

## ADDITIONS TO THE BRYOPHYTE FLORA OF ALBANIA

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**Abstract:** A list of 92 musci and 8 hepatics collected in northern Albania is given; 31 taxa are new for the country.

**Key words:** Bryophyta, Musci, Hepaticae, Balkans

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Albania is one of the most bryologically under-recorded countries of Europe (e.g., Sabovljević *et al.* 2001, 2011; Marka *et al.* 2012). The number of bryophyte species increases with every new investigation. The number of species currently given is 342 (Marka *et al.* 2012).

From 2 to 7 July 2004 I had the opportunity to make a bryophyte collection in the mountains of Lezhë Prefecture in northern Albania. All specimens were collected between 850 and 900 m a.s.l. in a small area around the farm of the Pepkola family, located in the district of Mirdit, Momts I Shenjt, ca 15 km ENE of Rreshen near Kthelle-Eper village (ca 41.50°N, 20.00°E).

The study area is situated near the confluence of the Kol Gjinat and Der Jane rivers, the first of which has a very steep drop, almost a cascade; the second has less of a drop.

The confluence is just at the base of the cascade. The river valleys are cut in granite rock (diorite). The river beds contain a large number of large and small granite boulders. Nearby is a copper mine worked in chalcopyrite-containing rock. Special attention was paid to the north-exposed rock face near the copper mine entrance. The farmhouse is built on a level area with grassland and slightly sloping arable fields on clayey/sandy soil. Around the farm are a number of trees, mainly *Malus*, *Morus*, *Prunus*, *Quercus* and *Salix*.

The collection comprises 92 taxa of musci and 8 of hepatics. Of the collected bryophytes, 27 moss taxa and 4 hepatics are not mentioned in

the Albanian checklists (Colacino & Sabovljević 2006; Sabovljević & Natcheva 2006; Sabovljević *et al.* 2008), and subsequently published new records and lists (Colacino & Marka 2009; Papp *et al.* 2010; Marka & Sabovljević 2011; Marka & Xhulaj 2011; Ros *et al.* 2007; Ros *et al.* 2013) and therefore are new for Albania. They are asterisked in the list. For Lezhë Prefecture only 21 species (10 mosses and 11 liverworts) are recorded in this checklist. Of these species I collected only four. Most of the other species mentioned in the checklist for the Prefecture are mainly lowland species with a Mediterranean-Atlantic distribution and therefore cannot be expected in the mountain area where I collected. All specimens are housed in herbarium B. van Zanten.

## LIST OF SPECIES

**Musci**

*Aloina aloides* (Schultz) Kindb. var. *aloides*

On soil-covered stone wall, 04.06.183! (ver. P. Sollman).

\**Amblystegium tenax* (Hedw.) C. E. O. Jensen

On soil along river, 04.06.73, 04.06.190.

\**Amphidium mougeotii* (Bruch & Schimp.) Schimp.

In rock crevices, on soil among boulders in river bed, on rock near entrance of copper mine, 04.06.93A,

04.06.94, 04.06.114C, 04.06.116A & B, 04.06.271 (det. P. Sollman).

***Atrichum undulatum*** (Hedw.) P. Beauv.

On soil in grassland, 04.06.160! (sporophytes very small).

***Barbula convoluta*** Hedw.

On shaded clayey soil, 04.06.25 (ver. P. Sollman).

\****Barbula convoluta*** Hedw. var. ***commutata*** (Jur.) Husn

On clayey soil in grassland, 04.06.243A (ver. P. Sollman).

***Barbula unguiculata*** Hedw.

Various substrates, 7 collections! (ver. P. Sollman p.p.).

***Bartramia pomiformis*** Hedw.

On rock near entrance of copper mine, 04.06.176.

***Bartramia stricta*** Brid.

On soil in rock crevices in river bed, 04.06.208!, 04.06.268.

***Brachythecium albicans*** (Hedw.) Schimp.

On soil in grassland, and on soil-covered rock, 04.06.191, 04.06.216.

\****Brachythecium populeum*** (Hedw.) Schimp

On stone wall, 04.06.249!

***Brachythecium rutabulum*** (Hedw.) Schimp.

On shaded stone wall, 04.06.247.

***Brachythecium salebrosum*** (Web. & Mohr) Schimp.

On soil in grassland, 04.06.192.

\****Brachythecium velutinum*** (Hedw.) Schimp.

