

# New national and regional bryophyte records, 28

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1. *Andreaea flabellata* Müll.Hal.

**Contributors:** R. Ochyra, H. Bednarek-Ochyra & V. R. Smith

**Prince Edward Islands:** MARION ISLAND: (1) eastern coast, the westernmost part of Kerguelen Rise between Stony Ridge and Soft Plume River, 46°55'27"S, 37°50'20"E, 265–280 m a.s.l., in crevices of black lava rocks in dry and exposed situation in fellfield, 11 April 2003, *leg.* R. Ochyra 1036/03 (KRAM); (2) southern coast, southern part of Santa Rosa Valley, 46°57'59"S, 37°43'28"E, 20–50 m a.s.l.; in crevices of dry and exposed black lava rocks, 26 April 1999, *leg.* R. Ochyra 2048/99 (KRAM). PRINCE EDWARD ISLAND: (1) eastern part, central highland, stream at the eastern foot of Hoedberg toward Platkop, 46°38'924"S, 37°58'317"E, 180 m a.s.l.; on dry boulder on steep bank of stream associated with *Kiaeria pumila* (Mitt.) Ochyra, 11 April 2001, *leg.* R. Ochyra 389/01 (with V. R. Smith) (KRAM); (2) eastern part, Stellenbosch Kop about 1 km south of Epsilon Kop in the close proximity of the southern part of the Great

Escarpment, 46°38.098'S, 37°54.733'E, 595 m a.s.l.; on grey lava boulders associated with *Valdonia microcarpa* (Mitt.) Ochyra, *Bucklandiella membranacea* (Mitt.) Bednarek-Ochyra & Ochyra and *Dicranella gremmenii* Ochyra, 31 March 2003, *leg.* R. Ochyra 72103 (KRAM).

**Heard Island:** LONG BEACH: on old moraine, lateral to Deacock Glacier, 4 November 2000, *leg.* P. Selkirk, M. Skotnicki & J. Whinam H391D (NSW-755112).

*Andreaea flabellata* is a pan-south-temperate species, occurring in southern South America (Greene, 1986), in south-eastern Australia and New Zealand (Murray, 2006). It also occurs on most islands in the Southern Ocean, including Tristan da Cunha (Dixon, 1960 as *Andreaea grimmiioides* Dusén), South Georgia (Greene, 1968), Îles Kerguelen, from whence it was described (Müller, 1883, 1889), and Macquarie Island (Seppelt, 2004). Additionally, the species is reported in the literature from Prince Edward Island and Marion Island in the Prince Edward Islands archipelago (Ochyra, 2008) and from Heard Island (Murray, 2006), but no collections confirming these reports have been cited. *Andreaea flabellata* is fairly common in the Prince Edward Islands, growing abundantly on rocks, especially in the fellfield vegetation where it sometimes forms characteristic moss balls. The

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material here cited from Heard Island, was originally reported from this heavily glaciated island as *Andreaea acuminata* Mitt. (Selkirk *et al.*, 2008), but the latter species is actually restricted in its distribution to Australia and New Zealand.

2. *Andreaea gainii* Cardot

**Contributor:** R. Ochyra

**Argentina, Tierra del Fuego:** ISLA GRANDE DE TIERRA DEL FUEGO, DEPTO. USHUAIA: trail to Glaciar Martial, 54°46'S, 68°29'W, 600–1000 m a.s.l.; open forest dominated by *Nothofagus pumilio* (Poepp. & Endl.) Krasser with *N. betuloides* (Mirb.) Oerst., on dry boulder, 25 November 1995, *leg.* R. Ochyra 520/95 (KRAM).

*Andreaea gainii* is a distinctive species which has long been considered an Antarctic endemic (Greene *et al.*, 1970; Ochyra, 1998; Ochyra *et al.*, 1998). However, its recent discovery on subantarctic South Georgia (Ochyra *et al.*, 2002) and Macquarie Island (Seppelt, 2004), as well as in Tasmania (Murray, 2006), changed its geographical status and at present *A. gainii* is considered as an amphipacific subantarctic-Antarctic species having maximum occurrence and abundance in the maritime Antarctic (Ochyra *et al.*, 2008b). In addition, Murray (2006) added southern South America to the geographical range of *A. gainii* but without citing locality data. The relevant voucher collection is cited hereby from Tierra del Fuego to substantiate the literature report of *A. gainii* in the southernmost tip of South America.

