

# Contribution to the bryophyte flora of Albania

Carmine Colacino

Laboratorio di Briologia, Scuola di Scienze Agrarie, Forestali, Alimentari e Ambientali. Università degli Studi della Basilicata. Viale Ateneo Lucano 10. 85100 Potenza. Italy; e-mail: bryology@gmail.com

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**Abstract.** Fourteen new taxa are reported as new to Albania: 60 at the regional level and 18 confirmations of pre-1950 records. The total number of taxa reported for Albania is now 548, which stands for an increase of almost 75% since the publication of the preliminary checklist in 2006.

**Key words:** Albania, Balkans, bryophytes, checklist, floristics, new records

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## Introduction

Albania still represents one of the less known regions of Europe in relation to its bryophyte flora, as it has been already remarked in earlier papers (Colacino 2004, 2009; Colacino & Sabovljević 2006). A preliminary checklist based on literature references was prepared for the assessment of several collections made during field trips in Albania in preceding years (part of which are reported here). Several of the older surveys were carried out when Albania was still part of the Ottoman Empire, and those works covered principally the border area between Albania and Montenegro or Serbia (Kosova). A few others were carried out around the 1950s, and later (*e.g.*, Petrov 1960). Since the publication of that preliminary check-list interest in the Albanian bryophyte flora has increased (Blockeel & al. 2007, 2009; Colacino & Marka 2009; Papp

& al. 2010, 2018; Marka & Sabovljević 2011; Marka & Xhulaj 2011; Ellis & al. 2012, 2013; van Zanten 2013; Marka & al. 2013, 2018; Marka & Zaloshnja 2017).

Data from several field trips to Albania in 2002-2003 and 2006 are reported here, based on more than 200 specimens collected. Eventually, the resulting state of the bryophyte flora of Albania will be considered briefly.

## Material & methods

The specimens were collected during field work in the regions of Tiranë and Shkodër mainly, as well as Lezhë, Durrës, Vlorë, and Kukës. Vouchers have been deposited in the bryological collection at HLUC. A total of more than 200 specimens were collected, belonging to 111 different species. The nomenclature

follows Hodgetts & al. (2020). In some instances, on-line resources, such as Tropicos, bryonames.org, and GBIF—the Global Biodiversity Information Facility (gbif.org), have been consulted too.

## Results

### Checklist

In the following list the collected species are reported in alphabetical order (Hepatics and Mosses together); the letters in parenthesis refer to the collection localities.