On base of *Prunus* and dead tree, on stone wall and on rock near entrance of copper mine, 04.06.34, 04.06.38, 04.06.193, 04.06.194, 04.06.281!

***Bryum alpinum*** With.

On rock and sandy soil near river and on rocky soil in grassland, 04.06.69, 04.06.85, 04.06.148, 04.06.225.

***Bryum argenteum*** Hedw.

Various substrates, 04.06.22, 04.06.27, 04.06.3, 04.06.134!, 04.06.160.

***Bryum caespiticium*** Hedw.

On sandy soil along river, 04.06.86!

NOTE. This species may be more common locally because four non-fruiting specimens from concrete and soil in grassland (04.06.30, 04.06.137, 04.06.177 and 04.06.259) may belong here.

***Bryum capillare*** Hedw.

On various substrates including rock near entrance of copper mine, 9 collections.

***Bryum dichotomum*** Hedw.

On soil, concrete and at tree bases, 11 collections.

***Bryum* cf. *neodamense*** Itzigs. ex Müll. Hal.

Among boulders in river bed, just above water level, 04.06.222, 04.06.224 (ver. P. Sollman).

***Bryum* cf. *pallens*** (Brid.) Sw.

On soil among boulders in river bed, just above water level, 04.06.68, 04.06.104A, 04.06.221 (plants reddish brown).

***Bryum radiculosum*** Brid.

On concrete, 04.06.23!, 04.06.29C! (ver. P. Sollman).

***Bryum rubens*** Mitt.

On soil among boulders and in rock crevices in river bed, 04.06.110C, 04.06.202 (ver. P. Sollman).

\****Bryum* cf. *turbinatum*** (Hedw.) Turn.

On clayey soil along river, 04.06.66, 04.06.115, 04.06.227 (ver. P. Sollman) (plants reddish).

***Ceratodon purpureus*** (Hedw.) Brid.

On soil in grassland and river bed, 8 collections (ver. P. Sollman p.p.).

**\**Cirriphyllum tommasinii*** (Boul.) Grout

On shaded stone wall, 04.06.02 (ver. P. Sollman).

***Coscinodon cribrosus*** (Hedw.) Spruce

On rock near copper mine, 04.06.274!

***Cratoneuron flicinum*** (Hedw.) Spruce

Sandy soil along river, 04.06.87.

***Dialytrichia mucronata*** (Brid.) Broth.

Sandy base of *Morus* and dead tree in grassland, 04.06.44, 04.06.46, 04.06.51, 04.06.171G (ver. P. Sollman).

***Dicranella howei*** Ren. & Card.

Shaded clayey soil, only a few stems among *Barbula convoluta*, 04.06.26.

***Didymodon luridus*** Hornsch.

Shaded clayey soil, stone wall, 04.06.24, 04.06.25A, 04.06.135 (ver. P. Sollman).

***Didymodon rigidulus*** Hedw.

On shaded stone wall, 04.06.02A, 04.06.29A (ver. P. Sollman).

***Didymodon vinealis*** (Brid.) Zander var. ***flaccidus*** (Bruch & Schimp.) Zander

On concrete of stone wall and base of dead tree, 04.06.29B, 04.06.171A (ver. P. Sollman).

**\**Ditrichum zonatum*** (Brid.) Limpr.

On soil in grassland, 04.06.123.

***Fissidens dubius*** P. Beauv.

On soil underneath boulders in river bed and in rock crevice near entrance of copper mine, 04.06.77, 04.06.107, 04.06.273A.

***Fissidens taxifolius*** Hedw.

Dripping rock above river, 04.06.278.

***Funaria hygrometrica*** Hedw.

On soil and concrete, 04.06.31!, 04.06.223!, 04.06.240!

***Grimmia laevigata*** (Brid.) Brid.

On boulders in river bed, 04.06.88 (ver. H. Greven).

**\**Grimmia lisae*** De Not.

On boulders and rock along river, 04.06.70, 04.06.209, 04.06.220 (det. H. Greven).

**\**Grimmia ovalis*** (Hedw.) Lindb.

On rock along river, tiles of roof, and on walnut, 04.06.125, 04.06.156, 04.06.200B (det. H. Greven).

***Grimmia pulvinata*** (Hedw.) Sm.

On rocks and boulders along river and on concrete, 12 collections! (ver. H. Greven p.p.).

**\**Grimmia trichophylla*** Grev.

On boulders and rock in river bed and on rock near entrance of copper mine, 7 collections! (ver. H. Greven).

