

## New national and regional bryophyte records, 22

Intending contributors to this column should consult the Instructions for Authors in part 1 of this volume, and should address their contributions to the column editor.

1. *Bryum moravicum* Podp.

**Contributors:** C. Sérgio, C. Garcia and A. Martins

**Portugal:** ALTO ALENTEJO: Crato, Ribeira de Sôr, Monte das Cortiças, 29SND9554, 180 m a.s.l., 15 December 1993, *leg.* C. Sérgio 8857 (LISU 231734); BEIRA ALTA: Alcafache, pr. das Termas, sobre *Tilia*, 29TNE954943, 250 m a.s.l., 8 June 2002, *leg.* C. Sérgio 12578 (LISU 231724); MINHO:

Serra da Arga, próximo da Castanheira, epífito sobre *Quercus robur*, 29TNG2334, 318 m a.s.l., 25 June 2003 leg. C. Garcia (LISU 205125).

The first confirmed specimen of *Bryum moravicum* for Portugal was found in a locality in the central part of the country (Beira Alta: Alcafache) in an Oceanic area in a diverse epiphytic community on a species of *Tilia*. Subsequently, in the course of a taxonomic revision of the genus *Bryum* in the Iberian bryoflora, based primarily on specimens included in LISU herbarium, a significant number of additional populations of the species were found. The majority were included in the Herbarium under the names *B. capillare* Hedw. and *B. torquescens* Bruch & Schimp. The specimens cited above are representative. The revision has revealed that the species is relatively common in Portugal, present from the North to the South, but more frequent in Atlantic areas, in the following provinces: Minho, Trás-os-Montes e Alto Douro, Douro Litoral, Beira Litoral Beira Alta, Estremadura, Ribatejo, Alto Alentejo and Baixo Alentejo.

The current range of *B. moravicum* extends from North and Central Europe to Morocco and North America (Kučera & Holyoak, 2005), and in view of its presence in Spain it was expected that it would be recognised in Portugal. Though very distinct and well-defined (Holyoak, 2004), this *Bryum* has not been unanimously recognised, and some authors have considered it to be conspecific with a broadly defined *B. capillare*. However Demaret *et al.* (1993) and Holyoak (2004) have adopted consistent taxonomic criteria based on the presence of axillary filamentous gemmae, generally narrowly decurrent leaves with plane margins, and a predominantly epiphytic habitat. It is also listed as an independent species in the recent European checklist (Hill *et al.*, 2006). It is not cited for Portugal in the latest bryophyte check list of the Iberian Peninsula (Sérgio *et al.*, 2007), but it is considered a common taxon in Spain, and is excluded from this Red List.

The epiphytic condition seems to be almost constant in Portuguese specimens so far identified. Of about 180 specimens identified as *B. capillare* and labelled as epiphytic, more than 15% are *Bryum moravicum*. This ecological characteristic is also indicated for British plants (Kučera & Holyoak, 2005).

2. *Bucklandiella heterostichoides* (Cardot) Bednarek-Ochyra & Ochyra

**Contributors:** H. Bednarek-Ochyra, R. Ochyra and M. Lebouvier

**Îles Kerguelen:** GRANDE TERRE: Péninsule Courbet: (1) broad valley between Mont Amery and Mont Crozier, ca 600 m a.s.l., 49°17'36.9"S, 70°00'15.8"E, forming large monospecific patches in open, dry places on gravelly ground in the fellfield, 28 December 2006, leg. R. Ochyra 3822/06 (with Ch. Brumbt) (KRAM); (2) at southern foot of Les Mammelles between Lac Margot and Lac Supérieur, 380 m a.s.l., 49°15'01.1"S, 70°02'08.1"E, forming extensive patches on dry and exposed basalt blocks near the tributary

of Rivière du Sud, 27 December 2006, leg. R. Ochyra 3644/06 (with Ch. Brumbt) (KRAM).

*Bucklandiella heterostichoides* has long been considered as an amphiatlantic south-cool-temperate species, restricted in its distribution to the Tierra del Fuego archipelago and the Falkland Islands (Cardot, 1908; Cardot & Brotherus, 1923; Roivainen, 1955) and extending to subantarctic South Georgia (Bell, 1974). In addition, it was recorded at a highly disjunct station on Tristan da Cunha in the South Atlantic (Dixon, 1960). Now the range of this species is markedly extended to subantarctic Îles Kerguelen, where it occurs occasionally, though abundantly in places, in the fellfield vegetation at high elevations. In the Fuegian region as well as on the Falkland Islands and Tristan da Cunha *B. heterostichoides* was recorded exclusively at alpine elevations and elsewhere the species seems to have its optimum occurrence in the Subantarctic, having been recorded at most of its known stations in this biome; its distribution pattern, therefore, may be interpreted as amphiatlantic subantarctic, although so far it has not been recorded at intermediate locations either on the Prince Edward Islands or Îles Crozet.

3. *Bucklandiella striatipila* (Cardot) Bednarek-Ochyra & Ochyra

**Contributors:** H. Bednarek-Ochyra, R. Ochyra and M. Lebouvier

**Îles Crozet:** ÎLE DE LA POSSESSION: fellfield 2 km south of Port Alfred and 2 km south-east of Mont Branca, 185 m a.s.l., 46°26'16"S, 51°51'33"E, in crevices and on ledges of lava rock in dry and exposed situation, associated with *Valdonia microcarpa*, *Bucklandiella membranacea* and *Andreaea acutifolia*, 11 November 2006, leg. R. Ochyra 189/06 (with N. van der Putten) (KRAM).

Despite its distinctiveness, *Bucklandiella striatipila* has not been universally recognised as a species in its own right and it was considered to be conspecific with *B. crispipila* (Taylor) Bednarek-Ochyra & Ochyra (Robinson, 1975; Deguchi, 1984, 1987; Frisvoll, 1988). However, *B. striatipila* is at once distinct from *B. crispipila* in having a much broader costa which in the proximal part has (6–)7–9(–10) enlarged ventral cells, whereas in the latter the costa consists merely of 3–4(–5) large cells on the abaxial side (Bednarek-Ochyra, 1995). For a long time *B. striatipila* was considered to be a South American south-cool-temperate species occurring in western and southern Patagonia, including Tierra del Fuego and the Falkland Islands, extending to the Juan Fernández Islands in the north and subantarctic South Georgia in the south (Greene, 1986). The species was subsequently reported from New Zealand (Sainsbury, 1955), but the plants from this area are definitely specifically distinct from South American ones. Discovery of *B. striatipila* on subantarctic Îles Crozet changes its phytogeographical status and now it should be interpreted as an amphiatlantic south-cool-temperate species.

4. *Cheilolejeunea compacta* (Steph.) E.Reiner

**Contributor:** Cid José Passos Bastos

**BRAZIL:** BAHIA: Eunápolis, Estação Veracruz, 16°22'00"S, 39°08'28"W, ombrophilous forest, corticolous, 10 September 1999, *leg.* C. Bastos & S.B. Vilas Bôas-Bastos 1854, 1926 (ALCB); Santa Cruz Cabralia, 'Carabranca' Forest Fragment, 16°16'S, 39°02'W, ombrophilous forest, corticolous, 9 August 2001, *leg.* C. Bastos & S.B. Vilas Bôas-Bastos 2539 (ALCB); Alagoinhas, Campus II – UNEB, 12°08'08"S, 38°25'09"W, savanna vegetation, corticolous, 10 July 2001, *leg.* C. Bastos & S.B. Vilas Bôas-Bastos 2954, 2958, 3004 (ALCB).

