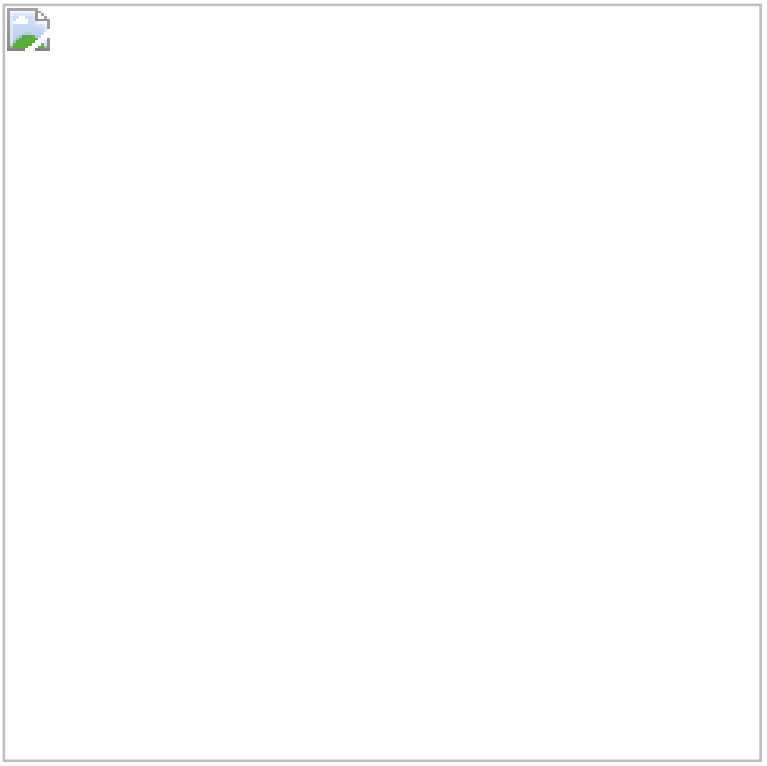

Additions to the bryophyte flora of the Durmitor National Park (Crna Gora) and a first conspectus of all records

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Additions to the bryophyte flora of the Durmitor National Park (Crna Gora) and a first conspectus of all records

Abstract

Kürschner, H. & Parolly, G.: Additions to the bryophyte flora of the Durmitor National Park (Crna Gora) and a first conspectus of all records. – Willdenowia 27: 249–264. 1997. – ISSN 0511–9618.

An inventory of 191 bryophytes from the Durmitor National Park (Montenegro) is presented, based on literature records and a recent collection of 211 numbers made by members of the Institute of Botany and Botanical Garden Belgrade. 19 taxa (nine liverworts and ten mosses) are reported for the first time from the area, including nine species (four liverworts and five mosses) new to Montenegro. Previous literature records have critically been revised with respect to the current taxonomy and nomenclature.

Introduction

The flora and vegetation of the Durmitor National Park in northern Crna Gora (Montenegro), which covers the plateau between the rivers Piva and Tara (Fig. 1), is one of the most interesting and best known of the former Yugoslavia, attracting botanists still today. Being part of the Dinarids, the area is dominated by the impressive scenery of a limestone mountain range strongly subjected to karstic erosion and rising from (600–)900 m up to 2522 m (Bobotov Kuk). Owing to this large vertical extension a clear altitudinal zonation of the vegetation, a variety of vegetation types, and a high diversity of ecological niches exist (Lakušić 1968, 1969, 1970a, b, 1984, Lakušić & al. 1982).

Also with respect to the bryophytes, the Durmitor National Park harbours one of the richest floras of the Balkans. Its bryophyte flora is treated in a small number of floristic and phytosociological papers, which are, however, partially outdated in taxonomic and nomenclatural respect (Vilhelm 1923, Martinčić 1964, Birks & Walters 1973, Pavletić & Pulević 1980). The hitherto most complete account, by Martinčić (1964), lists about 120 mosses but surprisingly no liverworts. Together with the records by Vilhelm (1923), which are based on the collections of J. Rohlena (Prague), the 18 mosses collected by Birks & Walters (1973) in the vicinity of Barno Jezero, and the species reported by Pavletić & Pulević (1980), nearly 170 taxa of bryophytes are known from the Durmitor area. This comparatively high number impressively demonstrates the bryofloristically outstanding position of the Durmitor area. The research history and state of bryological knowledge in Montenegro have been described by Pulević (1970). Further import-