1. *Abietinella abietina* (Hedw.) M.Fleisch. (I)
2. *Alleniella complanata* (Hedw.) S.Olsson, Enroth & D.Quandt (A)(I)
3. *Amblystegium serpens* (Hedw.) Schimp. (A)(E)(K).
4. *Anoetangium aestivum* (Hedw.) Mitt. (E)
5. *Anomodon viticulosus* (Hedw.) Hook. & Taylor (C)
6. *Apopellia endiviifolia* (Dicks.) Nebel & D. Quandt (I) (AA)
7. *Barbula unguiculata* Hedw. (A)(G)(CC)
8. *Brachytheciastrum velutinum* (Hedw.) Ignatov & Huttunen (D)(BB)
9. *Bryum argenteum* Hedw. (M)
10. *Bryum dichotomum* Hedw. (Q)
11. *Calypogeia integristipula* Steph. (U) SR(EN)
12. *Campyliadelphus chrysophyllus* (Brid.) R.S.Chopra (I)
13. *Campylophyllopsis calcarea* (Crundw. & Nyholm) Ochyra (I)(N)
14. *Conocephalum conicum* (L.) Dumort. (Q).
15. *Ctenidium molluscum* (Hedw.) Mitt. (C)(D)(N)
16. *Dicranella heteromalla* (Hedw.) Schimp. (D)
17. *Dicranella howei* Renauld & Cardot. (CC)
18. *Didymodon acutus* (Brid.) K.Saito (I)
19. *Didymodon fallax* (Hedw.) R.H.Zander (G)(M)
20. *Didymodon insulanus* (De Not.) M.O.Hill (J)(K) (U)(V)
21. *Didymodon luridus* Hornsch. (V)(Z1)
22. *Didymodon sinuosus* (Mitt.) Delogne (A)(G)(K)(V)
23. *Didymodon spadiceus* (Mitt.) Limpr. (B)
24. *Didymodon topiaceus* (Brid.) Lisa (V)(X)
25. *Didymodon vinealis* (Brid.) R.H.Zander (E)(V)
26. *Encalypta streptocarpa* Hedw. (A)(D)(E)(G)(H) (N)(P)(Q)(R)
27. *Encalypta vulgaris* Hedw. (B)
28. *Ephemerum recurvifolium* (Dicks.) Boulay (R)
29. *Exsertotheca crispa* (Hedw.) S.Olsson, Enroth & D.Quandt (C)(N)(Z4)
30. *Fissidens dubius* P. Beauv. (D)(R)
31. *Flexitrichum flexicaule* (Schwägr.) Ignatov & Fedosov (B)
32. *Frullania dilatata* (L.) Dumort. (U)(Z2)
33. *Funaria hygrometrica* Hedw. (A)(B)
34. *Grimmia caespiticia* (Brid.) Jur. (G)
35. *Grimmia lisae* De Not. (N)
36. *Grimmia montana* Bruch & Schimp. (I)
37. *Grimmia pulvinata* (Hedw.) Sm. (B)(E)(G)(S)
38. *Gymnostomum aeruginosum* Sm. (AA)
39. *Gymnostomum calcareum* Nees & Hornsch. (Q)
40. *Homalothecium lutescens* (Hedw.) H.Rob. (I)
41. *Homalothecium sericeum* (Hedw.) Schimp. (A)(B) (D)(E)(I)(J)(M)(N)(P)(T)(V)(Z3)
42. *Hygrohypnum luridum* (Hedw.) Jenn. (P)
43. *Hygroamblystegium tenax* (Hedw.) Jenn. (O)
44. *Hypnum cupressiforme* Hedw. (A)(D)(G)(I)(J)(P) (Z1)
45. *Hypnum resupinatum* Taylor (P)(Z1)
46. *Kindbergia praelonga* (Hedw.) Ochyra (CC)
47. *Leptobarbula berica* (De Not.) Schimp. (Q)
48. *Leucodon sciuroides* (Hedw.) Schwägr (F)(T)(U)
49. *Lewinskya acuminata* (H.Philib.) F.Lara, Garilleti & Goffinet (Z4)
50. *Lewinskya affinis* (Schrad. ex Brid.) F.Lara, Garilleti & Goffinet (O)(P)(U)
51. *Lewinskya rupestris* (Schleich. ex Schwägr.) F.Lara, Garilleti & Goffinet (Y)
52. *Lewinskya speciosa* (Nees) F.Lara, Garilleti & Goffinet (I)
53. *Lewinskya striata* (Hedw.) F.Lara, Garilleti & Goffinet (O)
54. *Lunularia cruciata* (L.) Dumort. ex Lindb. (V)
55. *Marchantia polymorpha* L. (Q)
56. *Mnium marginatum* (Dicks.) P.Beauv. (A)
57. *Nogopterium gracile* (Hedw.) Crosby & W.R.Buck (B)
58. *Orthotrichum cupulatum* Brid. (E)
59. *Orthotrichum diaphanum* Brid. (G)
60. *Orthotrichum pulchellum* Brunt. (D)

