2002), with the exclusion of three of them, are the same we report here. The check-list is based on a total of 1207 records (including 44 records from localities reported in the works considered as in Albania, but actually outside present-day Albanian borders, and which have been indicated in Table 1 under "Records excluded"). All records, without a valid location in Albania, have been excluded.

The actual number of bryophytes species in Albania is very likely much higher than that reported here (Bego & Koni, 1999, estimate it at about 500 species, a number probably not far from reality). This is suggested by the number of taxa in neighboring countries (see *e.g.*, Düll, 1995; Sabovljević *et al.*, 2001; Blockeel *et al.*, 2002; Pavletić, 1968, Sabovljević, 2004) as well as the floristic and geographic diversity of the country itself, an important meeting area between the Mediterranean, the central European, and the Pontic floristic elements (for more information on these characteristics refer also to Colacino (2004) and the references indicated therein).

### Excluded bryophyte taxa

Nineteen taxa, excluded from the Albanian Flora, are reported at the end of Table 1. *Campylophyllum calcareum* (Crundw. & Nyholm) Hedenäs, *Didymodon cordatus* Jur., *Didymodon vinealis* var. *flaccida* (Bruch & Schimp.) Zander, and *Hypnum cupressiforme* var. *lacunosum* Brid., reported in Düll (1983, 1985), have no indication of any voucher or locality and have therefore been excluded (see also the notes by Düll at the end of Table 1). *Grimmia hartmanii* var. *montenegrina* Beck & Szysz., reported for Albania by Podpěra (1954) and Düll (1984), is actually from Montenegro. The records of *Atrichum undulatum* var. *minus* (Hedw.) Paris, *Barbula unguiculata* f. *obtusifolia* Mönk., *Desmatodon heimii* (Hedw.) Mitt., *Fissidens adianthoides* Hedw., *Hypnum julandicum* Holmen & Warncke, *Thuidium abetinum* (Hedw.) Schimp., *Thuidium tamariscinum*

(Hedw.) Schimp., and *Tortula mucronifolia* Schwägr., reported for Albania, are actually from localities in Kosova. The records of *Pogonatum aloides* var. *x minimum* (Crome) Molendo, *Tortula lingulata* subsp. *montenegrina* (Breidl. & Szysz.) Podp., *Weissia controversa* var. *crispata* (Nees & Hornsch.) Nyh., and *Leiocolea heterocolpos* (Thed. ex Hartm.) H.Buch., also reported for Albania, are actually from localities in Montenegro.

Three taxa reported for Albania by Söderström *et al.* (2002) have also been excluded: *Porella obtusata* (Taylor) Trevis, *Riccia lamellosa* Raddi, both without indication of any voucher or locality, and *Leiocolea heterocolpos* (Thed. ex Hartm.) H.Buch, whose report is based on the same record by Szepesfalvy (1926), which refers to a locality in Montenegro. For more details refer to the notes at the end of Table 1.

### Excluded Works

The following works refer in their title to the Balkan area, or to Albania, in none of them, however, records of bryophytes for Albania are to be found. In particular, Ade & Koppe (1955) report species from Macedonia, Greece, Bulgaria, Serbia, and southern Italy, near Naples, while none is reported from Albania. Baumgartner (1914a, 1914b) reports several bryophytes from the Island of Corfu (Greece), while his collections from localities on the adjacent coast of Albania do not include any bryophytes. Vilhelm (1923) reports species from northern Montenegro only. Weiss (1866) reports only Vascular Plants from Albania. Düll (1996), eventually, cites a work by Unger (1862) for Albania. We have not been able to locate it; its title, however, seems to refer to areas south of Albania.

### Systematic synopsis of Albanian bryophytes (Table 2)

Arrangement follows Crandall-Stotler & Stotler (2000) for liverworts. Given the state of flux of hornworts taxonomy (Renzaglia & Vaughn, 2000), and considered there are only two genera of this group in our check-list, we follow the traditional arrangement of Grolle & Long (2000). For mosses the arrangement is according to Buck and Goffinet (2000), with the exception of Pottiaceae arranged according to Zander (1993). We differ from Grolle & Long (2000) in considering the bryophytes made up by three independent lineages (Divisions): Bryophyta (Mosses), Marchantiophyta (Liverworts), and Anthocerotophyta (Hornworts). We report for Albania 141 genera and 62 families of bryophytes (s.l.).

### Synonyms (Table 3)

This list of synonyms is based on those found in the original sources, with a few additions (*e.g.*, recent synonymies). Errors in the original citations have been corrected, as far as possible.

### Discussion

Albania is still a relatively unexplored area in Europe, not all areas within that country, however, are equally unknown from a bryological standpoint. Coastal areas, as well as those near Tirana and near Scutari (Shkodër), have been more

frequently visited and collected. The less known areas appears to be the Northern Alps, the areas near the border with Kosova, and the internal areas of Berat and Elbasan. Even for those areas with the highest numbers of mosses and liverworts (and hornworts), as indicated in figures 2 and 3, these have been usually collected along the roads and near the major inhabited areas (with a few notable exceptions). A description of the characteristics of the bryophyte flora of Albania (as attempted in Colacino, 2004) is, therefore, probably still premature, even though it appears there is a prevalence of moss taxa with a central European distribution, followed by boreal and sub-boreal ones (Colacino, 2004). This is confirmed also by the results of Bischler *et al.* (1980) who found, for liverworts, a high number of central European taxa also (even though they did collect mainly in coastal areas). This is in opposition to the characteristics of the vascular flora which is made up prevalently by Mediterranean (and Balkan) elements (see, for instance Bego & Koni, 1999; Vangjeli *et al.*, 1995). As reported by Stewart (1995), it is likely that the northern mountains have a bryophyte flora typical of Balkan mountains, with possibly rare species and arctic-alpine relicts. Interesting (and bryologically almost unexplored) areas on the Adriatic Coast (including the sand dunes and lagoon of the National Park of Divjaka) are under severe pressure because of human exploitation, and it is not known for how long (and if) they will be effectively protected (see also Leone *et al.*, 2003, for recent data on Divjaka Lagoon).

According to Stewart (1995), there are nine bryophyte species of particular conservation interest in Albania: the only locally endemic species, the rare (R) liverwort *Frullania illyrica* Grolle, is now included in *F. inflata* Gottsche, with a wider distribution, and whose status is Vulnerable (V) according to Schumacker & Váňa (2005). There are four other liverworts, *Athalamia spathysii* (Lindenb.) S. Hatt., *Mannia triandra* (Scop.) Grolle, *Riccia trabutiana* Steph., all with the status of rare according to the European Red List, and the insufficiently known (K) *Marchantia palacea* Bertol. (but not threatened – NT, according to Schumacker & Váňa, 2005). Out of the four mosses cited therein, *Tortula lingulata* Lindb. (K) is known from a single locality which we found to be outside the present borders of the country (actually we report *Tortula lingulata* subsp. *montenegrina* (Breidl. & Szysz.) Podp., which is considered by some authors (*e.g.* Düll, 1984) as synonym of *Tortula lingulata* Lindb.). The other mosses are *Neckera cephalonica* Jur. & Unger. (K), *Buxbaumia viridis* (Moug. ex Lam. & DC.) Moug. & Nestl. (V), and *Tortula solmsii* (Schimp.) Limpr. (R), the latter collected in Albania only once, more than a century ago (Höhnel, 1893). There are no data available on bryophyte conservation at the national level, the Red Data Book for Albania (Vangjeli *et al.*, 1995) did not include bryophytes.

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