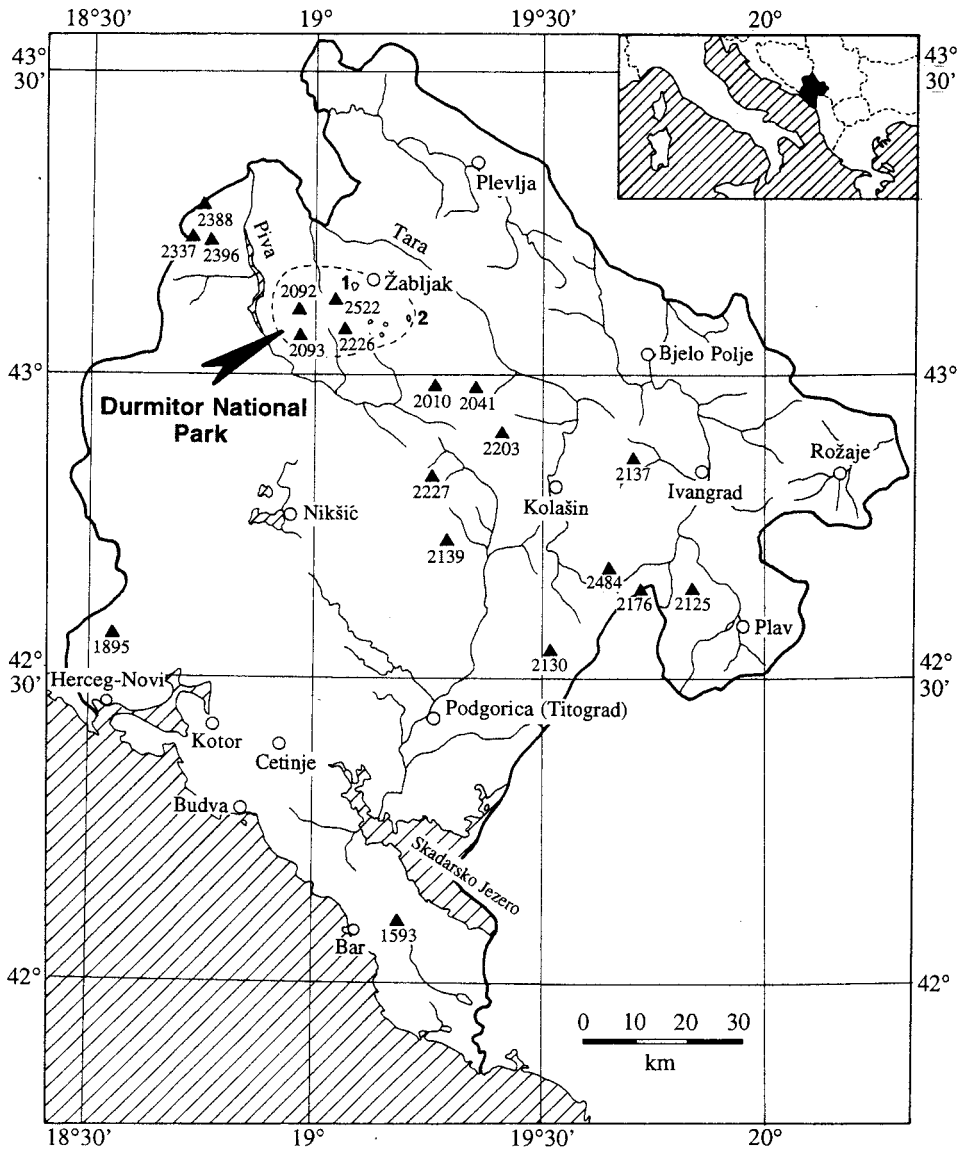

Fig. 1. Map of Crna Gora (Montenegro) with the Durmitor National Park (1 = Crno Jezero, 2 = Zminje Jezero).

ant sources are the bibliographies to the flora and vegetation of Montenegro (Pulević 1980, 1985), the "Prodromus flore briofita Jugoslavije" (Pavletić 1955), the "Catalogus florae Jugoslaviae, *Musci*" (Martinčić 1968), and the list of liverworts of coastal Yugoslavia by Bischler & Jovet-Ast (1973).

Between 1989 and 1994, S. Jovanović, D. Lakušić, S. Pavić and V. Stevanović of the Institute of Botany and Botanical Garden Belgrade made additional gatherings in the Durmitor area, which were sent to Berlin for identification and are deposited in the herbarium of the Botanic Garden and Botanical Museum Berlin-Dahlem (B). These collections contain 211 num-

bers, including some mixed gatherings, which have been separated and numbered by adding small letters to the original 179 collection numbers.

The 211 numbers comprise 77 taxa, of which 19 taxa are new to the Durmitor area (marked with an asterisk); nine of them are also new to Montenegro. These 77 taxa are listed below. In addition, an updated and revised catalogue of the bryophytes of the Durmitor National Park is presented (Tab. 1), comprising 19 liverworts and 172 mosses.

Collections of Durmitor bryophytes made by Jovanović, Lakušić, Pavić, and Stevanović between 1989 and 1994

Collecting localities

The collecting localities are numbered 1–21 in the following list and quoted in the list of the taxa below by these numbers, followed by a colon and the collection number *(1–179)* in italics.

1 Crno Jezero, 1410 m, pepples, 14.7.1994, *S. Pavić (no. 1, 3–10b)*
2 Crno Jezero, 1410 m, spruce wood, 14.7.1994, *S. Pavić (no. 32–43)*
3 Žabljak, between hotels Ribnica and Durmitor, 1400 m, spruce-fir wood, 16.7.1994, *V. Stevanović (no. 11–31)*
4 Žabljak, Otoka reka, 1400 m, meadows near the river, 15.7.1994, *V. Stevanović (no. 44–57)*
5 Between Barno Jezero and Crno Jezero, 1440 m, spruce wood, 6.2.1990, *D. Lakušić (no. 58–86)*
6 Between Crno Jezero, Mlinski potok and Zminje Jezero, 1430 m, spruce wood, 11.8.1993, *S. Pavić (no. 88–109)*
7 Between Lomni Do and Stožina, 1600 m, along the road's edge, 12.8.1993, *S. Pavić (no. 110, 113a, b)*
8 Between Lomni Do and Valovito Jezero, 1700 m, 12.8.1993, *S. Pavić (no. 111a, b, 112)*
9 Between Sedlo, Lomni Do and Valovito Jezero, 1700 m, 12.8.1993, *S. Pavić (no. 114–118)*
10 Between Sedlo, Uvita Greda and Lomni Do, 1600 m, 12.8.1993, *S. Pavić (no. 119–123)*
11 Between Crno Jezero, Točak and Velika Kalica, 1410–2020 m, spruce wood, 13.8.1993, *S. Pavić (no. 124–134)*
12 Canyon of Vaškovska reka, 650 m, 14.8.1993, *V. Stevanović & S. Jovanović (no. 135–139)*
13 Zminje Jezero, 1490 m, spruce wood, 1.10.1993, *S. Pavić (no. 140–157)*, 9.8.1994, *V. Stevanović (no. 170)*
14 Canyon of Sušica reka, 1100–1300 m, beech-fir-spruce wood, 15.7.1994, *S. Pavić (no. 159–169)*
15 Govedje Jezero, 1500 m, gap in spruce wood, 12.8.1994, *V. Stevanović (no. 171–174)*
16 Nadgora, Malo Crno Jezero, 1400 m, 12.8.1994, *V. Stevanović (no. 175, 176a, b)*
17 Žabljak, 1400 m, along the road's edge, 25.9.1993, *S. Pavić (no. 2)*
18 Lojanik, 2000 m, 29.7.1989, *D. Lakušić (no. 87)*
19 Between Govedje Jezero and Pošćensko Jezero, 1600 m, peat bog, 10.7.1994, *V. Stevanović (no. 177)*
20 Žugica, 1400 m, peat bog, 17.7.1994, *V. Stevanović (no. 178a, b)*
21 Ranisava, 1800 m, rocks above the lake, 16.7.1994, *V. Stevanović (no. 179)*

List of the taxa

Hepaticae

Jungermanniidae

Geocalycaceae

**Chiloscyphus pallescens* (Ehrh.) Dumort. – 13: *149b.*
Lophocolea heterophylla (Schrad.) Dumort. – 10: *120d.*

Jungermanniaceae
**Jungermannia leiantha* Grolle – 5: *76.* – New to Montenegro.