61. *Oxyrrhynchium schleicheri* (R.Hedw.) Röll (AA)  
 62. *Palustriella falcata* (Brid.) Hedenäs (AA)  
 63. *Pedinophyllum interruptum* (Nees) Kaal. (Q)(U)  
 64. *Plagiochila porelloides* (Torr. ex Nees) Lindenb. (A)  
 65. *Plagiomnium cuspidatum* (Hedw.) T.J.Kop. (I)  
 66. *Plagiothecium denticulatum* (Hedw.) Schimp. (L)  
 67. *Plasteurhynchium meridionale* (Schimp.) M. Fleisch. (A)  
 68. *Pseudocrossidium revolutum* (Brid.) R.H.Zander (A)(B)(G)(H)(S)  
 69. *Pterigynandrum filiforme* Hedw. (F)(U)  
 70. *Ptychostomum capillare* (Hedw.) Holyoak & N. Pedersen (H)(I)(N)(S)(BB)  
 71. *Ptychostomum compactum* Hornsch. (I)  
 72. *Ptychostomum creberrimum* (Taylor) J.R.Spence & H.P.Ramsay (E)  
 73. *Ptychostomum elegans* (Nees.) D.Bell & Holyoak (I)(J)(M)  
 74. *Ptychostomum pallens* (Sw. ex anon.) J.R. Spence (H)  
 75. *Ptychostomum pseudotriquetrum* (Hedw.) J.R.Spence & H.P.Ramsay ex Holyoak & N.Pedersen (Q)(AA)  
 76. *Ptychostomum. turbinatum* (Hedw.) J.R.Spence (J)(M)  
 77. *Pulvigerella lyellii* (Hook. & Taylor) Plášek, Sawicki & Ochyra (F)(O)  
 78. *Radula complanata* (L.) Dumort. (D)(N)(Z1)  
 79. *Reboulia hemispherica* (L.) Raddi (A)(H)(AA)  
 80. *Rhynchostegiella curviseta* (Brid.) Limp. (I)  
 81. *Rhynchostegium confertum* (Dicks.) Schimp. (D)(V)  
 82. *Rhynchostegium megalopolitanum* (Blandow ex F.Weber & D.Mohr) Schimp. (M)(CC)  
 83. *Scapania aspera* M.Bernet & Bernet (N)  
 84. *Schistidium apocarpum* (Hedw.) Bruch & Schimp. (I)  
 85. *Schistidium brunnescens* ssp. *griseum* (Nees & Hornsch.) H.H.Blom (D)  
 86. *Schistidium crassipilum* H.H.Blom (E)(I)(S)  
 87. *Schistidium dupretii* (Thér.) W.A.Weber (C)(I)(N)(T)  
 88. *Schistidium elegantulum* ssp. *wilsonii* H.H.Blom (B)  
 89. *Schistidium robustum* (Nees & Hornsch.) H.H.Blom (A)(E)(P)  
 90. *Scorpiurum circinatum* (Bruch) M. Fleisch. & Loeske (V)  
 91. *Streblotrichum convolutum* (Hedw.) P.Beauv. (B)(G)(I)  
 92. *Syntrichia montana* Nees (B)(G)(H)(I)(M)(X)(Y)  
 93. *Syntrichia ruraliformis* (Besch.) Mans. (M)  
 94. *Syntrichia ruralis* (Hedw.) F.Weber & D.Mohr spp. *ruralis* (A)(U)(Z3)  
 95. *Thuidium delicatulum* (Hedw.) Schimp. (I)  
 96. *Timmiella anomala* (Bruch. & Schimp.) Limpr. (Q)  
 97. *Tortella densa* (Lorentz & Molendo) Crundw. & Nyholm (G)  
 98. *Tortella flavovirens* (Bruch) Broth. (Y)  
 99. *Tortella humilis* (Hedw.) Jenn. (E)(G)  
 100. *Tortella nitida* (Lindb.) Broth. (X)  
 101. *Tortella squarrosa* (Brid.) Limp. (B)  
 102. *Tortella tortuosa* (Hedw.) Limpr. (A)(B)(D)(E)(H)(I)(N)(P)  
 103. *Tortula marginata* (Bruch. & Schimp.) Spruce (I)(J)  
 104. *Tortula muralis* Hedw. (A)(S)(T)(V)(W)  
 105. *Tortula muralis* subsp. *muralis* var. *aestiva* Hedw. (W)  
 106. *Tortula schimperi* M.J.Cano, O.Werner & J.Guerra (E)(I)(M)  
 107. *Tortula subulata* Hedw. (M)  
 108. *Trichostomum crispulum* Bruch. (D)(G)(Q)(R)  
 109. *Weissia controversa* Hedw. (E)  
 110. *Weissia longifolia* Mitt. (CC)  
 111. *Zygodon rupestris* Schimp. ex Lorentz (M)
- Collection sites
- (A) May 4, 2003, road to Boga, at roadside, on small wall and on soil, exp. N, limestone rocks, 550 m a.s.l., 42°18'54"N - 19°34'39"E, Lugina e Përroit Thatë Vale, Bzhete - SHK  
 (B) May 4, 2003, Stream Përroi i Thatë 4/5/03 area, with *Juniperus*, *Quercus trojana*, 450 m, 42°17'30"N - 19°31'52"E - SHK  
 (C) May 1, 2003, Dajti - Qafa e Qërquisë, 1350 m, forested area, with *Fagus sylvatica*, on soil and rocks, exp. N, 41°22'26"N - 19°55'12"E, 030501-15 - TIR  
 (D) May 1, 2003, coll. # 030501-11A, Dajti Natl Park, at roadside, on rocks and wet soil, as well