*Cheilolejeunea compacta* was previously reported from the type locality, Trinidad, by Reiner-Drehwald (2006), and erroneously reported for Bahia state, Brazil, by Bastos & Yano (2005) as *Ch. paroica* Mizut., a paleotropical species. Thus, *Ch. paroica* must be excluded from the Neotropics. The remarkable character of *Ch. compacta* is its paroicous branches, observed in all specimens examined. It differs from *Ch. paroica* by its pycnolejeuneoid innovations and the absence of papillose cells. According to Zhu & So (1999), a paroicous sexual condition is also observed in *Ch. intertexta* (Lindenb.) Steph., which also bears pycnolejeuneoid innovations, and *Ch. serpentina* (Mitt.) Mizut., with lejeuneoid innovations. It is possible that *Ch. compacta* and *Ch. intertexta* are conspecific.

Among the neotropical species of *Cheilolejeunea*, *Ch. compacta* seems to be unique in bearing paroicous branches. However further study of populations from Tropical America is necessary to establish the true sexual conditions of the neotropical species of the genus.

##### 5. *Cyrtomnium hymenophylloides* (Huebener) T.J.Kop.

**Contributors:** Marko Sabovljević, Dmtar Lakušić and Boštjan Surina

**Croatia:** Dinaric Alps, northern Velebit Mts, Rožanski kukovi peaks area, doline N from Novotnjev kuk peak, 44°45'56.1"N 14°59'25.4"E, 1540 m a.s.l., NE exposure, 20° incline, 26 July 2008, *leg.* D. Lakušić, V. Šegota, A. Alegro and B. Surina (BEOU, no. 4838).

*Cyrtomnium hymenophylloides*, an easily recognised, rare, northern hemisphere moss of the Mniaceae is here recorded for the first time in Croatia (Sabovljević, 2006). The species has a scattered circumboreal distribution with an interesting arctic-alpine disjunction. It is a relict species already recognised from fossil material in the latest Pliocene some four million years ago (Miller & Mogensen, 1997). It was found in a snowbed scree with long-lasting snow cover at the bottom of a freezing ravine. The species was recorded sterile, which is expected owing to its dioicous condition and the distinctly different distribution of male and female plants throughout its range. Miller & Mogensen (2000) state that female plants are widely distributed, while male plants are restricted to the far northern fringe of its range where they survived glaciations. Even there, sporophytes and male plants are rare.

In Croatia *Cyrtomnium hymenophylloides* was recorded in stands of *Drepanoclado uncinati-Heliospermetum pusillae* Surina & Vreš 2004 (*Salicion retusae* Horvat 1948, *Arabidetalia caeruleae* Rübél ex Br.-Bl. 1949, *Thlaspietea*

*rotundifolii* Br.-Bl. 1948) with *Saxifraga sedoides* L. subsp. *prenja* (Beck) Beck dominant in a herb layer; other frequent and rather frigidophilous taxa in the stand were *Heliosperma pusillum* (Waldst. & Kit.) Rchb., *Polygonum viviparum* L., *Poa alpina* L. and *Festuca nitida* Kit. among the phanerogams, and *Sanionia uncinata* (Hedw.) Loeske, *Campylidium stellatum* (Hedw.) Lange & C.E.O.Jensen and *Orthothecium rufescens* (Dicks. ex Brid.) Schimp. among the cryptogams. According to Dierssen (2001), *C. hymenophylloides* frequently occurs in communities of wet rock crevices.

Elsewhere in the Balkan Peninsula and SE Europe *Cyrtomnium hymenophylloides* is known from Bosnia-Herzegovina, Macedonia (FYRoM), Montenegro, Serbia and Slovenia (Sabovljević *et al.*, 2008). The species is not red-listed in Europe (ECCB, 1995), but is threatened at a regional level in some countries (Schlüssmayr, 2002; Sabovljević *et al.*, 2004; Schnyder *et al.*, 2004). Interestingly, it is not present in the Iberian highlands (Sérgio *et al.*, 2007).

##### 6. *Drepanolejeunea submuricata* R.M.Schust.

**Contributor:** A. Schäfer-Verwimp

**Costa Rica:** PROV. DE CARTAGO: Orosi valley, Tapanti National Park, ca 9°46'N, 83°48'W, primary rain forest along trail La Oropendola, on dead tree stem on river side, mixed with *Harpalejeunea tridens* (Besch. & Spruce) Steph., ca 600 m a.s.l., 30 December 1999, *leg.* A. Schäfer-Verwimp & I. Holz SV/H-0365/A (INB, JE).

*Drepanolejeunea submuricata* has recently been described by Schuster (1996) from Dominica, Lesser Antilles, from a single collection. Subsequently it has been reported from Venezuela by Dauphin & Ilkiu-Borges (2002) from Cerro Venamo and by Morales, Garcia & Avendaño (2007) from Cerro Neblina, both records listed also in Dauphin, Morales & Moreno (2008). *Drepanolejeunea submuricata* is new to Costa Rica and Central America. It grows on bark, dead trunks and boulders in primary submontane to montane rain forests and scrub, from 600 m in Costa Rica up to 1690 m in Venezuela.

The species belongs to section *Anoplanthae* and is closely related to *Drepanolejeunea crassiretis*, sharing with the latter species cells with coarse, nodose trigones and intermediate thickenings, and blunt to subacute or sharp leaf lobes. However, *D. submuricata* may be distinguished by the conspicuous dorsal papillae and the slight to prominent indentation at the junction of keel and lobe; in *D. crassiretis*, the keel and ventral lobe margin form a smooth, continuous line. This indentation is always conspicuous in the specimen cited above. For further differences from allied species see the key in Schuster (1996). Surprisingly, the relatively large, single oil body per cell could still be seen in many cells nine years after collection, agreeing well with those shown in Fig. 8:1 by Schuster (1996).

##### 7. *Grimmia incrasscapsulis* B.G.Bell

**Contributor:** R. Ochyra

**Argentina, Tierra del Fuego:** ISLA GRANDE DE TIERRA DEL FUEGO, DEPTO. USHUAIA: Trail to Glaciar Martial

above the upper chair-lift station, 1100 m a.s.l., 54°46'S, 68°29'W, on dry and exposed rock face in a formation dominated by *Bolax*, associated with *Guembelia kidderi*, 25 November 1995, leg. R. Ochyra 519/95 (KRAM).

*Grimmia incrassicapsulis* is a distinct species characterised by having immersed, slightly ventricose capsules, strongly incrassate exothecial cell walls and oblong-lanceolate leaves with a long hyaline hair-point and lax leaf areolation in the proximal part. So far, the species has been recorded at many locations in the alpine zone on the South Island in New Zealand (Greven, 1998), and from subantarctic South Georgia (Bell, 1984). Greven (1998) mentioned its occurrence in Tasmania, but later this information was disregarded by himself (Greven, 2000). Likewise, Greven (2003) stated that *G. incrassicapsulis* occurs 'in [...] the south part of South America, and Antarctica', but did not cite either specimens or other literature sources for this information. Actually, the species has not previously been confirmed either for South America (Muñoz, 1999) or Antarctica (Ochyra, Lewis Smith & Bednarek-Ochyra, 2008) and the present record is new for South America and Argentina. This discovery allows a more precise designation of the phytogeographical status of *G. incrassicapsulis*, which now can be considered as an amphipacific south-cool-temperate alpine species, weakly penetrating into the Subantarctic on South Georgia. It has not been hitherto discovered elsewhere in the Subantarctic, although Greven (1998) stated that it is known from 'subantarctic islands'. In fact, it is known only from a single island in this biome.

8. *Guembelia kidderi* (James) Ochyra & Żarnowiec

**Contributor:** R. Ochyra

**Argentina, Tierra del Fuego:** ISLA GRANDE DE TIERRA DEL FUEGO, DEPTO. USHUAIA: trail to Glaciar Martial above the upper chair-lift station, 1100 m a.s.l., 54°46'S, 68°29'W, on dry and exposed rock face in the formation dominated by *Bolax*, producing sporophytes in great profusion, associated with *Grimmia incrassicapsulis*, 25 November 1995, leg. R. Ochyra 520/95 (KRAM).

