New national and regional bryophyte records, 22

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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, epífi o 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: Alcachafe) 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

Iles Kerguelen: GRANDE TERRE: Pennsile 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 3822206 (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 & Brothers, 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 Valdania microcarpa, Bucklandiella membranacea and Andreaea acutifolia, 11 November 2006, leg. R. Ochyra 1890/06 (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
Tropical America is necessary to establish the true sexual compacta Ch. intertexta are conspecific. Ch. compacta lejeuneoid innovations. It is possible that Ch. serpentina neoid innovations, and (Lindenb.) Steph., which also bears pycnolejeune-intertexta Ch. serpentina (Mitt.) Mizut., a paleotropical species. According to Zhu & So from the absence of papillose cells. According to Zhu & So from the absence of papillose cells. There is no record of the presence of this species in the region. 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, Dmitar Lakusˇic´ and Boštjan Surina

**Croatia:** Dinaric Alps, northern Velebit Mts, Rožanski kukovi peaks area, doline N from Novotnijev 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. Lakusˇic´, 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 relic 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 Drepanolejeunea submuricata (Br.-Bl. 1948) with Saxifraga sedoides L. subsp. prenja (Beck) Beck dominant in a herb layer; other frequent and rather frigoriphilous taxa in the stand were Heliosperma pusillum (Waldst. & Kit.) Rehb., Polygonum viviparum L., Poa alpina L. and Festuca nitida Kit. among the phanerogams, and Sanionia uncinata (Hedw.) Loeske, Campylium 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-Hercegovina, Macedonia (FYRoM), Montenegro, Serbia and Slovenia (Sabovljević et al., 2008). The species is not red-listed in Europe (CCB, 1995), but is threatened at a regional level in some countries (Schlußmayr, 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/L (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 & Avendáño (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 papilae 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 incrassicapsulis** 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 incrassalis 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. incrassalis 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. incrassalis, 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 incrassalis, 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 Iles 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


Hymenoloma immersum is very easily distinguished by having capsules that are deeply immersed in enlarged perichaetal 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 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.Phil.

Contributor: Frank Müller

Sardinia: Sette Fratelli: upper part of the valley of the Rio Maudopis, 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).


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 outliers 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


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; Sabovljević et al., 2008).


Contributor: T. Koponen
Greenland: Maneot [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 \textit{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 \textit{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 \textit{Ph. fontana} (Hedw.) Brid. var. caespitosa (Jur.) Limpr. by C. Jensen. L. Loeske identified the specimen as \textit{Ph. tomentella} Molendo and W.M. Zales agreed with Loeske, using the varietal name \textit{Ph. fontana var. pamila} (Turn.) Brid.

\textit{Philonotis yezoana} was originally described from Japanese and Korean specimens. However, Ochi (1962, 1963) reduced it to a synonym of \textit{Ph. seriata} (Mitt.) (as \textit{Ph. fontana var. seriata} (Mitt.) Kindb.). This seems to have been based on the observation that \textit{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 \textit{Philonotis} section \textit{Philonotis}, such as \textit{Ph. fontana} and \textit{Ph. calcarea} (Bruch & Schimp.) Schimp., in which central papillae occur more rarely. Noguchi (1989) accepted \textit{P. yezoana} at varietal level as \textit{Ph. fontana var. tenuicaulis} (Card.) Nog. (\textit{Ph. yezoana var. tenuicaulis} Card.). Iwatsuki (2004) accepted both \textit{Ph. yezoana} and \textit{Ph. fontana var. tenuicaulis}, which are synonymous on the basis of the illustrations of syntypes in Ochi (1962, 1963). \textit{Philonotis yezoana} is widely distributed in Japan, and probably all Japanese and Korean specimens cited as \textit{Ph. fontana var. seriata} by Ochi (1962, 1963) represent this taxon. Based on the author's (T.K.) 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 \textit{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 \textit{Ph. seriata}.