- as on exposed roots, lichens and mosses, exp. W, 1040 m, 41°21'52"N - 19°54'26"E - TIR
- (E) May 1, 2003, same as in (D) 030501-11C - TIR
- (F) May 1, 2003, Dajti towards Qafa e Qërquisë, 1210 m, exp. ENE, on beech tree bark and on soil, in presence of lichen *Lobaria pulmonaria* (L.) Hoffm., 41°22'16"N - 19°54' 53"E - 030501-12 -TIR
- (G) May 1, 2003, Dajti Natl Park, at roadside, on calcareous rocks, 930 m, exp. S, 41°21'02"N - 19°55'22"E - 03051-03 - TIR
- (H) May 1, 2003, Dajti Natl Park, Qafa e Qërquisë, 1350 m, on calcareous rocks, exp. NE, 41°22'26"N - 19°55'13"E - 030501-14A & B - TIR
- (I) May 4, 2003, after Boga, coordinates as in (J), in beech tree forest, 1120 m, Malësi i Madhe - SHK
- (J) May 4, 2003, after Boga, on burned trunk base, beech trees, 1120 m, 42°23'46"N - 19°41'05"E - Malësi i Madhe - SHK
- (K) May 1, 2003, road to Dajti Natl Park, Flysch, on soil, 540 m, exp. SSW, maquis with *Juniperis oxycedrus*, *Arbutus unedo*, *Erica arborea*, *Thymus longicaulis*, *Carpinus orientalis*, *Fraxinus ornus*, *Cystus salvifolius*, *Satureja montana*, 41°19'19"N - 19°55'55"E - 030501-1 - TIR
- (L) May 1, 2003, Dajti Natl Park, 1050 m, in clearing with *Juniperus*, under grasses in small wet valleys with seedlings. 41°21'44"N - 19°54'40"E - 030501-07 - TIR
- (M) May 4, 2003, in Boga, on soil, in (calcareous) stony pasture alongside beech-tree forested area, 1110 m (*Ranunculus*, *Euphorbia*; grasses/legumes), 42°23'49"N - 19°41'05"E , Malësi i Madhe - SHK
- (N) May 1, 2003, Dajti Natl Park, Qafa e Qërquisë, 1350 m, exp. NE, on calcareous rocks with *Raimondia serbica*, 41°22'26"N - 19°55'15"E - 030501-17 -TIR
- (O) May 1, 2003, Dajti Natl Park, on several heights on *Prunus* bark, near small water canal with lichens and mosses, 1050 m, 41°21'44"N - 19°54'40"E - 030501-01 - TIR
- (P) May 1, 2003, Dajti Natl Park, on rocks and on soil, exp. W, 1140 m, 41°22'13"N - 19°54'43"E - 030501-06 - TIR
- (Q) May 4, 2003, Përroi i Thatë, 440 m, exp. ENE, on calcareous rock with dripping water (with Marchantiales, *Pedinophyllum interruptum*), 42°17'31"N - 19°31'54"E - SHK
- (R) May 4, 2003, Përroi i Thatë, on limestone stream gravel (dry), 430 m, 42°17'31"N - 19°31'54"E - SHK
- (S) May 1, 2003, Dajti, Natl Park, at roadside, on rocks and on trunk base and exposed roots, exp. NE, 1050 m, 41°21'42"N - 19°54'39"E - 030501-10 - TIR
- (T) May 1, 2003, Dajti Natl Park, 1240 m, towards Qafa e Qërquisë, 41°22'17"N - 19°54'57"E -030501-13 - TIR
- (U) May 5, 2003, coll. #- Dajti Natl Park, on bark of *Fagus sylvatica*, 1130 m, 41°22'13"N - 19°54'42"E - 030501-05 - TIR
- (V) Aug. 25, 2002, Kruja Castle, 41°30'31"N - 19°47'40"E , 520 m, Kruja DUR
- (W) Aug. 26, 2002, Tresh, 3 km from Lezhë, 41°43'13"N - 19°41'19"E, on soil- LZH
- (X) Aug. 28, 2002, road Orikum - Llogara, near Dukat i Ri; exp. S, 180 m, on roadside boulders, in ferns and *Quercus coccifera* area, 40°16'04"N - 19°30'58"E - VLO
- (Y) July 26, 2002, Laç, 40 m, 41°40'23"N - 19°42'33"E - LZH
- (Z1) June 7, 2006, Albanian Alps, Parku kombëtar Lugina e Valbonës, on beech bark 1 m above soil and on trunk base, exp. WSW, 42°24'46"N, 20°01'123E - KUK
- (Z2) June 7, 2006, Albanian Alps, Parku kombëtar Lugina e Valbonës, on *Picea excelsa* bark, exp. NE, coordinates as in (Z1) KUK
- (Z3) June 7, 2006, Albanian Alps, Parku kombëtar Lugina e Valbonës, on rocks, exp. E, coordinates as in (Z1) KUK
- (Z4) June 7, 2006, Albanian Alps, on beech bark, exp. E, coordinates as in (Z1) - KUK
- (AA) April 25, 2003, Llogara Natl Park, near



spring, on road edge, on soil, 773 m, 40°13'07,4"N, 19°34'49,8"E - 030425A-5 & 030425A-6 - VLO

(BB) May 1, 2003, Mt. Dajti Natl Park, on forest road, towards Qafa e Qershisë, 1294 m, exp. W, in soil on rock, 41°22'24,5", 19°55'11.4"E - 030501A-1B & 030501A-1A (Det. R. Tacchi). - TIR

(CC) April 25, 2003, Dukat village, road to Llogara Pass, 250 m, shibljak type vegetation (*Asphodelus*, *Paliurus spina-christi*, *Carpinus*, *Pteridium aquilinum*, *Anemone appennina*, *Ornithogalum umbellatum*, *Cyclamen hederifolius*, *Ajuga reptans*(?), *Pyrus amygdalis*, etc.), 40°15'47.8"N, 19°31'10.9"E - 030425Ad - 030425Ac - 030425Aa - 030425Ab - 030425Ae (Det. R. Tacchi). - VLO

Acronyms for the regions where the specimens were collected: TIR Tiranë, SHK Shkodër; LZH Lezhë, DUR Durrës, VLO Vlorë, and KUK Kukës.

For all localities legit & deter. C.Colacino [except for *P.falcata* in (AA) and the specimens in (BB) & (CC) determined by R. Tacchi]. All specimens are deposited in HLUC.