Lepidoziaceae
**Lepidozia reptans* (L.) Dumort. – 6: *106c.*

Plagiochilaceae
**Plagiochila porelloides* (Torr. ex Nees) Lindenb. – 1: *8b* (among *Campylium stellatum* var. *protensum*); 10: *122b.* – Previously included in *P. asplenioides*, but distinctly smaller in all its parts and separated by smaller leaf lamina cells. Cultivation experiments and biochemical studies have shown that the two species are specifically distinct (Grolle 1983). For phytogeographical reasons Vilhem's (1923) record of *P. asplenioides* ought to be referred to *P. porelloides.*

Pseudolepicoleaceae
**Blepharostoma trichophyllum* (L.) Dumort. – 6: *106b.* – New to Montenegro.

Ptilidiaceae
**Ptilidium pulcherrimum* (Weber) Vain. – 4: *45a;* 5: *82 p.p.* – New to Montenegro.

Radulaceae
**Radula lindenbergiana* Gottsche ex Hartm. f. – 3: *25b.* – New to Montenegro.

Scapaniaceae
**Scapania aequiloba* (Schwägr.) Dumort. – 1: *8c* (among *Campylium stellatum* var. *protensum*).

Marchantiidae

Marchantiaceae
**Conocephalum conicum* (L.) Dumort. – 18: *87.*
Marchantia polymorpha L. subsp. *polymorpha* – 19: *177.*

Musci

Sphagnidae

Sphagnaceae
**Sphagnum centrale* C.E.O. Jensen – 16: *175.* – New to Montenegro.
S. squarrosum Crome – 13: *142, 143.*
S. subnitens Russow & Warnst. – 5: *86.*

Polytrichidae

Polytrichaceae
Polytrichum juniperinum Hedw. – 2: *41;* 9: *117;* 10: *121;* 13: *141.*

Bryidae

Amblystegiaceae
Calliergon giganteum (Schimp.) Kindb. – 4: *55;* 13: *146, 152;* 15: *171a, 173;* 16: *176b.*
Calliergonella cuspidata (Hedw.) Loeske – 1: *7;* 3: *24b;* 16: *176a;* 20: *178a.*
Campylium stellatum var. *protensum* (Brid.) C.E.O. Jensen – 1: *8a.*
Drepanocladus aduncus (Hedw.) Warnst. – 15: *174.*
D. vernicosus (Mitt.) Warnst. – 3: *15, 24a;* 5: *61;* 8: *111a;* 13: *140, 156;* 15: *171b;* 20: *178b.*
Hygrohypnum luridum (Hedw.) Jenn. – 11: *128.*
Sanionia uncinata (Hedw.) Loeske – 1: *9;* 2: *38, 42 p.p.;* 3: *13, 27;* 4: *46, 47a, 50a;* 5: *70, 80, 82 p.p.;* 6: *91.*

Aulacomniaceae
Aulacomnium palustre (Hedw.) Schwägr. – 5: *65;* 13: *144.*

Bartramiaceae
**Philonotis seriata* Mitt. – 1: *4, 6;* 6: *90, 99.* – New to Montenegro.
Plagiopus oederiana (Sw.) H.A. Crum & L.E. Anderson – 1: *10a;* 2: *33;* 14: *164.*

Brachytheciaceae
Brachythecium salebrosum (F. Weber & D. Mohr) Schimp. – 14: *167b.*
**Eurhynchium hians* (Hedw.) Sande Lac. – 5: *84;* 14: *162b.*
Homalothecium lutescens (Hedw.) H. Rob. – 9: *114;* 12: *138;* 21: *179.*
H. philippeanum (Spruce) Schimp. – 3: *25a;* 10: *123;* 11: *130.*

Bryaceae
Bryum caespiticium Hedw. – 9: *118a;* 14: *161b, 168.*
B. capillare Hedw. – 3: *31;* 5: *58, 77;* 13: *150.*
B. creberrimum Taylor – 10: *120c.*
**B. elegans* Nees ex Brid. – 5: *79;* 13: *147 p.p.;* 14: *165.*
B. pseudotriquetrum (Hedw.) P. Gaertn., B. Mey. & Scherb. – 8: *111b;* 15: *172.*
Pohlia elongata Hedw. – 3: *11, 26;* 4: *56, 57 p.p.*
**P. longicollis* Hedw. – 3: *16.* – New to Montenegro.