Frahm (1976) cited and illustrated a Spanish specimen of \textit{Philonotis hastata} (Duby) Wijk & Marg. On the basis of the illustration the specimen cited cannot be \textit{Ph. hastata}. This is obvious when Frahm's illustration is compared with the illustration drawn from the type of \textit{Ph. hastata} (Iwatsuki, 1977). \textit{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 \textit{Ph. yezoana}. However the strong costa and distinctly double-crenulate leaf margin (perpendicular crenulae formed by two adjoining border cells) suggest that it is \textit{Ph. seriata}. \textit{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 \textit{Philonotis hastata} in their handbook of the mosses of the Iberian Peninsula.


13. \textit{Phyllodon perplanicaulis} (Brot.) Kis

\textbf{Contributor:} L. Hedénäs

\textbf{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. Hedénäs 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. Hedénäs MY92-395a, 22 March 1992 (S; reg. no. B152165).

These are the first reports of \textit{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 (Hedénäs & Watling, 2005).

14. \textit{Scapania javanica} Gottsche

\textbf{Contributor:} A. Schäfer-Verwimp

\textbf{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 210981A (JE).

\textbf{Sumatra: NORTH SUMATRA:} highlands of Brastagi, southeastern 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).

\textbf{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, 1909, 1909–1912; Herzog, 1926), and also from West Irian (Hiepko & Schultz-Motel, 1981). Subsequently it has been reported from Sarawak in Borneo (Herzog, 1950; Grolle, 1965), and Taiwan (Inoue, 1961; Pippio, 1990); Grolle & Pippio (1984) reported it from West Irian, Papua New Guinea, and the Solomon Islands, and Pippio (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 Pippio (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 (Pippio, 1985), and in Malaysia and Sumatra in primary rain forest on shady rocks. Its altitudinal range is 1100 to 3700 m (Grolle & Pippio, 1984; Herzog, 1950).

15. Scapania sphaerifera H.Buch & Tuom.

**Contributor:** Michael V. Dulin

**Russian Federation (Russian Far East):** Kamchatk 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 corrallitoides 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 Kray 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. Kirmaci

**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. Kirmaci, 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 orientalitis, 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 (Čepel, 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 & Erdag (2005). Since then two further species have been added: S. submucum 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 (Britd.) Podp.

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

**Îles Kerguelen:** Grande Terre. Peninsule Courbet: (1) Port-aux-Français, small stream behind the post office, 49°20’50.793”S, 70°13’10.851”S, 40 m a.s.l., on stone in sluggish steam, submersed in water, 18 November 2006, leg. R. Ochyra 282/06 (KRAM); (2) northern coast, Presque'ile 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”S, ca 100 m a.s.l., submersed 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 here in 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. PACCAYAS: Corocoro, 17°10’S, 68°27’W, ca 3900 m a.s.l., 17 February 1921, leg. Erik Asplund 42 (JE); (2) DEPTO. ORURO. 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) Ochryra

**Contributor:** Özlem Tonguç Yayintaş

**Turkey:** HATAY: Amanos Mountain, Dörtyol county, Tekkøz Kengerliduz National Park, mixed forest, near the villages of Kulu and Kızlaçay, on soil, 36°30′43″N 36°13′22″E, 280 m a.s.l., 20 May 2001, leg. Özlem Tonguç Yayintaş T 1534, conf. B. Allen (MO, Çanakkale Onsekiz Mart University herbarium).

**Syntrichia fragilis** was associated at this site with the mosses Homalotheicum 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; Kürşchner & Erdag, 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, Kürşchner (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. Ochryra 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. Ochryra. 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. Ochrya 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. Kurmaci 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 Phylonotis 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 Yayintaş is very grateful to the kind hospitality and collaboration during field work in Turkey: HATAY: Amanos Mountain, Dörtyol county, Tekkøz Kengerliduz National Park, mixed forest, near the villages of Kulu and Kızlaçay, on soil, 36°30′43″N 36°13′22″E, 280 m a.s.l., 20 May 2001, leg. Özlem Tonguç Yayintaş T 1534, conf. B. Allen (MO, Çanakkale Onsekiz Mart University herbarium).

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