***Gymnostomum aeruginosum*** Sm.

Rock crevice above river, 04.06.95 (det. P. Sollman).

***Habrodon perpusillus*** (De Not.) Lindb.

On *Morus*, *Salix* and dead wood, 04.06.54, 04.06.63, 04.06.170, 04.06.171D, 04.06.174.

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

On various trees and on boulders along river and on rock near entrance of copper mine!, 7 collections. (ver. H. Hofman p.p.).

***Hypnum cupressiforme*** Hedw.

var ***cupressiforme***

At base of *Prunus* and on dead wood and rocks near entrance of copper mine, 04.06.33, 04.06.255, 04.06.279.

**\**Hypnum cupressiforme*** Hedw. var. ***lacunosum*** Brid.

On boulders in river bed, 04.06.92.

***Leptodon smithii*** (Hedw.) Web. & Mohr

At base of *Morus*, 04.06.124.

***Leucodon sciuroides*** (Hedw.) Schwaegr.

At base of *Morus*, 04.06.167A.

***Leucodon sciuroides*** (Hedw.) Schwaegr. var. ***mo-rensii*** (Schwaegr.) De Not.

On *Morus* and *Salix*, 04.06.48, 04.06.60!

\****Orthotrichum acuminatum*** Brid.

On *Prunus*, 04.06.16 (det. A. van der Pluijm).

***Orthotrichum affine*** Brid.

On various trees and on tiles of roof, 12 collections! (ver. A. van der Pluijm p.p.).

***Orthotrichum anomalum*** Hedw.

On *Malus*, 04.06.119A! (ver. A. van der Pluijm).

***Orthotrichum diaphanum*** Brid.

On dead wood, 04.06.196.

***Orthotrichum lyellii*** Hook. & Tayl.

Dead tree in grassland, 04.06.171C (ver. P. Sollman).

\****Orthotrichum pumilum*** Sw.

On various trees, dead wood, 04.06.18!, 04.06.41!, 04.06.197!, 04.06.252! (ver. A. van der Pluijm p.p.).

\****Orthotrichum rupestre*** Schleich. ex Schwaegr.

On *Prunus*, 04.06.17! (det. A. van der Pluijm).

***Orthotrichum striatum*** Hedw.

On various trees, 04.06.12!, 04.06.42!, 04.06.55!, 04.06.163! (ver. A. van der Pluijm p.p.).

***Orthotrichum tenellum*** Bruch ex Brid.

On *Prunus* and *Malus*, 04.06.15!, 04.06.119! (ver. A. van der Pluijm).

***Oxyrrhynchium hians*** (Hedw.) Loeske

On shaded stones of stone wall, 04.06.03, 04.06.23A, 04.06.149, 04.06.246 (ver. P. Sollman p.p.).

\****Oxyrrhynchium speciosum*** (Brid.) Warnst.

On shaded stone wall and shaded rocks in river bed, 04.06.05, 04.05.83.

***Palustriella commutata*** (Hedw.) Ochyra var. ***falcata*** (Brid.) Ochyra

Wet grit along river, 04.06.226.

\****Philonotis caespitosa*** Jur.

On soil among boulders in river bed, just above water level, 04.06.219.

\****Philonotis capillaris*** Lindb. ex Hartm.

Moist clayey soil along river, 04.06.65.

***Philonotis fontana*** (Hedw.) Brid.

Dripping rocks in river bed and small spring in grassland, 04.06.64, 04.06.74.

***Philonotis marchica*** (Hedw.) Brid.

On soil among boulders and small spring in river bed, 04.06.104B, 04.06.215, 04.06.228.

\****Pogonatum urnigerum*** (Hedw.) P. Beauv. var. ***humile*** Wahlenb.

Rock crevices and covering boulders above river (very common), 04.06.97, 04.06.98, 04.06.204.

NOTES. The stems of this species are 1–2 cm tall and always undivided. The specimens therefore may be assigned to *P. urnigerum* var. *humile* Wahlenb. if this is recognized as an independent taxon.

***Pohlis cruda*** (Hedw.) Lindb.

On soil among boulders and at base of rocks near river, 04.06.81, 04.06.103.

***Pohlia melanodon*** (Brid.) Shaw

On soil among boulders in river bed, just above water level, 04.06.104, 04.06.218 (ver. P. Sollman p.p.).

***Polytrichum piliferum*** Hedw.

Rock crevices and covering boulders above river 04.06.99, 04.06.105, 04.06.217, 04.06.269.