Climaciaceae
Climacium dendroides (Hedw.) F. Weber & D. Mohr – 4: *54a;* 5: *63, 73;* 13: *153a.*

Cratoneuraceae
Cratoneuron commutatum (Hedw.) Roth – 4: *44.*
C. decipiens (De Not.) Loeske – 1: *3a.*

Dicranaceae
Dicranodontium denudatum (Brid.) Britt. – 3: *23;* 11: *124;* 12: *136.*
Dicranum fuscescens Sm. – 4: *50b, 51, 52;* 6: *89.*
D. scoparium Hedw. – 1: *5;* 2: *36, 39, 40, 43;* 3: *19, 20, 30;* 4: 49*;* 5: *59, 60, 71, 81, 83;* 6: *88, 98, 101, 106a, 109;* 11: *127;* 13: *145, 148, 151, 155, 170;* 14: *161a, 163a.*
Orthodicranum flagellare (Hedw.) Loeske – 2: *37;* 6: *102, 103.*
O. tauricum (Sapjegin) Smirnova – 4: *45b, 57 p.p.;* 5: *78, 85.*

Ditrichaceae
Ceratodon purpureus (Hedw.) Brid. – 1: *1.*
Distichium capillaceum (Hedw.) Bruch & Schimp. – 10: *120a, 122a.*
Ditrichum flexicaule (Schwägr.) Hampe – 7: *110;* 8: *112.*

Encalyptaceae
Encalypta vulgaris Hedw. – 9: *118b.*

Funariaceae
**Funaria hygrometrica* Hedw. – 17: *2.*

Grimmiaceae
**Racomitrium elongatum* Frisvoll – 4: *48;* 11: *131.* – New to Montenegro. *R. elongatum* belongs to the *R. canescens* group (Frisvoll 1983), and the report of *R. canescens* (Hedw.) Brid. by Martinčić (1964) perhaps refers to *R. elongatum.*
Schistidium apocarpum (Hedw.) Bruch & Schimp. – 11: *129.*

Hylocomiaceae
Hylocomium splendens (Hedw.) Schimp. – 3: *17, 22;* 4: *46, 47c;* 5: *62, 67, 68, 69;* 6: *92, 93.*
Pleurozium schreberi (Brid.) Mitt. – 6: *95.*
Rhytidiadelphus triquetrus (Hedw.) Warnst. – 3: *14, 18, 21;* 4: *47b;* 5: *66;* 6: *94, 97;* 11: *126;* 12: *135.*

Hypnaceae
Ctenidium molluscum (Hedw.) Mitt. – 2: *35;* 3: *28;* 6: *96, 107, 108.*
Hypnum cupressiforme Hedw. var. *cupressiforme* – 12: *137.*

Lembophyllaceae
**Isothecium alopecuroides* (Dubois) Isov. – 5: *72, 75;* 14: *159.*

Leskeaceae
Lescuraea incurvata (Hedw.) E. Lawton – 7: *113b.*

Mniaceae
**Mnium marginatum* (With.) P. Beauv. – 10: *120b;* 14: *160b.* – New to Montenegro.
M. spinulosum Bruch & Schimp. – 2: *32;* 6: *105;* 11: *132.*
M. stellare Hedw. – 14: *163b.*
Plagiomnium elatum (Bruch & Schimp.) T.J. Kop. – 1: *3b;* 13: *153b.*
P. undulatum (Hedw.) T.J. Kop. – 4: *54b.*
**Rhizomnium magnifolium* (Horik.) T.J. Kop. – 15: *171c.* – New to Montenegro.

Neckeraceae
Metaneckera menziesii (Drumm.) Steere – 12: *139.*

Orthotrichaceae
Orthotrichum anomalum Hedw. – 13: *157.*

Plagiotheciaceae
Herzogiella seligeri (Brid.) Z. Iwats. – 6: *100;* 14: *160a, 167a.*
Plagiothecium denticulatum (Hedw.) Schimp. var. *denticulatum* – 2: *34.*
P. laetum Schimp. – 5: *74.*

Pottiaceae
Barbula vinealis Brid. – 9: *118c.*
Tortella bambergeri (Schimp.) Broth. – 11: *125, 134.* – A critical taxon with a more southern, alpine distribution, distinguished from *T. tortuosa* by a distinct central strand, very fragile leaves, and a weakly twisted peristome (only 1/2 time twisted counterclockwise). Because fragile leaves also exist in some populations of *T. tortuosa*, some authors regard this combination of characters as less reliable and obviously not fixed. Therefore, Frey & al. (1995) include this taxon in the *T. tortuosa* complex.
T. tortuosa (Hedw.) Limpr. – 1: *10b;* 3: *12;* 6: *104;* 7: *113a;* 9: *115, 116;* 10: *119;* 11: *133;* 13: *149a, 154;* 14: *166.*
Tortula ruralis (Hedw.) P. Gaertn., B. Mey. & Scherb. – 5: *64.*
T. subulata Hedw. – 3: *29;* 14: *169.*

Pterigynandraceae
Pterigynandrum filiforme Hedw. – 2: *42 p.p.;* 5: *82 p.p.;* 14: *162a.*

Theliaceae
Myurella julacea (Schwägr.) Schimp. – 13: *147 p.p.*

Thuidiaceae
Heterocladium dimorphum (Brid.) Schimp. – 4: *53.*

Conspectus of the Durmitor bryophytes and some floristic and phytogeographical remarks

For the first time, an updated and revised catalogue of the bryophytes of the Durmitor National Park is given (Tab. 1), including synonyms used in the older literature (generic, specific, subspecific, and variety names; formae have been neglected). As far as possible, we tried to apply the correct nomenclature according to current taxonomic standards. Accepted names given in the catalogue are largely based on Frahm & Frey (1992) and Frey & al. (1995).

Presently, the known bryophyte flora of the Durmitor area comprises 191 taxa. *Blepharostoma trichophyllum, Jungermannia leiantha, Ptilidium pulcherrimum, Radula lindenbergiana (Hepaticae), Mnium marginatum, Philonotis seriata, Pohlia longicollis, Racomitrium elongatum, Rhizomnium magnifolium*, and *Sphagnum centrale (Musci)* are reported for the first time from Montenegro. In addition, *Chiloscyphus pallescens, Conocephalum conicum, Lepidozia reptans, Plagiochila porelloides, Scapania aequiloba (Hepaticae), Bryum elegans, Eurhynchium hians, Funaria hygrometrica,* and *Isothecium alopecuroides (Musci)* are new to the Durmitor.