*Guembelia kidderi* is an amphiatlantic subantarctic species which is widespread and locally common on South Georgia (Bell, 1984), in the Prince Edward Islands (Ochyra & Hertel, 1990) and on Îles Kerguelen, from where it was described (James, 1875) and where it is a locally common epilithic moss (Ochyra, pers. obs.). The species extends to Tristan da Cunha in the south-cool-temperate zone (Dixon, 1960 as *Grimmia stenobasis*) and Muñoz (1999) reported it from Ascension Island on the Atlantic Ocean, though without citation of any specimens. Additionally, the species is known from two locations on mainland South America: Santa Cruz in Argentina and Región de la Araucanía in Chile (Muñoz, 1999). Here, the species is recorded is for the first time from Isla Grande de Tierra del Fuego where it was collected at alpine elevation, this confirming its phytogeographical status as a subantarctic species.

9. *Hymenoloma immersum* (Broth.) Ochyra

**Contributors:** H. Bednarek-Ochyra and R. Ochyra

**Îles Crozet:** ÎLE DE LA POSSESSION: east-facing slopes of Mont Branca, west of Port Alfred, 200 m a.s.l., 46°25'S, 51°50'E, on rock surfaces, moderately sheltered, 21 December 1978, leg. B.G. Bell 1414 (AAS, KRAM).

*Hymenoloma immersum* is very easily distinguished by having capsules that are deeply immersed in enlarged perichaetial leaves and therefore it externally resembles species of *Schistidium*, although gametophytically it is almost identical to other austral species of *Hymenoloma*. It is a subantarctic species, endemic to the Kerguelen Province which hitherto been known only from Îles Kerguelen from where it was described as *Verrucidens immersus* Broth. (Brotherus, 1906; Hébrard, 1970) and recently recorded also from the Prince Edward Islands (Ochyra, 2008). Thus, the discovery of the species on Îles Crozet nicely bridges the two widely separated centres of its occurrence.

10. *Orthotrichum acuminatum* H. Philib.

**Contributor:** Frank Müller

**Sardinia:** SETTE FRATELLI: upper part of the valley of the Rio Maidopis, 39°17'25"N, 9°24'24"E, epiphytic on *Quercus ilex*, 21 March 2008, leg. F. Müller (DR 039667); TEMPIO PAUSANIA SE: valley of the Riu Pisciaroni downriver of Vallicciola, 40°51'22"N, 9°08'25"E, epiphytic on *Quercus ilex*, 14 March 2008, leg. F. Müller (DR 039669); LANUSEI: durmast oak forest west of and above the town, 39°52'43"N, 9°31'54"E, epiphytic on *Quercus ilex*, 22 March 2008, leg. F. Müller (DR 039668).

**Slovenia:** Slovenian Karst: surroundings of the cave Škocjanske jame, 45°39'52"N, 13°59'21"E, epiphytic, 21 July 2006, leg. F. Müller (DR 039670).

The species was described by Philibert (1881) from southern France (Dép. Ardèche) and was for a long time only known from very few records in the Mediterranean area. The data which have accumulated during the past 15 years indicate that this species has been overlooked in many Mediterranean countries. It has been shown that the species is a very common circum-Mediterranean species with northernmost outposts in the Netherlands and southwest Germany (Lara *et al.*, 2003; Ahrens, 2004). With the records mentioned above the species can added for two additional Mediterranean districts.

11. *Orthotrichum tenellum* Bruch ex Brid.

**Contributor:** Frank Müller

**Slovenia:** Slovenian Karst: surroundings of the cave Škocjanske jame, 45°39'52"N, 13°59'21"E, epiphytic, 21 July 2006, leg. F. Müller (DR 039671).

A not unexpected extension to the range of this species widespread in Europe and furthermore known from Macaronesia, northern Africa, and western North America. The species was already known from other countries of the former Yugoslavia (Croatia, Serbia), but hitherto unknown from Slovenia (Martinčič, 2003; Sabovljevič *et al.*, 2008).

12. *Philonotis yezoana* Besch. & Card.

**Contributor:** T. Koponen

**Greenland:** Maneet [Maneet/Manit at Fiskefjord, 63°10'N, 50°50'W], *leg.* A.N. Kornerup, 7 June 1878 (H-BR 3137 018).

The growth habit of *Philonotis yezoana* is like other species of the genus. It is a slender, pale and glossy plant with reddish stems branching by innovations below the perichaetium. The most reliable microscopic character is the presence of papillae centrally on leaf cells nearly throughout the leaf. Only in the narrow apical part of the leaf may the papillae be on the end walls of the cells. A recent description with illustrations was published by Czernyadjeva (1995) while Kekes (2006) published illustrations and discussed the taxon.

The specimen of *Philonotis yezoana* from Greenland in V.F. Brotherus' herbarium represents quite typical plants of the taxon. However the specimen has puzzled several bryologists at various times. The original identification was *Ph. fontana* (Hedw.) Brid. var. *caespitosa* (Jur.) Limpr. by C. Jensen. L. Loeske identified the specimen as *Ph. tomentella* Molendo and W.M. Zales agreed with Loeske, using the varietal name *Ph. fontana* var. *pumila* (Turn.) Brid.

*Philonotis yezoana* was originally described from Japanese and Korean specimens. However, Ochi (1962, 1963) reduced it to a synonym of *Ph. seriata* (Mitt.) (as *Ph. fontana* var. *seriata* (Mitt.) Kindb.). This seems to have been based on the observation that *Ph. seriata* commonly has leaf cells with central papillae on the short cells at the leaf base. This is actually one of the characteristics separating it from other species of *Philonotis* section *Philonotis*, such as *Ph. fontana* and *Ph. calcarea* (Bruch & Schimp.) Schimp., in which central papillae occur more rarely. Noguchi (1989) accepted *P. yezoana* at varietal level as *Ph. fontana* var. *tenuicaulis* (Card.) Nog. (*Ph. yezoana* var. *tenuicaulis* Card.). Iwatsuki (2004) accepted both *Ph. yezoana* and *Ph. fontana* var. *tenuicaulis*, which are synonymous on the basis of the illustrations of syntypes in Ochi (1962, 1963). *Philonotis yezoana* is widely distributed in Japan, and probably all Japanese and Korean specimens cited as *Ph. fontana* var. *seriata* by Ochi (1962, 1963) represent this taxon. Based on the author's (TK) own gatherings from Japan it grows on wet soil on boulders and cliffs along streams and on peat on lakesides. The author has also seen specimens from Korea, and Czernyadjeva (1995) recorded it from the Russian Far East.

Crum & Anderson (1981) cited a rather wide distribution for *Philonotis yezoana* in North America: British Columbia, Montana, Washington and Newfoundland, including also Alaska and Vermont on the basis of an unpublished thesis by W.M. Zales. They had also seen material from Switzerland, but Geissler (1984) identified the specimen in question as *Ph. seriata*.

Frahm (1976) cited and illustrated a Spanish specimen of *Philonotis hastata* (Duby) Wijk & Marg. On the basis of the illustration the specimen cited cannot be *Ph. hastata*. This is obvious when Frahm's illustration is compared with the illustration drawn from the type of

*Ph. hastata* (Iwatsuki, 1977). *Philonotis hastata* has low mammillae at the distal end of the leaf cells and a weak costa, while Frahm's illustration shows central papillae and a strong excurrent costa. On the basis of central papillae alone, Frahm's plant could be *Ph. yezoana*. However the strong costa and distinctly double-crenulate leaf margin (perpendicular crenulae formed by two adjoining border cells) suggest that it is *Ph. seriata*. *Philonotis yezoana* has a nearly smooth, serrulate or lowly double-mammillate leaf margin. Unfortunately the specimen illustrated by Frahm could not be restudied, as it was loaned approximately 30 years ago and has not yet been returned. Casas *et al.* (2006) did not include *Philonotis hastata* in their handbook of the mosses of the Iberian Peninsula.