## Conclusions

One-hundred and eleven species are reported, with 14 species new for Albania (one, *Schistidium elegantulum* ssp. *wilsonii*, is new as a subspecies for the Balkans, even though the species is actually present everywhere, except in SL and TR), 60 new regional records, and 18 confirmations of pre-1950 regional records, as well as one confirmation at the national level. In the preliminary checklist of 2006, the number of species for Albania was 327 (after updating to the currently accepted taxonomy this number is 314 - synonymy will be indicated in an updated checklist now in preparation). Including the new records reported here, the total number of bryophytes for Albania is 548 taxa (species, subspecies and varieties).

From a conservation point of view, all species considered are at the European level of LC (Least Concern) or NE (Not Evaluated), with the exception of *Ptychostomum turbinatum* VU (Vulnerable) and *Ephemerum recurvifolium* NT (Near Threatened), according to a recent IUCN report (Hodgett & al. 2019).

*P. turbinatum* (VU), a circumpolar arctic-boreal to temperate species, was collected twice on May 4, 2003 in two areas near Boga (Malësi i Madhe - SHK) in the Montane Mediterranean Climatic Zone, in disturbed areas: once on a burned trunk base, at 1120 m, and

**Table 1.- New records for Albania**

Presence in other SE-European countries: BG Bulgaria, BH Bosnia & Herzegovina, GR Greece, HR Croatia, MK North Macedonia, MN Montenegro, RO Romania, SL Slovenia, SR Serbia, TR Turkey in Europe.

1	<i>Anoetangium aestivum</i>	RO
2	<i>Calypogeia integristipula</i>	SR
3	<i>Didymodon spadiceus</i>	BG, BH, GR, HR, MN, RO, SL, SR
4	<i>Grimmia montana</i>	BG, GR, HR, MK, RO, SR
5	<i>Hypnum resupinatum</i>	BG GR RO SL SR TR
6	<i>Leptobarbula berica</i>	GR HR TR
7	<i>Mnium marginatum</i>	BG BH GR HR MK MN RO SL SR
8	<i>Orthotricum pulchellum</i>	GR RO SL SR
9	<i>Plagiothecium denticulatum</i>	BG BH GR HR MK MN RO SL SR TR
10	<i>Ptychostomum creberrimum</i>	BG BH GR HR MK MN RO SL SR
11	<i>Schistidium elegantulum</i> ssp. <i>wilsonii</i>	-
12	<i>Timmiella anomala</i>	BH GR HR SL
13	<i>Tortella densa</i>	GR RO SL SR
14	<i>Zygodon rupestris</i>	GR MN RO SL SR TR

**Table 2. New records for Albania at regional level**

\* = New regional record. Confirmation of pre-1950 record: § = at regional level, AL¶ = at national level. For completeness, the other regions of collection are indicated for each species.

No	Species	Acronyms for the regions
1	<i>Abietinella abietina</i>	SHK*
2	<i>Alleniella complanata</i>	SHK*
3	<i>Amblystegium serpens</i>	SHK TIR*
4	<i>Anomodon viticulosus</i>	TIR§
5	<i>Bryum argenteum</i>	SHK§
6	<i>Bryum dichotomum</i>	SHK*
7	<i>Ctenidium molluscum</i>	TIR§
8	<i>Dicranella heteromalla</i>	TIR*
9	<i>Didymodon fallax</i>	SHK TIR*
10	<i>Didymodon insulanus</i>	SHK* TIR* DUR*
11	<i>Didymodon luridus</i>	DUR* KUK*
12	<i>Didymodon sinuosus</i>	SHK TIR* DUR*
13	<i>Didymodon tophaceus</i>	DUR VLO*
14	<i>Didymodon vinealis</i>	TIR DUR*
15	<i>Ephemerum recurvifolium</i>	SHK*
16	<i>Exsertotheca crispa</i>	TIR§ KUK§
17	<i>Frullania dilatata</i>	TIR KUK§
18	<i>Funaria hygrometrica</i>	SHK§
19	<i>Grimmia caespiticia</i>	TIR*
20	<i>Grimmia lisae</i>	TIR*
21	<i>Gymnostomum aeruginosum</i>	VLO*
22	<i>Gymnostomum calcareum</i>	SHK§
23	<i>Homalothecium sericeum</i>	SHK TIR§ DUR* KUK§
24	<i>Hygrohypnum luridum</i>	TIR*
25	<i>Hygromblstegium tenax</i>	TIR*
26	<i>Hypnum cupressiforme</i>	SHK TIR KUK§
27	<i>Kindbergia praelonga</i>	VLO*
28	<i>Lewinskya acuminata</i>	KUK*
29	<i>Lewinskya affinis</i>	TIR*
30	<i>Lewinskya striata</i>	TIR§
31	<i>Nogopterium gracile</i>	SHK§
32	<i>Orthotrichum cupulatum</i>	TIR*
33	<i>Orthotrichum diaphanum</i>	TIR*
34	<i>Oxyrrhynchium schleicheri</i>	VLO*
35	<i>Palustriella falcata</i>	VLO*
36	<i>Pedinophyllum interruptum</i>	SHK TIR*
37	<i>Plagiochila porelloides</i>	SHK*
38	<i>Plagiomnium cuspidatum</i>	SHK§
39	<i>Plasteurhynchium meridionale</i>	SHK*
40	<i>Pseudocrossidium revolutum</i>	SHK TIR*
41	<i>Pterigynandrum filiforme</i>	TIR§
42	<i>Ptychostomum capillare</i>	TIR* SHK
43	<i>Ptychostomum compactum</i>	SHK* AL¶
44	<i>Ptychostomum elegans</i>	SHK*
45	<i>Ptychostomum pallens</i>	TIR*
46	<i>Ptychostomum pseudotriquetrum</i>	SHK* VLO*
47	<i>Ptychostomum turbinatum</i>	SHK*
48	<i>Pulvigerella lyellii</i>	TIR*
49	<i>Radula complanata</i>	TIR KUK§
50	<i>Rhynchostegiella curviseta</i>	SHK*
51	<i>Rhynchostegium confertum</i>	TIR* DUR*
52	<i>Scapania aspera</i>	TIR*
53	<i>Schistidium brunnescens</i> ssp. <i>griseum</i>	TIR*
54	<i>Schistidium crassipilum</i>	SHK* TIR*
55	<i>Schistidium dupretii</i>	SHK* TIR*
56	<i>Schistidium robustum</i>	SHK* TIR*
57	<i>Streblotrichum convolutum</i>	SHK§ TIR*
58	<i>Syntrichia montana</i>	SHK TIR VLO LZH*
59	<i>Syntrichia ruraliformis</i>	SHK*
60	<i>Syntrichia ruralis</i> ssp. <i>ruralis</i>	SHK TIR* KUK*
61	<i>Tortella humilis</i>	TIR*
62	<i>Tortella squarrosa</i>	SHK§
63	<i>Tortula marginata</i>	SHK*
64	<i>Tortula muralis</i>	SHK TIR LZH DUR*
65	<i>Tortula muralis</i> ssp. <i>muralis</i> var. <i>aestiva</i>	LZH*
66	<i>Weissia longifolia</i>	VLO*