Among the new records there are also species that are quite common and widespread in the temperate regions of the world (e.g. *Conocephalum conicum, Funaria hygrometrica*), indicating the lack of an intensive and careful local study. In view of the fact that the Durmitor National Park offers a wide spectrum of different and ecologically highly diverse sites (montane and oreale beech and spruce forests, meadows, bogs, sedge fens, subalpine swards, snow-patches), much more species than presently known could be expected. The conspectus therefore is preliminary and clearly points out gaps in our knowledge of the bryophyte flora of this part of Montenegro. Especially liverworts and *Sphagnaceae* are obviously undercollected, and this holds true also for epiphytic and epilithic taxa as well as taxa preferring subalpine habitats. Future collecting activities should concentrate on these taxa, ecological groups and habitats.

Nevertheless, the 191 taxa recorded from the Durmitor National Park represent approximately 2/3 of all known Montenegrinean bryophytes. Pavletić (1955) lists 307 taxa for Crna Gora, including some that nowadays are considered as synonyms. Adding the new records of Bischler & Jovet-Ast (1973), Pavletić & Pulević (1980), the here presented results, and the mostly neglected older reports (e.g. Vilhelm 1923), a total of about 340–350 bryophytes is estimated for Montenegro.

From a phytogeographical point of view, the bryoflora of the Durmitor area clearly is a Central European one, dominated by the Northern element (Frey & Kürschner 1988), which includes species with a subarctic, circumpolar, boreal, temperate, alpine and submediterranean-subatlantic distribution (Laurasian distribution patterns, Schuster 1983), and cosmopolitan taxa. 78.5 % (150 taxa) belong to the Northern element, whereas 21 % (40 taxa) show cosmopolitan or subcosmopolitan distribution patterns (Tab. 2). In contrast, only 0.5 % (1 taxon, *Funaria muehlenbergii*) are of Mediterranean origin (circum-Tethyan elements sensu Frey & Kürschner 1988, comprising the three xerothermic regions of the Holarctis, the Mediterranean, Saharo-Arabian and Irano-Turanian Region, and forming a floristic-historical unit, the Mesogean Region = Old Mediterranean). The montane to subalpine character of the Durmitor National Park is reflected also by the high percentage of taxa exclusively restricted to high mountain areas (24.1 % or 46 taxa, Tab. 2) and taxa of a subarctic-alpine distribution (2.6 %), a fact, already mentioned by Martinčić (1964). This underlines the Central European character of the continental, inner part of the Balkan Peninsula and the Durmitor National Park.

Tab. 1. Conspectus of the bryophytes of the Durmitor National Park.

	Source				
	Vilhelm (1923)	Martinčič (1964)	Birks & Walters (1973)	Pavletič & Pulevič (1980)	coll. Jovanovič, Lakušič, Pavič & Stevanovič (1989-1994)
HEPATICAE					
Jungermanniidae					
Aneuraceae					
Riccardia latifrons (Lindb.) Lindb. [≡ *Aneura latifrons* Lindb.]	-	-	-	●	-
Riccardia palmata (Hedw.) Carruth. [≡ *Aneura palmata* Dumort.]	-	-	-	●	-
Geocalycaceae					
Chiloscyphus pallescens (Ehrh.) Dumort.	-	-	-	-	●
Chiloscyphus polyanthos (L.) Corda	●	-	-	-	-
Lophocolea heterophylla (Schrad.) Dumort.	-	-	-	●	●
Jungermanniaceae					
Jungermannia atrovirens Dumort. [= *J. riparia* Taylor]	●	-	-	-	-
Jungermannia leiantha Grolle	-	-	-	-	●
Lepidoziaceae					
Lepidozia reptans (L.) Dumort.	-	-	-	-	●
Plagiochilaceae					
Plagiochila asplenioides (L. em. Taylor) Dumort.	●	-	-	-	-
Plagiochila porelloides (Torr. ex Nees) Lindenb.	-	-	-	-	●
Pseudolepicoleaceae					
Blepharostoma trichophyllum (L.) Dumort.	-	-	-	-	●
Ptilidiaceae					
Ptilidium ciliare (L.) Hampe [≡ *Blepharozia ciliaris* (L.) Dumort.]	●	-	-	-	-
Ptilidium pulcherrimum (Weber) Vain.	-	-	-	-	●
Radulaceae					
Radula complanata (L.) Dumort.	-	-	-	●	-
Radula lindenbergiana Gottsche ex Hartm. f.	-	-	-	-	●
Scapaniaceae					
Scapania aequiloba (Schwägr.) Dumort.	-	-	-	-	●
Scapania umbrosa (Schrad.) Dumort.	-	-	-	●	-
Marchantiidae					
Marchantiaceae					
Conocephalum conicum (L.) Dumort.	-	-	-	-	●
Marchantia polymorpha L. (s. l.)	●	-	-	-	●