3. *Andreaea nitida* Hook.f. & Wilson

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

**South Georgia:** (1) CUMBERLAND EAST BAY: Bore Valley, lower slopes of Mount Duse, ca 150 m a.s.l., on wet rocks by waterfall, 26 December 1967, *leg.* S. W. Greene CG 574 (AAS, KRAM); (2) BARFF PENINSULA: Sandbugten, gorge behind beach, ca 15 m a.s.l., crevices of north-facing, wet rock by waterfall, 30 December 1960, *leg.* S. W. Greene 544 (AAS, KRAM).

*Andreaea nitida* is a pan-south-temperate species easily recognised by its large, oblong to ovate to (sometimes) almost circular leaves with a fan-shaped and spurred costa that ceases around mid-leaf. It is common in New Zealand and its offshore islands (Schultze-Motel, 1970), south-eastern Australia and Tasmania (Murray, 2006), the Cape area of South Africa (Magill, 1981), Tristan da Cunha (Dixon, 1960 as *A. aquatica* R.Br.bis), New Guinea (Schultze-Motel, 1970) and the South American Andes from northernmost Chile and Bolivia to Colombia (Churchill *et al.*, 2000). In the Subantarctic, *A. nitida* has so far been recorded from Macquarie Island (Seppelt, 2004). Murray (2006) stated that it occurs on South Georgia but did not cite any specimens. The species has, in fact, been collected several times on

that island and here, two specimens are cited to substantiate this. Considering the present record as well as recent additions (Ochyra, 2005; Ochyra & Bednarek-Ochyra, 2007; Ochyra *et al.*, 2002, 2003), the moss flora of South Georgia consists of about 120 species and is the second richest moss flora in the subantarctic region after that in the Îles Kerguelen.

4. *Bryoerythrophyllum campylocarpum* (Müll.Hal.) H.A.Crum

**Contributors:** R. Ochyra, H. Bednarek-Ochyra & V. R. Smith

**Prince Edward Islands:** MARION ISLAND: northern coast, a streamlet at the eastern foot of Repetto's Hill, 46°50'35"S, 37°45'00"E, 100–180 m a.s.l., in crevices of black lava rocks, 29 April 1999, *leg.* R. Ochyra 2470/99 (with V. R. Smith) (KRAM).

**Heard Island:** CAPE GAZERT: Allison Glacier, on a stable lateral moraine, 31 October 2000, *leg.* P. Selkirk, M. Skotnicki & J. Whinam H204 (NSW-755137).

*Bryoerythrophyllum campylocarpum* is a widespread species but its geographical range is difficult to determine precisely as it has frequently been confused with *B. jamesonii* (Taylor) H.A.Crum. It is primarily an Afro-American species with a limited penetration into Asia. The species is common in the Latin American Cordillera, from Mexico (Zander, 1994a) through the Central American Isthmus (Allen, 2002) southwards to Bolivia (Churchill *et al.*, 2000), and in sub-Saharan Africa where it is recorded from many countries from Cape Verde in West Africa to Réunion in the Indian Ocean (O'Shea, 2006). Additionally, *B. campylocarpum* is known from Portugal in Mediterranean Europe (Sérgio & Carvalho, 2003), from the Himalayas in Asia (Sollman, 1991) in the north to the Îles Crozet in the subantarctic region (Sollman, 1991). Here the species is recorded from another subantarctic island, namely Heard Island, and this is the southernmost known locality for this species. The species was originally reported from this island as *B. recurvirostrum* (Hedw.) P.C.Chen (Selkirk *et al.*, 2008) but the voucher specimens undoubtedly represent *B. campylocarpum*, easily recognised by its plane margins in the distal portion of the leaf. Without citing specimens, Ochyra (2008) recorded *B. campylocarpum* from Marion Island in the Prince Edward Islands archipelago. Here, this record is substantiated with the relevant voucher specimen.