a second time on soil in a pasture alongside a beech forest, at 1110 m. It was already collected for the first time for Albania in a mountain area (850-900 m) in the region of Lezhë by van Zantem (2013), who classified it tentatively as such (*Bryum* cfr. *turbinatum*); the collection data say: “on clayey soil along river, ... (ver. P. Sollman) (plants reddish).” It is not reported being in danger in the available red lists of Serbia and Montenegro, Bulgaria, and Romania.

*E. recurvifolium* (NT) collected on limestone stream gravel (dry), 430 m - SHK, has been earlier collected in VLO. This sub-Mediterranean species is reported as vulnerable, or critically endangered in the red lists of several Balkan Countries: SR(VU), BG (CR), RO (CR). It has recently been reported as new to Albania by Marka & al. (2013) on the basis of one specimen found in VLO: “Sarandë, Butrint, wetland area, on soil, saline grassland”.

Several other species, however, are in danger at local level, according to the red lists available for Serbia and Montenegro (Sabovljević & al. 2004), Bulgaria (Natcheva & al. 2006), and Romania (Ștefănuț & Goia 2012): *Campylophyllopsis calcarea* RO (EN), *Didymodon acutus* RO (VU), *Didymodon sinuosus* RO (EN), *Grimmia caespiticia* MN (VU), RO (CR), *Hygroamblystegium tenax* RO (VU), *Leptobarbula berica* MN (VU), *Lunularia cruciata* RO (CR), *Nogopterium gracile* RO (EN), *Orthotricum pulchellum* SR & MN (Low Risk), RO (EN), *Oxyrrhynchium schleicheri* RO (VU), *Rhynchostegium megapolitanum* RO (VU), *Schistidium robustum* RO (CR), *Scorpiurum circinatum* (BG (EN), *Syntrichia ruraliformis* RO (VU), *Timmia anomala* SR (EN), *Tortella densa* RO (CR), *Tortella flavovirens* RO (CR), *Tortella humilis* BG (CR) RO (NT), *Tortella nitida* BG (CR) RO (EN).

## Discussion

The number of collections from Albania, notwithstanding the recent dramatic increase in species number, is not sufficient yet for a compilation of a red list, as shown for Romania, where some species were considered rare or at risk based on the scarcity of collections (Ștefănuț & Goia 2012). A few species

considered for the preliminary red list of Albanian bryophytes (Marka et al. 2012) were still collected, in particular, *Ptychostomum creberrimum*, cited in the checklist of Serbia as DD (Data Deficient). It was collected once in Korça (Papp et al. 2010), and one more time in Dajti (TIR), as reported in this paper. *Tortella humilis*, already indicated above as CR (BG), NT (RO), is with three records for Albania: one from Karavasta (Colacino & Marka 2009) and two from Korça (Papp et al. 2010), with two more findings recorded in this paper in Dajti (TIR). And finally, *Tortula marginata*, DD (MN), with one record from VLO in 1960 (Petrov), and two more reported here from Malësi i Madhe (SHK). Apparently, planned extensive explorations and collection of bryophyte distribution data in the various floristic zones of Albania are needed for a realistic red list. Considering that Albania is an important meeting area of the Mediterranean, Central European and Pontic floristic elements, it is quite likely that much remains to be discovered. This is also supported by the comparison of the bryophyte diversity of Albania with that of the other Southeast European countries. Probably, new field trips in Albania will still continue to produce new records of relatively abundant species in the bordering countries at least.