continued on the next page

Tab. 1. continued

MUSCI					
Sphagnidae					
Sphagnaceae					
Sphagnum centrale C. E. O. Jensen	-	-	-	-	●
Sphagnum contortum Schultz	-	-	●	-	-
Sphagnum recurvum P. Beauv.	-	-	●	-	-
Sphagnum squarrosum Crome	-	-	●	-	●
Sphagnum subnitens Russow & Warnst. [= *S. plumulosum* Röll]	-	-	●	-	●
Polytrichidae					
Polytrichaceae					
Atrichum undulatum (Hedw.) P. Beauv.	-	●	-	-	-
Pogonatum urnigerum (Hedw.) P. Beauv. var. *urnigerum*	●	●	-	-	-
Pogonatum urnigerum var. *ovatum* Vilh.	●	-	-	-	-
Polytrichum alpinum Hedw. subsp. *alpinum*	-	●	-	-	-
Polytrichum alpinum subsp. *rohlenae* Vilh.	●	-	-	-	-
Polytrichum commune Hedw.	-	●	-	●	-
Polytrichum formosum Hedw.	-	●	-	-	-
Polytrichum juniperinum Hedw.	-	●	-	-	●
Polytrichum piliferum Hedw.	●	-	-	-	-
Tetraphididae					
Tetraphidaceae					
Tetraphis pellucida Hedw.	-	●	-	-	-
Bryidae					
Amblystegiaceae					
Calliergon giganteum (Schimp.) Kindb.	-	-	●	-	●
[≡ *Acrocladium giganteum* (Schimp.) P. W. Richards & Wall.]					
Calliergon trifarium (F. Weber & D. Mohr) Kindb.	-	-	●	-	-
[≡ *Acrocladium trifarium* (F. Weber & D. Mohr) P. W. Richards & Wall.]					
Calliergon turgescens (T. Jensen) Kindb.	-	-	●	-	-
[≡ *Scorpidium turgescens* (T. Jensen) Loeske]					
Calliergonella cuspidata (Hedw.) Loeske	-	●	●	-	●
[≡ *Acrocladium cuspidatum* (Hedw.) Lindb.]					
Campylium stellatum var. *protensum* (Brid.) C. E. O. Jensen	-	●	-	-	●
[≡ *C. protensum* (Brid.) Kindb.]					
Drepanocladus aduncus (Hedw.) Warnst.	●	-	-	-	●
[≡ *Hypnum aduncum* Hedw.]					
Drepanocladus exannulatus (Bruch & Schimp.) Warnst.	-	-	-	●	-
Drepanocladus revolvens (Sw.) Warnst.	-	-	●	-	-
Drepanocladus vernicosus (Mitt.) Warnst.	-	-	●	-	●
Hygrohypnum luridum (Hedw.) Jenn.	-	●	-	-	●
Sanionia uncinata (Hedw.) Loeske	●	●	-	●	●
[≡ *Drepanocladus uncinatus* (Hedw.) Warnst., ≡ *Hypnum uncinatum* Hedw.]					
Aulacomniaceae					
Aulacomnium palustre (Hedw.) Schwägr.	-	●	●	-	●

continued on the next page

Tab. 1. continued

	Source				
	Vilhelm (1923)	Martinčič (1964)	Birks & Walters (1973)	Pavletič & Pulevič (1980)	coll. Jovanovič, Lakušič, Pavič & Stevanovič (1989-1994)
Bartramiaceae					
Bartramia halleriana Hedw.	-	●	-	-	-
Bartramia ithyphylla Brid.	●	●	-	-	-
Bartramia pomiformis var. *crispa* Bruch & Schimp.	●	-	-	-	-
Philonotis calcarea (Bruch & Schimp.) Schimp.	-	●	-	-	-
Philonotis fontana (Hedw.) Brid.	●	-	-	-	-
Philonotis seriata Mitt.	-	-	-	-	●
Plagiopus oederiana (Sw.) H. A. Crum L. E. Anderson	-	●	-	-	●
Brachytheciaceae					
Brachythecium glareosum (Spruce) Schimp.	-	●	-	-	-
Brachythecium rivulare Schimp.	-	●	-	-	-
Brachythecium salebrosum (F. Weber & D. Mohr) Schimp.	-	●	-	-	●
Brachythecium starkei (Brid.) Schimp.	-	●	-	-	-
Brachythecium velutinum (Hedw.) Schimp.	●	●	-	●	-
Cirriphyllum piliferum (Hedw.) Grout	-	●	-	-	-
Eurhynchium praelongum (Hedw.) Schimp.	-	●	-	-	-
[≡ *Oxyrhynchium praelongum* (Hedw.) Warnst.]					
Eurhynchium pulchellum (Hedw.) Jenn. var. *pulchellum*	-	●	-	-	-
Eurhynchium pulchellum var. *praecox* (Hedw.) Dix.	-	●	-	-	-
[incl. var. *diversifolium* (Schimp.) C. E. O. Jensen]					
Eurhynchium schleicheri (Hedw. f.) Jur.	●	-	-	-	-
Eurhynchium striatum (Hedw.) Schimp.	●	-	-	-	-
Eurhynchium hians (Hedw.) Sande Lac.	-	-	-	-	●
Homalothecium lutescens (Hedw.) H. Rob.	●	●	-	-	●
[≡ *Camptothecium lutescens* (Hedw.) Schimp.]					
Homalothecium philippeanum (Spruce) Schimp..	●	●	-	-	●
Homalothecium sericeum (Hedw.) Schimp.	●	●	-	-	-
Scleropodium purum (Hedw.) Limpr.	●	●	-	-	-
[≡ *Pseudoscleropodium purum* (Hedw.) Fleisch.]					
Bryaceae					
Anomobryum julaceum (P. Gaertn., B. Mey. & Scherb.) Schimp.	●	-	-	-	-
[= *A. concinatum* (Spruce) Lindb.]					