Hill *et al.* (2006) listed *Philonotis hastata* for Europe, obviously based on Frahm's (1976) record discussed above and Koppe & Düll's (1986) record of *Ph. hastata* from Madeira. The author has not yet seen the Madeiran specimen.

### 13. *Phyllodon perplanicaulis* (Broth.) Kis

**Contributor:** L. Hedenäs

**Malaysia:** PENINSULAR MALAYSIA: JOHOR: Endau Rompin, between Kampung Peta and Forest Reserve border (along road towards the south), 2°20'N, 103°20'E, ca 100 m a.s.l., primary rain forest, boulder, *leg.* L. Hedenäs MY92-44, 16 March 1992 (S; reg. no. B152164). PAHANG: Cameron Highlands, BOH Tea Estate, from MNS Field Station towards NE end of valley, 4°30'N, 101°25'E, 1250–1350 m a.s.l., upper part of tea plantation, secondary and primary rainforest, wet log, *leg.* L. Hedenäs MY92-395a, 22 March 1992 (S; reg. no. B152165).

These are the first reports of *Phyllodon perplanicaulis* from Malaysia, and apparently the first from Asia outside Taiwan. The species is otherwise known from several countries in tropical Africa and from Hawaii (Hedenäs & Watling, 2005).

### 14. *Scapania javanica* Gottsche

**Contributor:** A. Schäfer-Verwimp

**Bali:** NORTH Bali, distr. BANGLI: Gunung Penulisan, 8°12..5'S, 115°20.0'E, on shady earth slope in pine forest, 1600 m a.s.l., 3 June 1995, *leg.* Schäfer-Verwimp & Verwimp 16900, *det.* R. Grolle (JE, EGR, GOET, STU); EAST BALI, DISTR. AMLAPURA: southern slope of Gunung Agung above Sebudi, 8°23'S, 115°29.5'E, open scrub, on soil, 2150 m a.s.l., 2 June 1999, *leg.* Schäfer-Verwimp & Verwimp 21098/A (JE).

**Sumatra:** NORTH SUMATRA: highlands of Brastagi, south-eastern slope of Gunung Sibayak, ca 3.1°N, 98.6°E, on rock in primary rain forest, 1600 m a.s.l., 17 May 2005, *leg.* Schäfer-Verwimp & Verwimp 24861 (JE, EGR, GOET, STU).

**Malaysia:** PAHANG: Cameron Highlands, Tanah Rata, 4°28'N, 101°23'E, primary rain forest at Parit Falls, on sand covered rock at brook, ca 1500 m a.s.l., 22 May 1997, *leg.* Schäfer-Verwimp & Verwimp 18766 (JE, GOET, KLU, STU).

*Scapania javanica* was described by Gottsche in 1853 from Java. Since then, it has become known from the Philippines (Luzon) and Sulawesi (Stephani, 1909–1912; Tan & Engel, 1986; Gradstein *et al.*, 2005). In New Guinea it was long known as *S. macgregorii* Steph. (Stephani, 1905, 1909–1912; Herzog, 1926), and also from West Irian (Hiepko & Schultze-Motel, 1981). Subsequently it has been reported from Sarawak in Borneo (Herzog, 1950; Grolle, 1965), and Taiwan (Inoue, 1961; Piippo, 1990); Grolle & Piippo (1984) reported it from West Irian, Papua New Guinea, and the Solomon Islands, and Piippo (1985) from Huon Peninsula in Papua New Guinea. Thus it is new to the Lesser Sunda Islands, Sumatra, and peninsular Malaysia, the two latter records extending the hitherto known range further to the West and North-West. *Scapania javanica* has been figured by Müller (1905, Tafel 28, and as *S. macgregorii*, Tafel 50) and Piippo (1985, Fig. 2e–j), and mapped by Schuster (1969, map 20:5 and map 20:9, the latter as *S. macgregorii*).

The species grows on partially shaded soil, cliffs, logs and sand, usually outside dense rain forests in open or disturbed habitats (Piippo, 1985), and in Malaysia and Sumatra in primary rain forest on shady rocks. Its altitudinal range is 1100 to 3700 m (Grolle & Piippo, 1984; Herzog, 1950).

15. *Scapania sphaerifera* H. Buch & Tuom.

**Contributor:** Michail V. Dulin

**Russian Federation (Russian Far East):** KAMCHATSKII KRAI: Central Kamchatka, Ust-Kamchatka region, Tolbachinsky volcanic massive, Tolbachinsky valley, lava field of the Kleshnja mound, 55°43'21.6"N, 160°18'50.2"E, ca 1250 m a.s.l., cindery field overgrowing by pioneer vegetation, with fragments of lava, on rocks, 9 August 2008, *leg.* M.V. Dulin 08042 (SYKO); *ibidem*, 55°43'52.0"N, 160°18'12.8"E, ca 1266 m a.s.l., a lava relic with a sparse pioneer vegetation, on rocks, interspersed with *Diplophyllum taxifolium* (Wahlenb.) Dumort. and *Gymnomitrium corralloides* Nees, 10 August 2008, *leg.* M.V. Dulin 08043 (SYKO).

This is the first record of *Scapania sphaerifera* in the Kamchatka region. It is a globally rare montane disjunctive liverwort described in 1936 from collections in the Murmansk Region, and for a long time had been considered an endemic plant of the Murmansk Region (Schljakov, 1981; Buch & Tuomikoski, 1936). The nearest habitat is in the Primorsky Krai on the Sikhote-Alin mountain range (Bakalin, 2008). Previously it was known in several habitats in the mountain areas of Siberia (Konstantinova & Potemkin, 1994; Sofronova & Potemkin, 2000).

16. *Schistidium dupretii* (Thér.) W.A. Weber

**Contributor:** M. Kırmacı

**Turkey:** PROVINCE ARTVIN: Hatila Valley, on calcareous rock wall, 41°07'09"N, 41°38'13"E, 1050 m a.s.l., 15 July 2008, *leg. et det.* M. Kırmacı, *conf.* P. Erzberger (AYDN, no. 2492)

*Schistidium dupretii* was collected during an environmental education course in the 'Kaçkar Mountains and

Hatila Valley National Park' (Artvin province) supported by TÜBITAK (The Scientific and Technological Research Council of Turkey). The plant was growing on a calcareous rock wall in *Picea orientalis*, *Fagus orientalis* and *Abies nordmanniana* mixed forest. The study area is within the Colchic province of the Euro-Siberian floristic area in the holarctic region (Zohary, 1973). The climate type of the area is semi-humid and the main vegetation type of the area is humid forest (Çepel, 1966). *S. dupretii* is a circumboreal, montane species and occurs in northern Europe north to northern Norway, Iceland, Georgia, Kazakhstan, India, Japan and N. America (Blom, 1996). Georgia is the closest neighbouring country to the new locality.

13 species of *Schistidium* are reported for Turkey by Kürschner & Erdağ (2005). Since then two further species have been added: *S. submuticum* Zick. ex H.H. Blom was recorded in Amasya province by Townsend (2005) and *S. agassizii* Sull. & Lesq. was reported from Hatay province (Harbiye waterfalls) by Yayintaş (2008).

17. *Schistidium rivulare* (Brid.) Podp.