***Pterigynandrum filiforme*** Hedw.

On *Quercus*, walnut and dead wood, 04.06.126, 04.06.165, 04.06.198.

***Pterogonium gracile*** (Hedw.) Sim

On boulder above river, 04.06.141.

***Racomitrium canescens*** (Hedw.) Brid.

On soil in rock crevice above river, 04.06.203.

**\**Racomitrium heterostichum*** (Hedw.) Brid.

On rocks near entrance of copper mine with *Bartramia pomiformis*, 04.06.276A.

***Rhynchostegium confertum*** (Dicks.) Schimp.

On damp wall of house, 04.06.05, 04.06.248!

***Rhynchostegium megapolitanum*** (Web. & Mohr) Schimp.

Dead wood in grassland, 04.06.254.

***Saelania glaucescens*** (Hedw.) Broth.

On soil among boulders in river bed and on rock near entrance of copper mine, 04.06.80, 04.06.96, 04.06.112!, 04.06.113!, 04.06.273.

**\**Schistidium crassipilum*** H. H. Blom

On soil among stones and on stone wall, 04.06.06, 04.06.147, 04.06.277! (ver. H. H. Blom).

**\**Schistidium pruinatum*** (Wils. ex Schimp.) Roth

On boulders near river, on damp shaded wall of house, and on rock near copper mine, 04.06.06, 04.06.138!, 04.06.211, 04.06.277! (det. H. H. Blom).

***Syntrichia laevipila*** Brid.

On *Morus* and *Quercus*, 04.06.43!, 04.06.47, 04.06.285.

**\**Syntrichia papillosa*** (Wils.) Jur.

On *Morus*, 04.06.49.

***Syntrichia ruraliformis*** (Besch.) Cardot

Rocky soil in grassland, 04.06.184 (det. P. Sollman).

***Syntrichia ruralis*** (Hedw.) Web. & Mohr

On walnut, 04.06.257 (ver. P. Sollman).

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

On *Prunus*, *Morus*, dead wood and on soil among boulders in river bed, 04.06.11, 04.06.14!, 04.06.52, 04.06.114B (ver. P. Sollman).

***Tortula muralis*** Hedw.

On concrete, stones and rocky soil in grassland, 7 collections!

***Tortula subulata*** Hedw.

On soil among boulders in river bed, sandy base of *Morus*, stones and soil in grassland, and on rock near entrance of copper mine, 10 collections!

***Trichostomum brachydontium*** Bruch

Wide range of substrates, 10 collections (ver. P. Sollman, and H. H. Blom p.p.).

***Trichostomum crispulum*** Bruch

On soil among boulders in river bed and clayey soil in grassland, 04.06.79A, 04.06.101A, 04.06.114A, 04.06.201B, 04.06.243 (det. P. Sollman).

***Weissia controversa*** Hedw.

Soil-covered boulder and sandy soil in river bed, stone wall and clayey soil in grassland, 7 collections! (ver. P. Sollman).

**\**Weissia fallax*** (Sehm & Hornsch.) Müll. Hal.

Soil-covered rocks above river, 04.06.201! (det. P. Sollman).

**\**Weissia squarrosa*** (Nees & Hornsch.) Müll. Hal.

04.06.264! (det. P. Sollman).

**\**Zygodon viridissimus*** (Dicks.) Brid.

var. *viridissimus*

Dead tree in grassland, 04.06.171F (ver. P. Sollman).

**Hepaticae****\**Cephaloziella hampeana*** (Nees) Schiffn.

On soil among boulders in river bed and epiphytic on *Hypnum cupressiforme*, 04.06.111, 04.06.280! (ver. H. van Melick).

***Frullania dilatata*** (L.) Dumort.

On various tree species, 6 collections!

**\**Marsupella emarginata*** (Ehrh.) Dumort.

On rock near entrance of copper mine, 04.06.275.

***Pedinophyllum interruptum*** (Nees) C. Kaal.

Damp rock near entrance of copper mine, 04.06.283.

**\**Pellia epiphylla/neesiana***

On soil among boulders in river bed, 04.06.213, 04.06.214.

***Plagiochila porelloides* (Torr. ex Nees) Lindenb.**

On soil at base of rocks above river, 04.06.67.

***Radula complanata* (L.) Dumort.**

Damp rocks near entrance of copper mine, 04.06.282.

**\**Scapania subalpina* (Nees) Dumort.**

On soil in rock crevice above river, 04.06.100 (det. H. van Melick).

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