continued on the next page

Tab. 1. continued

Bryum caespiticium Hedw. var. *caespiticium*	●	●	-	-	●
Bryum caespiticium var. *microcarpum* Vilh.	●	-	-	-	-
Bryum capillare Hedw.	-	●	-	-	●
Bryum creberrimum Taylor [= *B. affine* Bruch]	-	●	-	-	●
Bryum elegans Nees ex Brid.	-	-	-	-	●
Bryum pseudotriquetrum (Hedw.) P. Gaertn., B. Mey. & Scherb.	-	●	●	-	●
Pohlia cruda (Hedw.) Lindb. [≡ *Webera cruda* (Hedw.) Bruch]	●	●	-	-	-
Pohlia elongata Hedw. [= *Webera acuminata* (Hoppe & Hornsch.) Schimp.]	●	●	-	-	●
Pohlia longicollis (Hedw.) Lindb.	-	-	-	-	●
Pohlia nutans (Hedw.) Lindb. [≡ *Webera nutans* (Schreb.) Hedw.]	●	●	-	-	-
Buxbaumiaceae					
Buxbaumia viridis (Moug. ex DC.) Brid. ex Moug. & Nestl. [= *B. indusiata* Brid.]	-	●	-	-	-
Climaciaceae					
Climacium dendroides (Hedw.) F. Weber & D. Mohr	-	●	●	-	●
Cratoneuraceae					
Cratoneuron commutatum (Hedw.) Roth	-	●	-	-	●
Cratoneuron decipiens (De Not.) Loeske	-	●	-	-	●
Cratoneuron filicinum (Hedw.) Spruce	-	●	-	-	-
Dicranaceae					
Dichodontium pellucidum (Hedw.) Schimp.	-	●	-	-	-
Dicranodontium denudatum (Brid.) Britt.	-	●	-	-	●
Dicranum bonjeanii De Not.	-	-	●	-	-
Dicranum fuscescens Sm.	-	●	-	-	●
Dicranum majus Sm.	●	-	-	-	-
Dicranum polysetum Sw.	-	●	-	-	-
Dicranum scoparium Hedw.	●	●	-	●	●
Dicranum viride (Sull. & Lesq.) Lindb.	●	-	-	-	-
Kiaeria falcata (Hedw.) I. Hagen [≡ *D. falcatum* Hedw.]	●	-	-	-	-
Oncophorus virens (Hedw.) Brid.	●	-	-	-	-
Orthodicranum flagellare (Hedw.) Loeske	-	●	-	-	●
Orthodicranum tauricum (Sapjegin) Smirnova [= *O. strictum* (Schleich.) Culm.]	-	●	-	-	●
Ditrichaceae					
Ceratodon purpureus (Hedw.) Brid.	●	●	-	-	●
Distichium capillaceum (Hedw.) Bruch & Schimp.	●	●	-	-	●
Distichium inclinatum (Hedw.) Bruch & Schimp.	-	●	-	-	-
Ditrichum flexicaule (Schwägr.) Hampe	-	●	-	-	●
Saelania glaucescens (Hedw.) Broth.	-	●	-	-	-
Encalyptaceae					
Encalypta alpina Sm. [= *E. commutata* Bruch & Schimp.]	●	-	-	-	-
Encalypta ciliata Hedw.	-	●	-	-	-
Encalypta rhaptocarpa Schwägr.	●	-	-	-	-
Encalypta streptocarpa Hedw.	-	●	-	-	-

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Tab. 1. continued

	Source				
	Vilhelm (1923)	Martinčič (1964)	Birks & Walters (1973)	Pavletić & Pulević (1980)	coll. Jovanović, Lakušić, Pavić & Stevanović (1989-1994)
Encalypta vulgaris Hedw.	-	●	-	-	●
Fissidentaceae					
Fissidens bryoides Hedw. subsp. *bryoides*	-	●	-	-	-
Fissidens dubius P. Beauv. [= *F. cristatus* Wilson ex Mitt.]	-	●	-	-	-
Fissidens taxifolius Hedw.	●	●	-	-	-
Fontinalaceae					
Fontinalis antipyretica Hedw.	-	●	-	-	-
Funariaceae					
Funaria hygrometrica Hedw.	-	-	-	-	●
Funaria muehlenbergii Turner [= *F. calcarea* Wahlenb.]	-	●	-	-	-
Grimmiaceae					
Racomitrium canescens (Hedw.) Brid.	-	●	-	-	-
Racomitrium elongatum Frisvoll	-	-	-	-	●
Schistidium alpicola (Hedw.) Limpr.	-	●	-	-	-
Schistidium apocarpum (Hedw.) Bruch & Schimp.	-	●	-	-	●
Hylocomiaceae					
Hylocomium pyrenaicum (Spruce) Lindb.	●	-	-	-	-
Hylocomium splendens (Hedw.) Schimp.	-	●	-	-	●
Pleurozium schreberi (Brid.) Mitt.	-	●	-	-	●
Rhytidiadelphus squarrosus (Hedw.) Warnst.	●	●	-	-	-
Rhytidiadelphus triquetrus (Hedw.) Warnst.	●	●	-	●	●
Hypnaceae					
Ctenidium molluscum (Hedw.) Mitt.	●	●	-	-	●
Homomallium incurvatum (Brid.) Loeske	-	●	-	-	-
Hypnum bambergeri Schimp.	-	●	-	-	-
Hypnum cupressiforme Hedw.	●	●	-	-	●
Hypnum fertile Sendtn.	-	-	-	●	-
Hypnum lindbergii Mitt.	-	●	-	-	-
Hypnum pallescens (Hedw.) P. Beauv. [= *H. reptile* auct.]	●	-	-	-	-
Hypnum recurvatum (Lindb. & Arnell) Kindb. [= *H. fastigiatum* Brid.]	-	●	-	-	-
Hypnum vaucheri Lesq.	-	●	-	-	-
Orthothecium rufescens (Brid.) Schimp.	-	●	-	-	-

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Tab. 1. continued

Lembophyllaceae					
Isothecium alopecuroides (Dubois) Isov.	-	-	-	-	●
Isothecium myosuroides Brid.	-	●	-	-	-
Leskeaceae					
Lescuraea incurvata (Hedw.) E. Lawton	-	●	-	-	●
[≡ *Pseudoleskea incurvata* (Hedw.) Loeske]					
Lescuraea mutabilis (Brid.) Lindb. ex I. Hagen	-	●	-	-	-
Leskeella nervosa (Brid.) Loeske	●	●	-	-	-
[≡ *Leskea nervosa* (Schwägr.) Myrin]					
Leucodontaceae					
Leucodon sciuroides (Hedw.) Schwägr.	●	-	-	-	-
Meeslaceae					
Meesia uliginosa Hedw. [= *M. trichodes* Spruce]	●	●	-	-	-
Mnlaceae					
Cyrtomnium hymenophylloides (Huebener) Nyholm	●	-	-	-	-
[≡ *Mnium hymenophylloides* Huebener]					
Mnium ambiguum H. Müll.	-	●	-	-	-
[= *M. orthorhynchum* subsp. *lycopodioides* (Schwägr.) Podp.]					
Mnium marginatum (With.) P. Beauv.	-	-	-	-	●
Mnium hornum Hedw.	●	-	-	-	-
Mnium spinosum (Voit) Schwägr.	-	●	-	-	-
Mnium spinulosum Bruch & Schimp.	-	●	-	-	●
Mnium stellare Hedw.	●	●	-	-	●
Mnium thomsonii Schimp. [= *M. orthorhynchum* Lindb.]	-	●	-	-	-
Plagiomnium affine (Blandow) T. J. Kop. [≡ *Mnium affine* Blandow]	-	●	-	-	-
Plagiomnium elatum (Bruch & Schimp.) T. J. Kop. [= *Mnium seligeri* Jur.]	-	●	-	-	●
Plagiomnium ellipticum (Brid.) T. J. Kop. [= *Mnium rugicum* Laurer]	-	●	-	-	-
Plagiomnium rostratum (Schrad.) T. J. Kop.	●	●	●	-	-
[= *Mnium longirostre* Brid. ≡ *M. rostratum* Schrad.]					
Plagiomnium undulatum (Hedw.) T. J. Kop. [≡ *Mnium undulatum* Hedw.]	●	●	-	●	●
Rhizomnium magnifolium (Horik.) T. J. Kop.	-	-	-	-	●
Rhizomnium punctatum (Hedw.) T. J. Kop. [≡ *Mnium punctatum* Hedw.]	-	●	-	-	-
Neckeraceae					
Metaneckera menziesii (Drumm.) Steere	-	●	-	-	●
[≡ *Neckera menziesii* Hook.]					
Neckera complanata (Hedw.) Huebener	●	●	-	-	-
Orthotrichaceae					
Orthotrichum anomalum Hedw. (incl. var. *saxatile* Milde)	-	●	-	-	●
Orthotrichum cupulatum Brid.	-	●	-	-	-
Orthotrichum patens Bruch ex Brid.	-	●	-	-	-
Orthotrichum striatum Hedw.	-	●	-	-	-