**Contributors:** R. Ochyra, H. Bednarek-Ochyra and M. Lebouvier

**Îles Kerguelen:** GRANDE TERRE: Péninsule Courbet: (1) Port-aux-Français, small stream behind the post office, 49°20'50.793"S, 70°13'10.851"E, 40 m a.s.l., on stone in sluggish stream, submerged in water, 18 November 2006, *leg.* R. Ochyra 282/06 (KRAM); (2) northern coast, Presqu'île Bouquet de la Grye, a small stream flowing from hill '271' down to Havre du Beau Temps, 49°18'35.895"S, 69°36'49.048"E, ca 100 m a.s.l., submerged on stones in stream in swiftly flowing water, 21 November 2006, *leg.* R. Ochyra 750/06 (KRAM).

A bipolar species having a wide though strongly dissected, boreal-montane range in the Northern Hemisphere and in the Southern Hemisphere known with certainty from southern South America, subantarctic South Georgia and the northern maritime Antarctic, as well as Australasia (Ochyra *et al.*, 2008). The records of the species from the Andes and East Africa still need detailed taxonomic assessment, since the plants so-named from these areas deviate in some characters from typical expressions of the species, especially in spore size. Ochyra *et al.* (2008) mentioned the occurrence of *Schistidium rivulare* on Îles Kerguelen but without citation of the voucher collections. The species is infrequently found in streams on this island and herein two exemplary collections are provided to substantiate this literature record.

18. *Schistidium saxatile* (Mitt.) Ochyra

**Contributors:** R. Ochyra and H. Bednarek-Ochyra

**Bolivia:** (1) DEPTO. LA PAZ, PROV. PACAJES: COROCORO, 17°10'S, 68°27'W, ca 3900 m a.s.l., 17 February 1921, *leg.* Erik Asplund 42 (JE); (2) DEPTO. URURO, PROV. POOPÓ: 56.4 km S of Machacamarca, near Pazña, S of Poopó, 18°34'S, 66°56'W, 3900 m a.s.l., wet rock outcrop in shade, 10 January 1979, *leg.* Marko Lewis 79-60 (KRAM).

Although *Schistidium saxatile* is a poorly known species which was once lumped with the broadly conceived *S.*

*apocarpum* (Hedw.) Bruch & Schimp. (Bremer, 1980), it is a characteristic and readily recognised species by its short, ovate leaves, 0.9–1.1 mm long (excluding hair-point) that are flat at the margins in the distal half, unistratose with bistratose margins for one row of cells and have a fairly long and broad, flat and strongly denticulate hair-point. This is an altimontane Andean species which has hitherto been recorded from Ecuador at its type locality (Mitten, 1869) and Peru (Williams, 1915), and now its range is extended to Bolivia.

19. *Syntrichia fragilis* (Taylor) Ochyra

**Contributor:** Özlem Tonguç Yayıntaş

**Turkey:** HATAY: Amanos Mountain, Dörtyol county, Tekkoz Kengerlidüz National Park, mixed forest, near the villages of Kullu and Kızlarçayı, on soil, 36°50'43"N 36°13'22"E, 280 m a.s.l., 20 May 2001, *leg.* Özlem Tonguç Yayıntaş *T 1534*, *conf.* B. Allen (MO, Çanakkale Onsekiz Mart University herbarium).

*Syntrichia fragilis* was associated at this site with the mosses *Homalothecium sericeum* (Hedw.), *Grimmia pulvinata* (Hedw.) Sm. and *Bryum capillare* Hedw. on and near rocks. *Syntrichia fragilis* is not included in the checklists of the moss flora of Turkey (Çetin & Uyar, 2004; Kürschner & Erdağ, 2005).

*Syntrichia fragilis* is widely distributed in the Americas, Macaronesia, South-western Central and South-eastern Europe, much of Africa, China and the Indian subcontinent (Allen, 2002). In the Near and Middle East, Kürschner (1999, 2007) indicates that *S. fragilis* occurs in Saudi Arabia, Yemen, Socotra, Iran and Syria.

20. *Zygodon forsteri* (Dicks.) Mitt.

**Contributors:** V. Hugonnot and L. Fovet

**Morocco:** TAZZEKA MOUNTAINS: National Park of Tazzeke, southeast of the river Sebou, south-west of Taza city, 1200 m a.s.l., *leg.* L. Fovet, 15 June 2008 (Priv. Herb. Hugonnot).

*Zygodon forsteri* is a temperate Northern Hemisphere taxon currently known from western, central and Mediterranean Europe. The species recurs in isolated localities in North Africa. In Europe it is generally considered to be a Mediterranean-Atlantic moss. In the checklist of North Africa mosses, Ros *et al.* (1999) do not mention *Z. forsteri* in Morocco, and it has not been reported in subsequent studies of the epiphytic bryophytes in this country (Draper *et al.*, 2003, 2005, 2006, 2007; Mazimpaka *et al.* 2004). Ros (pers. comm.) has confirmed that no other recent find of this species has been made in North Africa. The only previous mention of *Z. forsteri* for North Africa was that of Jones (1956) in the Kabylie Mountains, Algeria.

Taking into account that the epiphytic bryoflora of Morocco is rather well surveyed, it can be assumed that *Zygodon forsteri* is a rare element of the local bryoflora. The difficulty of finding the species is enhanced by the fact that most often only one or a few trees bear the species in one given locality. The population in the Tazzeke Mountains is no exception since a rough estimate led the contributors to conclude that less than 1% of the potential

trees examined in fact support the species. *Zygodon forsteri* grew on the bark of *Quercus ilex* L., mostly on individuals of 20 cm width at chest height. The species thrives only at the margins of dripping cavities whose origin is to be found in former pollarding. The cessation of this ancient practice will probably lead to a substantial decline of the *Zygodon* population in the near future.

ACKNOWLEDGEMENTS

C. Bastos is grateful to Dr M.E. Reiner-Drehwald for confirmation of the identification of *Cheilolejeunea compacta*. The contributions by H. Bednarek-Ochyra and R. Ochyra have been supported financially by the Polish Ministry of Science and Higher Education through grants No. N 303 063 32/2264 for H. Bednarek-Ochyra and No. 2 P04G 043 29 for R. Ochyra. They are also thankful to Hans-Joachim Zündorf (JE) and Helen J. Peat (AAS) for the loan of herbarium material. The field work of R. Ochyra and Marc Lebouvier on Îles Crozet and Îles Kerguelen was organised within the programme 136 ECOBIO of the French Polar Institute (IPEV). The research of M.V. Dulin was performed with the financial support of the Russian Foundation for Basic Research (projects No. 08-04-01294 and 09-04-00281). V. Hugonnot and L. Fovet wish to thank R.M. Ros warmly for valuable help. M. Kırmacı is very grateful to TÜBİTAK for providing a post-doctoral scholarship to the author, and to Peter Erzberger (Berlin) for confirming *Schistidium dupretii*. T. Koponen wishes to thank Professor J.-P. Frahm for information concerning the disappearance of the *Philonotis hastata* specimen illustrated and discussed by him, Dr Kell Damsholt for the exact locality of 'Maneot' with longitude and latitude, and Dr Neil Bell for linguistic revision of the manuscript. A. Schäfer-Verwimp thanks N. Zamora (herbarium INB) for his generous support in obtaining collection and export permits, and I. Holz for his kind hospitality and collaboration during field work in Costa Rica. Özlem Tonguç Yayıntaş is very grateful to the Missouri Botanical Garden for the opportunity to study their collections, and work at MO. Special thanks to Çanakkale Onsekiz Mart University for supporting her sabbatical at the Missouri Botanical Garden.

TAXONOMIC ADDITIONS AND CHANGES: Nil.