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## References

- Blockeel, T.L., Bednarek-Ochyra, H., Ochyra, R., Cykowska, B., Esquivel, M.G., Lebouvier, M., Luís, L., Martins, S., Müller, F., Németh, Cs., Papp, B., Plášek, V., Pócs, T., Sabovljević, M., Sérgio, C., Sim-sim, M., Stech, M., Vaňa J. & Tonguç Yayintaş, Ö. 2009. New national and regional bryophyte records, 21. – J. Bryol., 31: 132-139. DOI: 10.1179/174328209X431213

- Blockeel, T.L., Afridi, H., Bakalin, V.A., Czernyadjeva, I.V., Eckstein, J., Erzberger, P., Frey, W., Fuertes, E., Gilani, S.A., Hedenäs, L., Hugonnot, V., Kürschner, H., Lüth, M., Murad, W., Prada, C., Schnyder, N., Schröder, W., Shah, J., Shinwari, Z.K., Szücs, P. & Townsend, C.C. 2007. New national and regional bryophyte records, 16. – *J. Bryol.*, **29**: 198-198. DOI: 10.1179/174328207X209203
- Colacino, C. 2004. Brioflora dell'Albania: situazione attuale e considerazioni in relazione ad una possibile utilizzazione nel biomonitoraggio ambientale. – *S.I.S.E.F. Atti*, **4**: 357-364.
- Colacino, C. & Sabovljević, M. 2006. Bryophyte flora of Albania: a preliminary checklist. – *Crypt. Bryol.*, **27**: 471–498.
- Colacino, C. 2009. Bryoflora of Albania: Chorology and environmental issues. – In: Ivanova, D. (ed.). *Plant, Fungal and Habitat Diversity Investigation and Conservation. Proceedings of the IV Balkan Botanical Congress*. p. 547-554; ISBN9789549746143
- Colacino, C. & Marka, J. 2009. Bryophytes of the Karavasta Lagoon area, with new reports for Albania. – *Phytol. Balcan.*, **15**: 39–42.
- Ellis, L.T., Alegro, A., Bednarek-Ochyra, H., Ochyra, R., Bergamini, A., Cogoni, A., Erzberger, P., Górski, P., Gremmen, N., Hespanhol, H., Vieira, C., Kurbatova, L.E., Lebouvier, M., Martinčić, A., Asthana, A.K., Gupta, R., Nath, V., Natcheva, R., Ganeva, A., Özdemir, T., Batan, N., Plášek, V., Porley, R.D., Randić, M., Sawicki, J., Schroder, W., Sérgio, C., Smith, V.R., Sollman, P., Ștefănuț, S., Stevenson, C.R., Suárez, G.M., Surina, B., Uyar, G. & Modrič Surina, Z. 2012. New national and regional bryophyte records, 31. *J. Bryol.*, **34**: 123-134. DOI: 10.1179/1743282012Y.0000000009
- Ellis, L.T., Aranda, S.C., Asthana, A.K., Bansal, P., Nath, V., Sahu, V., Bayliss, J., Asthana, G., Srivastava, S., Yadav, S., Brugués, M., Cano, M.J., Dulin, M.V., Fudali, E., Fuertes, E., Gabriel, R., Pereira, F., Silva, J.A.F., Gradstein, S.R., Hájková, P., Hájek, M., Heras, P., Infante, M., Lebouvier, M., Marka, J., Newsham, K.K., Ochyra, R., Pantović, J., Sabovljević, M.S., Phephu, N., van Rooy, J., Philippov, D.A., Porley, R.D., Puche, F., Schäfer-Verwimp, A., Segarra-Moragues, J.G., Sérgio, C., Smith, V.R., Ștefănuț, S., Váňa, J. & Wigginton, M.J. 2013. New national and regional bryophyte records, 37. – *J. Bryol.*, **35**:4, 290-305, DOI: 10.1179/1743282013Y.00000000073
- Hodgetts, N., Cáliz, M., Englefield, E., Fettes, N., García Criado, M., Patin, L., Nieto, A., Bergamini, A., Bisang, I., Baisheva, E., Campisi, P., Cogoni, A., Hallingbäck, T., Konstantinova, N., Lockhart, N., Sabovljevic, M., Schnyder, N., Schröck, C., Sérgio, C., Sim Sim, M., Vrba, J., Ferreira, C.C., Afonina, O., Blockeel, T., Blom, H., Caspari, S., Gabriel, R., Garcia, C., Garilleti, R., González Mancebo, J., Goldberg, I., Hedenäs, L., Holyoak, D., Hugonnot, V., Huttunen, S., Ignatov, M., Ignatova, E., Infante, M., Juutinen, R., Kiebacher, T., Köckinger, H., Kučera, J., Lönnell, N., Lüth, M., Martins, A., Maslovsky, O., Papp, B., Porley, R., Rothero, G., Söderström, L., Ștefănuț, S., Syrjänen, K., Untereiner, A., Váňa, J. I., Vanderpoorten, A., Vellak, K., Aleffi, M., Bates, J., Bell, N., Brugués, M., Cronberg, N., Denyer, J., Duckett, J., During, H.J., Enroth, J., Fedosov, V., Flatberg, K.