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Tab. 1. continued

	Source				
	Vilhelm (1923)	Martinčič (1964)	Birks & Walters (1973)	Pavletić & Pulevič (1980)	coll. Jovanović, Lakušić, Pavić & Stevanović (1989-1994)
Plagiotheciaceae					
Herzogiella seligeri (Brid.) Z. Iwats.	-	●	-	-	●
[≡ *Dolichotheca seligeri* (Brid.) Loeske]					
Isopterygiopsis pulchella (Hedw.) Z. Iwats.	-	●	-	-	-
[≡ *Isopterygium pulchellum* (Hedw.) A. Jaeger]					
Plagiothecium denticulatum (Hedw.) Schimp. var. *denticulatum*	●	-	-	-	●
Plagiothecium denticulatum var. *undulatum* R. Ruthe	-	●	-	-	-
[= *P. ruthei* Limpr.]					
Plagiothecium laetum Schimp.	-	●	-	-	●
Plagiothecium nemorale (Mitt.) A. Jaeger [= *P. sylvaticum* auct.]	●	-	-		-
Pottiaceae					
Barbula acuta (Brid.) Brid.	-	●	-	-	-
Barbula convoluta Hedw.	-	●	-	-	-
[≡ *Streblotrichum convolutum* (Hedw.) P. Beauv.]					
Barbula spadicea (Mitt.) Braithw.	-	●	-	-	-
[≡ *Didymodon spadiceus* (Mitt.) Limpr.]					
Barbula unguiculata Hedw.	-	●	-	-	-
Barbula vinealis Brid. subsp. *vinealis*	-	●	-	-	●
Barbula vinealis subsp. *cylindrica* (Tayler) Bouvet	●	-	-	-	-
[≡ *B. cylindrica* Boulay]					
Bryoerythrophyllum recurvirostrum (Hedw.) P. C. Chen	●	●	-	-	-
[= *Didymodon rubellus* (Hoffm.) Bruch & Schimp..]					
Desmatodon latifolius (Hedw.) Brid.	-	●	-	-	-
Oxystegus tenuirostris (Hook. & Taylor) A. J. Smith	●	-	-	-	-
[= *Trichostomum cylindricum* (Bruch) C. Müll.]					
Pseudocrossidium hornschuchianum (Schultz) R. H. Zander	●	-	-	-	-
[≡ *Barbula hornschuchiana* Schultz]					
Tortella bambergeri (Schimp.) Broth.	●	-	-	-	●
[≡ *Trichostomum bambergeri* Schimp.]					
Tortella tortuosa (Hedw.) Limpr.	●	●	-	●	●
Tortula norvegica (F. Weber) Wahlenb. & Lindb.	-	●	-	-	-
[= *Syntrichia ruralis* var. *alpina* Wahlenb.]					
Tortula ruralis (Hedw.) P. Gaertn., B. Mey. & Scherb.	●	●	-	-	●

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Tab. 1. continued

[≡ *Syntrichia ruralis* (Hedw.) Brid.]					
Tortula subulata Hedw.	●	●	-	-	●
[≡ *Syntrichia subulata* (Hedw.) F. Weber & D. Mohr]					
Trichostomum brachydontium Bruch	-	●	-	-	-
Weissia controversa Hedw. [= *W. fallax* Sehlm.]	-	●	-	-	-
Pterigynandraceae					
Pterigynandrum filiforme Hedw.	-	●	-	-	●
Splachnaceae					
Splachnum ampullaceum Hedw.	-	-	●	-	-
Tetraplodon mnioides (Hedw.) Bruch & Schimp.	-	-	●	-	-
Theliaceae					
Myurella julacea (Schwägr.) Schimp.	●	●	-	-	●
Myurella tenerrima (Brid.) Lindb.	●	-	-	-	-
[= *M. apiculata* (Sommerf.) Schimp.]					
Thuidiaceae					
Abietinella abietina (Hedw.) Fleisch.	●	●	-	-	-
[≡ *Thuidium abietinum* (Hedw.) Schimp.]					
Heterocladium dimorphum (Brid.) Schimp.	-	●	-	-	●
[= *H. squarrosulum* Lindb.]					
Timmiaceae					
Timmia norvegica J. E. Zetterst.	-	●	-	-	-

Tab. 2. Phytogeographical analysis of the bryophytes of the Durmitor National Park.

	%	Total number of taxa
Floristic element		
Cosmopolitan (subcosmopolitan) taxa	21.0	40
Northern taxa	78.5	150
Circum-Tethyan taxa	0.5	1
Distribution		
Lowland to montane (subalpine)	73.3	140
Montane to subalpine	24.1	46
Subarctic-alpine	2.6	5

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