REFERENCES

- Ahrens M. 2004. Zum Vorkommen von *Orthotrichum acuminatum* H. Philib. und *O. consimile* Mitt. (Bryopsida, Orthotrichaceae) im Nordschwarzwald. *Carolinea* 62: 81–85.
- Allen B. 2002. Moss Flora of Central America. Part 2. Encalyptaceae – Orthotrichaceae. *Monographs in Systematic Botany from the Missouri Botanical Garden* 90: 1–699.
- Bakalin VA. 2008. *Scapania sphaerifera* H. Buch et Tuomik. [in Russian Federation (Southern Far-East)]. *Journal of Bryology* 30: 234–235.
- Bastos CJP, Yano O. 2005. Notes on the occurrence of *Cheilolejeunea paroica* Mizut. (Lejeuneaceae, Marchantiophyta) in Neotropic. *Acta Botanica Malacitana* 30: 7–10.

- Bednarek-Ochyra H. 1995.** A note on *Racomitrium tortipilum* (Musci, Grimmiaceae) from Brazil. *Fragmenta Floristica et Geobotanica* **40**: 177–180.
- Bell BG. 1974.** A synoptic flora of South Georgian mosses: V. *Willia* and *Racomitrium*. *British Antarctic Survey Bulletin* **38**: 73–101.
- Bell BG. 1984.** A synoptic flora of South Georgian mosses: *Grimmia* and *Schistidium*. *British Antarctic Survey Bulletin* **63**: 71–109.
- Blom HH. 1996.** A revision of the *Schistidium apocarpum* complex in Norway and Sweden. *Bryophytorum Bibliotheca* **49**: 1–333.
- Bremer B. 1980.** A taxonomic revision of *Schistidium* (Grimmiaceae, Bryophyta) 2. *Lindbergia* **6**: 89–117.
- Brotherus VF. 1906.** Die Laubmoose der Deutschen Südpolar-Expedition 1901–1903. In: Drygalski E von, ed. *Deutsche Südpolar-Expedition 1901–1903 im Auftrage des Reichsamtes des Innern*. 8 (Botanik). Berlin: Georg Reime, pp. 83–96.
- Buch H, Tuomikoski R. 1936.** *Scapania sphaerifera* spec. nova auctore Buch et Tuomikoski. *Memoranda Societatis pro Fauna et Flora Fennica* **11**: 227–229.
- Cardot J. 1908.** La flore bryologique des terres magellaniques, de la Géorgie du Sud et de l'Antarctide. In: *Wissenschaftliche Ergebnisse der Schwedischen Südpolar-Expedition 1901–1903 unter Leitung von Dr. Otto Nordenskjöld*. 4(8). Stockholm: Lithographisches Institut des Generalstabs.
- Cardot J, Brotherus VF. 1923.** Botanische Ergebnisse der Schwedischen Expedition nach Patagonien und dem Feuerlande 1907–1909. X. Les mousses. *Kongliga Svenska Vetenskapsakademiens Handlingar* **63**(10): 1–74.
- Casas C, Brugués M, Cros RM, Sérgio C. 2006.** *Handbook of the mosses of the Iberian Peninsula and the Balearic Islands*. Barcelona: Institut d'Estudis Catalans.
- Çepel N. 1966.** *Orman Yetiştirme Muhiti Tanımının Pratik Esasları ve Orman Yetiştirme Muhiti Haritacılığı*. Üstambul: Kutulmuş Matbaası.
- Çetin B, Uyar G. 2004.** A new check-list of the mosses of Turkey. *Journal of Bryology* **26**: 203–220.
- Crum HA, Anderson LE. 1981.** *Mosses of eastern North America. Vol. 1*. New York: Columbia University Press.
- Czernyadjeva IV. 1995.** *Philonotis yezoana* Besch. et Card. ex Card. (Bartramiaceae, Musci) new to Russia. *Arctoa* **4**: 15–16.
- Dauphin G, Ilkiu-Borges AL. 2002.** Hepaticae of Cerro Venamo, Venezuela, collected by J. Steyermark. *Tropical Bryology* **22**: 115–123.
- Dauphin G, Morales M, Moreno EJ. 2008.** Catálogo preliminar de Lejeuneaceae (Hepaticae) de Venezuela. *Cryptogamie, Bryologie* **29**: 215–265.
- Deguchi H. 1984.** Studies on some Patagonian species of Grimmiaceae (Musci, Bryophyta). In: Inoue H, ed. *Studies on cryptogams in southern Chile*. Tokyo: Kenseisha, pp. 17–72.
- Deguchi H. 1987.** Studies on some Peruvian species of the Grimmiaceae (Musci, Bryophyta). In: Inoue H, ed. *Studies on cryptogams in southern Peru*. Tokyo: Tokai University Press, pp. 19–74.
- Demaret F, Arts T, de Sloover J, de Zuttere P. 1993.** *Flore générale de Belgique Bryophytes Vol. 3, fasc. 2*. Meise: Jardin Botanique National de Belgique.
- Dierssen K. 2001.** Distribution, ecological amplitude and phytosociological characterization of European bryophytes. *Bryophytorum Bibliotheca* **56**: 1–289.
- Dixon HN. 1960.** Mosses of Tristan da Cunha. In: Christophersen E, ed. *Results of the Norwegian Scientific Expedition to Tristan da Cunha 1937–1938. No. 48*. Oslo: Kommissjon hos H. Aschehoug & Co. (W. Nygaard), pp. 1–49.
- Draper I, Lara F, Albertos B, Garilleti R, Mazimpaka V. 2003.** The epiphytic bryoflora of the Jbel Bouhalla (Rif, Morocco), including a new variety of moss, *Orthotrichum speciosum* var. *brevisetum*. *Journal of Bryology* **25**: 271–280.
- Draper I, Mazimpaka V, Albertos B, Garilleti R, Lara F. 2005.** A survey of the epiphytic bryophyte flora of the Rif and Tazzeka mountains (northern Morocco). *Journal of Bryology* **27**: 23–34.
- Draper I, Lara F, Albertos B, Garilleti R, Mazimpaka V. 2006.** Epiphytic bryoflora of the Atlas and AntiAtlas mountains, including a synthesis on the distribution of the epiphytic bryophytes in Morocco. *Journal of Bryology* **28**: 312–330.
- Draper I, Albertos B, Garilleti R, Lara F, Mazimpaka V. 2007.** Contribution to the biodiversity conservation in Morocco (North Africa): important areas for epiphytic bryophytes. *Cryptogamie, Bryologie* **28**: 211–236.
- ECCB. 1995.** *Red data book of European bryophytes*. Trondheim: ECCB.
- Frahm J.-P. 1976.** *Philonotis hastata* (Dub.) Wijk et Marg. neu für Europa. *Journal of Bryology* **9**: 17–19.
- Frisvoll AA. 1988.** A taxonomic revision of the *Racomitrium heterostichum* group (Bryophyta, Grimmiaceae) in N. and C. America, Europe and Asia. *Gunneria* **59**: 1–289.
- Geissler P. 1984.** Notulae bryofloristicae Helveticae. *Candollea* **39**: 641–646.
- Gradstein SR, Tan BC, Zhu R-L, Ho B-C, King S-H, Drübert C, Pitopang R. 2005.** A catalogue of the bryophytes of Sulawesi, Indonesia. *Journal of the Hattori Botanical Laboratory* **98**: 213–257.
- Greene DM. 1986.** *A conspectus of the mosses of Antarctica, South Georgia, the Falkland Islands and southern South America*. Cambridge: British Antarctic Survey.
- Greven HC. 1998.** Synopsis of *Grimmia* Hedw. in New Zealand, including *Grimmia wilsonii* sp. nov. *Journal of Bryology* **20**: 389–402.
- Greven HC. 2000.** Synopsis of *Grimmia* Hedw. in Australia. *Journal of Bryology* **22**: 217–222.
- Greven HC. 2003.** *Grimmiaceae of the world*. Leiden: Backhuys Publishers.
- Grolle R. 1965.** Die Lebermoosgattungen *Blepharidophyllum* Ångstr. und *Krumodiophyllum* nov. gen. (Scapaniaceae). *Journal of the Hattori Botanical Laboratory* **28**: 55–74.
- Grolle R, Piippo S. 1984.** Annotated catalogue of Western Melanesian bryophytes. I. Hepaticae and Anthocerotae. *Acta Botanica Fennica* **125**: 1–86.
- Hébrard JP. 1970.** Muscinées récoltées aux Iles Kerguelen et Crozet pendant la campagne d'été des Terres Australes et Antarctiques Françaises (1969). *Revue Bryologique et Lichénologique, Nouvelle Série* **37**: 135–162.
- Hedenäs L, Watling MC. 2005.** Bryophyte flora of Uganda. 5. Hypnaceae (Part 2). *Journal of Bryology* **27**: 153–160.
- Herzog, T. 1926.** *Geographie der Moose*. Jena: Gustav Fischer.
- Herzog, T. 1950.** Hepaticae Borneenses (Oxford University Expedition to Sarawak, 1932). *Transactions of the British Bryological Society* **1**: 275–326.
- Hiepkö P, Schultze-Motel W. 1981.** Floristische und ethnobotanische Untersuchungen im Eipomek-Tal, Irian Jaya (West-Neuguinea), Indonesien. *Schriftenreihe Mensch, Kultur, Umwelt im zentralen Bergland W Neuguinea* **7**: 1–75.
- Hill MO, Bell N, Bruggeman-Nannenga MA, Brugués M, Cano MJ, Enroth J, Flatberg KI, Frahm J.-P., Gallego MT, Garilleti R, Guerra J, Hedenäs L, Holyoak DT, Hyvönen J, Ignatov MS, Lara F, Mazimpaka V, Muñoz J, Söderstrom L. 2006.** An annotated checklist of the mosses of Europe and Macaronesia. *Journal of Bryology* **28**: 198–267.
- Holyoak, DT. 2004.** Taxonomic notes on some European species of *Bryum* (Bryopsida: Bryaceae). *Journal of Bryology* **26**: 247–264.
- Inoue H. 1961.** Hepatics collected by Mr. K. Sawada in Formosa. *Journal of Japanese Botany* **36**: 184–188.
- Iwatsuki Z. 1977.** Notes on *Philonotis hastata* (Dub.) Wijk & Marg. in Japan. *Proceedings of the Bryological Society of Japan* **2**: 13–15.
- Iwatsuki Z. 2004.** New catalog of the mosses of Japan. *Journal of the Hattori Botanical Laboratory* **96**: 1–182.
- James TP. 1875.** List of mosses from the southern part of Kerguelen Island, lat. 49°21'S, long. 70°15'E, collected by J. H. Kidder, M. D., passed asst. surgeon U. S. Navy, in connection with the U. S. Transit of Venus Expedition, September 13th, 1874, to January 10th, 1875. *Bulletin of the Torrey Botanical Club* **6**: 54–55.