-I., Ganeva, A., Gorski, P., Gunnarsson, U., Hassel, K., Hespanhol, H., Hill, M., Hodd, R., Hylander, K., Ingerpuu, N., Laaka-Lindberg, S., Lara, F., Mazimpaka, V., Mežaka, A., Müller, F., Orgaz, J.D., Patiño, J., Pilkington, S., Puche, F., Ros, R.M., Rumsey, F., Segarra-Moragues, J.G., Seneca, A., Stebel, A., Virtanen, R., Weibull, H., Wilbraham, J. and Żarnowiec, J. 2019. A Miniature World in Decline: European Red List of Mosses, Liverworts and Hornworts. Brussels, Belgium: IUCN.
- Hodgetts, N.G., Söderström, L., Blockeel, T.L., Caspari, S., Ignatov, M.S., Konstantinova, N.A., Lockhart, N., Papp, B., Schröck, C., Sim-Sim, M., Bell, D., Bell, N.E., Blom, H.H., Bruggeman-Nannenga, M.A., Brugués, M., Enroth, J., Flatberg, K.I., Garilleti, R., Hedenäs, L., Holyoak, D.T., Hugonnot, V., Kariyawasam, I., Köckinger, H., Kučera, J., Lara, F. & Porley, R.D. 2020. An annotated checklist of bryophytes of Europe, Macaronesia and Cyprus. – *J. Bryol.*, **42**: 1-116. DOI: 10.1080/03736687.2019.1694329
- Marka, J. & Sabovljević, M. 2011. New bryophyte records from Albania. – *J. Bryol.*, **33**: 74-76. DOI: 10.1179/037366810X12814343698179
- Marka, J. & Xhulaj, M. 2011. Mosses from Lura region (Albania). – *Int. j. ecosyst. ecol. sci.*, **1**: 27–30.
- Marka, J. & Zaloshnja, I. 2017. Epiphytic mosses in the center of Tirana city (Albania). – *Studia bot. hung.*, **48**: 51–65. <https://doi.org/10.17110/StudBot.2017.48.1.51>
- Marka, J., Blockeel, T.L., Long, D.G. & Papp, B. 2018. Bryophytes new to Albania from the British Bryological Society field meeting in 2014. – *J. Bryol.*, **40**: 163–172. <https://doi.org/10.1080/03736687.2018.1428072>
- Marka, J., Erzberger, P. & Papp, B. 2013. New and interesting moss records from Albania. – *J. Bryol.*, **35**: 152–155. <https://doi.org/10.1179/1743282013Y.00000000053>
- \* Natcheva, R., Ganeva, A. & G. Spiridonov, G. 2006. Red List of the bryophytes in Bulgaria. – *Phytol. Balcan.*, **12**: 55–62.
- Papp, B., Erzberger, P. & Marka, J. 2010. Contribution to the bryophyte flora of East Albania (Korça and Kolonja Districts). – *Studia bot. hung.*, **41**: 61–88.
- Papp, B., Erzberger, P. & Marka, J. 2018. Contributions to the bryophyte flora of Central and South Albania. – *Studia bot. hung.*, **49**: 15–38.
- Petrov, S. 1960. Contribution à la flore bryologique de l'Albanie. – *Rev. Bryol. Lichénol.* **29**: 212-234.
- Sabovljević, M., Cvetić, T. & Stevanović, V. 2004. Bryophyte red list of Serbia and Montenegro. – *Biodivers. Conserv.*, **13**: 1781-1790.
- Ștefănuț, S. & Goia, I. 2012. Checklist and red list of bryophytes of Romania. – *Nova Hedwig.*, **95**: 59–104.
- van Zanten, B.O. 2013. Additions to the bryophyte flora of Albania. – *Polish Bot. J.*, **58**: 287– 292. <https://doi.org/10.2478/pbj-2013-0029>

\* Missing reference:

Marka, M., Papp, B., P. Erzberger, P., C. Colacino, C., Sabovljević, M. 2012. Towards a red List of the Albanian Bryophytes. – *Studia bot. hung.*, **43**: 13-25.