- Jones EW. 1956. Notes on plants contributed. *Transactions of the British Bryological Society* 3: 164–167.
- Kekes JY. 2006. New to New York state: *Philonotis yezoana* (Musci: Bartramiaceae). *Evansia* 23: 40–42.
- Konstantinova NA, Potemkin AD. 1994. Studies on *Scapania sphaerifera* (Hepaticae). *Annales Botanici Fennici* 31: 121–126.
- Koppe F, Düll R. 1986. Beiträge zur Moosflora Madeiras. *Bryologische Beiträge* 6: 32–48.
- Kučera J, Holyoak DT. 2005. Bryological Notes: Lectotypification of *Bryum moravicum* Podp. (Bryopsida: Bryaceae). *Journal of Bryology* 27: 161–162.
- Kürschner H. 1999. New moss records to the island of Socotra and the Yemen mainland. Studies in Arabian bryophytes 24. *Nova Hedwigia* 69: 399–405.
- Kürschner H. 2007. A key to the Pottiaceae (Bryopsida-Bryophytina) of the Near and Middle East Towards a bryophyte flora of the Near and Middle East, 6. *Nova Hedwigia* 84: 21–50.
- Kürschner H, Erdağ E. 2005. Bryophytes of Turkey: an annotated reference list of the species with synonyms from the recent literature and an annotated list of Turkish bryological literature. *Turkish Journal of Botany* 29: 95–154.
- Lara F, Blockeel TL, Garilleti R, Mazimpaka V. 2003. Some interesting *Orthotrichum* species from mainland Greece and Evvia. *Journal of Bryology* 25: 129–134.
- Martinčič A. 2003. Seznam listnatih mahov (Bryopsida) Slovenije. *Hacquetia* 2: 91–166.
- Mazimpaka V, Draper I, Lara F, Albertos B, Garilleti R. 2004. Aperçu sur la bryoflore épiphyte des thuriféraires et autres forêts d'altitude du Maroc. *Naturalia Marocana* 2: 109–114.
- Miller NG, Mogensen GS. 1997. *Cyrtomnium hymenophylloides* (Bryophyta, Mniaceae) in North America and Greenland: Male plants, sex-differential geographical distribution and reproductive characteristics. *Bryologist* 100: 499–506.
- Miller NG, Mogensen GS. 2000. Male plants of *Cyrtomnium hymenophylloides* in Siberia. *Arctoa* 9: 1–2.
- Mitten G. 1869. Musci austro-americani, sive enumeratio muscorum omnium austro-americanorum mihi hucusque cognitorum, eorum praecipue in terris amazonicis andinisque Ricardo Spruceo lectorum. *The Journal of the Linnean Society Botany* 12: 1–659.
- Morales T, Garcia M, Avendaño N. 2007. Especies venezolanas de hepáticas (Marchantiophyta) pertenecientes al Herbario Nacional de Venezuela (VEN). *Cryptogamie, Bryologie* 28: 41–47.
- Müller K. 1905. Monographie der Lebermoosgattung *Scapania* Dum. *Nova Acta Academiae Caesareae Leopoldino-Carolinae Germanicae Naturae Curiosorum* 83: 1–312.
- Muñoz J. 1999. A revision of *Grimmia* (Musci, Grimmiaceae) in the Americas. 1: Latin America. *Annals of the Missouri Botanical Garden* 86: 118–191.
- Noguchi A. 1989. *Illustrated moss flora of Japan. Supplemented by Zennoske Iwatsuki. Vol. 3. Nichinan: Hattori Botanical Laboratory.*
- Ochi H. 1962. Contribution to the mosses of Bartramiaceae in Japan and the adjacent regions I. *Nova Hedwigia* 4: 87–108.
- Ochi H. 1963. Contribution to the mosses of Bartramiaceae in Japan and the adjacent regions II. *Nova Hedwigia* 5: 91–115.
- Ochya R. 2008. Mosses. In: Chown SL, Froneman PW, eds. *The Prince Edward Islands: land-sea interactions in a changing ecosystem*. Stellenbosch: Sun Press, pp. 383–389.
- Ochya R, Hertel H. 1990. Contribution to the moss flora of the subantarctic island Marion. *Polish Botanical Studies* 1: 19–34.
- Ochya R, Lewis Smith RI, Bednarek-Ochya H. 2008. *The illustrated moss flora of Antarctica*. Cambridge: Cambridge University Press.
- Philibert H. 1881. *Orthotrichum acuminatum*. Species nova. *Revue Bryologique* 8: 28–31.
- Piippo S. 1985. Bryophyte flora of the Huon Peninsula, Papua New Guinea. X. Jackiellaceae, Scapaniaceae, Arnelliaceae and Acrobolbaceae (Hepaticae). *Acta Botanica Fennica* 131: 89–97.
- Piippo S. 1990. Annotated catalogue of Chinese Hepaticae and Anthocerotae. *Journal of the Hattori Botanical Laboratory* 68: 1–192.
- Reiner-Drehwald ME. 2006. Type studies on Neotropical Lejeuneaceae (Jungermanniopsida). *Cheilolejeunea* and *Lepidolejeunea*. *Nova Hedwigia* 83: 473–482.
- Robinson H. 1975. The mosses of Juan Fernandez. *Smithsonian Contributions to Botany* 27: 1–88.
- Roivainen R. 1955. Contribution to the Fuegian species of the genus *Racomitrium* Bridel. *Archivum Societatis Zoologicae Botanicae Fennicae 'Vanamo'* 9: 85–98.
- Ros RM, Cano MJ, Guerra J. 1999. Bryophyte checklist of Northern Africa. *Journal of Bryology* 21: 207–244.
- Sabovljević M. 2006. Check-list of mosses of Croatia. *Archives of Biological Sciences* 58: 45–53.
- Sabovljević M, Cvetič T, Stevanović V. 2004. Bryophyte Red List of Serbia and Montenegro. *Biodiversity and Conservation* 13: 1781–1790.
- Sabovljević M, Natcheva R, Dihoru G, Tsakiri E, Dragičević S, Erdağ A, Papp B. 2008. Check-list of the mosses of Southeast Europe. *Phytologia Balcanica* 14: 159–196.
- Sainsbury GOK. 1955. A handbook of New Zealand mosses. *Royal Society of New Zealand Bulletin* 5: 1–490.
- Schlüssmayr G. 2002. Zur Moosflora des Traunsteins und seiner unmittelbaren Umgebung (Nördliche Kalkalpen, Oberösterreich). *Beiträge zur Naturkunde Oberösterreichs* 11: 167–200.
- Schnyder N, Bergamini A, Hofmann H, Müller N, Schubiger-Bossard C, Urmi E. 2004. *Rote Liste der gefährdeten Moose der Schweiz*. BUWAL, FUB & NISM. Bern: Vollzug Umwelt.
- Schuster RM. 1969. Problems of antipodal distribution in lower land plants. *Taxon* 18: 46–91.
- Schuster RM. 1996. Studies on Lejeuneaceae, II. Neotropical taxa of *Drepanolejeunea* (Spr.) Schiffn. *Nova Hedwigia* 62: 1–46.
- Sérgio C, Brugués M, Cros RM, Casas C, García C. 2007. The 2006 Red List and an updated Check List of Bryophytes of the Iberian Peninsula (Portugal, Spain and Andorra). *Lindbergia* 31: 109–125.
- Schljakov RN. 1981. *Hepaticae of the North of the USSR. 4. Jungermanniaceae–Scapaniaceae*. Leningrad: Nauka (in Russian)
- Sofronova EV, Potemkin AD. 2000. To the liverwort flora of Yakutia, East Siberia: species interesting and little-known for Russia. *Arctoa* 9: 133–140 (in Russian)
- Stephani F. 1905. Hepaticarum species novae. X. *Hedwigia* 44: 14–15.
- Stephani F. 1909–1912. *Species Hepaticarum. Vol. 4. Acrogynae (Pars tertia)*. Genève et Bale: Georg & C<sup>ie</sup>.
- Tan BC, Engel JJ. 1986. An annotated checklist of Philippine Hepaticae. *Journal of the Hattori Botanical Laboratory* 60: 283–355.
- Townsend CC. 2005. Mosses from the Caucasian region and eastern Turkey. *Journal of Bryology* 27: 143–152.
- Williams RS. 1915. Mosses from the west coast of South America. *Bulletin of the Torrey Botanical Club* 42: 393–404.
- Yayintaş ÖT. 2008. *Schistidium agassizii* (Grimmiaceae, Bryopsida) new to southern Turkey. *Flora Mediterranea* 18: 117–121.
- Zhu R-L, So ML. 1999. Addition of Lejeuneaceae taxa to the hepatic flora of Yunnan, China. *Annales Botanici Fennici* 36: 219–229.
- Zohary M. 1973. *Geobotanical foundations of the Middle East*. Amsterdam: Gustav Fisher Verlag.

T.L. BLOCKEEL<sup>1</sup>, 9 Ashfurlong Close, Dore, Sheffield S17 3NN, UK. E-mail: Tblockeel@aol.com

CID JOSÉ PASSOS BASTOS, Universidade Federal da Bahia, Instituto de Biologia, Departamento de Botânica, Laboratório de Taxonomia de Briófitas, Campus de Ondina, 40170-280 Salvador, Bahia, Brazil. E-mail: cjpbasto@ufba.br

- H. BEDNAREK-OCHYRA & R. OCHYRA, Laboratory of Bryology, Institute of Botany, Polish Academy of Sciences, ul. Lubicz 46, 31-512 Kraków, Poland. E-mails: H.Bednarek@botany.pl and R.Ochyra@botany.pl
- MICHAIL V. DULIN, Institute of Biology Komi Science Centre UB RAS, Kommunisticheskaja st., 28, Syktyvkar, 167982, Komi Republic, Russia. E-mail: dulin@ib.komisc.ru
- L. FOVET, 31, En Jurue, 57 420 Marieulles, France. E-mail: lucas.fovet@yahoo.fr
- C. GARCIA, Museu Nacional de História Natural, Jardim Botânico da Universidade de Lisboa, Centro de Biologia Ambiental-CBA, Rua da Escola Politécnica, 58, 1250-102 Lisboa, Portugal. E-mail: cgarcia@fc.ul.pt
- LARS HEDENÄS, Swedish Museum of Natural History, Department of Cryptogamic Botany, Box 50007, SE-104 05 Stockholm, Sweden. E-mail: lars.hedenas@nrm.se
- V. HUGONNOT, Le Bourg, 43 270 Varennes Saint Honorat, France. E-mail: vincent.hugonnot@wanadoo.fr
- M. KIRMACI, Adnan Menderes Üniversitesi, Fen Edebiyat Fakültesi, Biyoloji Bölümü, 09010 Kepez- Aydın/Turkey. E-mail: mkirmaci@gmail.com
- T. KOPONEN, Mailantie 109, FI-08800 Lohja, Finland. E-mail: timo.koponen@helsinki.fi
- M. LÉBOUVIER, CNRS UMR 6553, Université de Rennes 1, Station Biologique, F-35380 Paimpont, France. E-mail: marc.lebouvier@univ-rennes1.fr
- A. MARTINS, Museu Nacional de História Natural, Jardim Botânico da Universidade de Lisboa, Rua da Escola Politécnica, 58, 1250-102 Lisboa, Portugal.
- F. MÜLLER, Technische Universität Dresden, Institut für Botanik, D-01062 Dresden, Germany. E-mail: Frank.Mueller@tu-dresden.de
- MARKO SABOVLJEVIĆ and DMITAR LAKUŠIĆ, Institute of Botany, Faculty of Biology, University of Belgrade, Takovska 43, 11000 Belgrade, Serbia. E-mail: marko@bio.bg.ac.rs
- A. SCHÄFER-VERWIMP, Mittlere Letten 11, D-88634 Herdwangen-Schönach, Germany. E-mail: moos.alfons@kabelbw.de
- C. SÉRGIO, Museu Nacional de História Natural, Jardim Botânico da Universidade de Lisboa, Centro de Biologia Ambiental-CBA, Rua da Escola Politécnica, 58, 1250-102 Lisboa, Portugal. E-mail: csergio@fc.ul.pt
- BOŠTJAN SURINA, Natural History Museum Rijeka, Lorenzov prolaz 1, 51000 Rijeka, Croatia.
- ÖZLEM TONGUÇ YAYINTAŞ, Çanakkale Onsekiz Mart University, Biga Vocational College, Technical Program, 17200 Biga, Çanakkale, Turkey. E-mail: ozlemyayintas@hotmail.com

<sup>1</sup>Column editor, to whom contributions should be sent.