5. *Bucklandiella lamprocarpa* (Müll.Hal.) Bednarek-Ochyra & Ochyra

**Contributors:** R. Ochyra, H. Bednarek-Ochyra & V. R. Smith

**Prince Edward Islands:** MARION ISLAND: Cape East, 46°54'25"S, 37°53'26"E, 50 m, on wet stone in stream associated with *Blindia magellanica* Müll.Hal.

and *Schistidium falcatum* (Hook.f. & Wilson) B.Bremer, 28 April 2001, *leg. R. Ochyra 2345A/01, 2348/01* (KRAM).

*Bucklandiella lamprocarpa* is one of few rheophytic species in the large genus *Bucklandiella* Roiv. The main centre of its distribution is in the cool south-temperate zone of southern South America (Ochyra, 1993; Bednarek-Ochyra & Ochyra, 1994; Bednarek-Ochyra *et al.*, 1996) and extends to Gough Island in the middle of the South Atlantic Ocean (Ochyra *et al.*, 1988). It also penetrates into the tropics at high elevation in South America along the Andean chain from Bolivia to Venezuela (Bednarek-Ochyra & Ochyra, 2009). In Africa it ranges from the Cape to Kenya and has highly isolated and disjunct occurrences in the Iberian Peninsula in Europe (Ochyra *et al.*, 1988). In the last decade, *B. lamprocarpa* was discovered on three isolated subantarctic islands in the vast Southern Ocean, including Macquarie Island in the Australasian sector (Bednarek-Ochyra & Ochyra, 2007), the Îles Kerguelen (Bednarek-Ochyra & Ochyra, 1998) and Heard Island (Bednarek-Ochyra & Ochyra, 2010a) in the African sector. Here, the species is recorded from Marion Island in the Prince Edward archipelago, in the African sector of the southern Indian Ocean. Ochyra (2008) reported 96 species in the moss flora of the Prince Edward Islands. This discovery of *B. lamprocarpa* adds a further distinct species.

6. *Bucklandiella membranacea* (Mitt.) Bednarek-Ochyra & Ochyra

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

**Argentina, Tierra del Fuego:** ISLA GRANDE DE TIERRA DEL FUEGO, DEPTO. USHUAIA: trail to Glaciar Martial, 54°46'S, 68°29'W, 600–1000 m a.s.l.; on stony ground at edge of mire in open forest dominated by *Nothofagus pumilio* (Poepp. & Endl.) Krasser with *N. betuloides* (Mirb.) Oerst., 23 November 1995, *leg. R. Ochyra 480/95* (KRAM).

**South America, Falkland Islands:** (1) WEST FALKLAND: Hill Cove, 51°36'26"S, 60°08'31"W, outcrops on summit of West French Peak, 290 m a.s.l. (=950 ft), on *Bolax* Comm. ex Juss. cushion (UTM Grid 21F TC 8087), 24 January 1968, *leg. J. J. Engel 2957* (AAS, H, KRAM). (2) EAST FALKLAND: Port Louis, 51°31'46"S, 58°07'42"W, *leg. C. Skottsberg 228* (Svenska Sydpolarexpeditionen 1901–1903) (PC, S).

**Chile, Tierra del Fuego:** ISLA FURIA: 54°24'03"S, 72°19'14"W, 1–100 m a.s.l., on cliff, new slope with open rock faces, small swamps and forests of *Nothofagus betuloides* (Mirb.) Oerst., *Drimys winteri* J.R.Forst. & G.Forst. and *Desfontainia spinosa* Ruiz & Pav., 20 January 1987, *leg. J. Hyvönen 2995* (H, KRAM).

**South America, Chile, Juan Fernandez:** (1) ISLA ALEJANDRO SELKIRK (=Más Afuera): in alpinis prope

Correspondencia, 33°45'49"S, 80°45'27"W, 1200 m a.s.l., ad moles, 5 March 1917, *leg. C. & I. Skottsberg 146* (Svenska Pacific Expeditionen 1916–1917) (H, S); (2) ISLA ROBINSON CRUSOE (=Más a Tierra), 33°38'29"S, 78°50'28"W, 625 m a.s.l., Salsipuedes, in jugo lapidoso, 13 January 1917, *leg. C. & I. Skottsberg 144* (Svenska Pacific Expeditionen 1916–1917) (H, S).

*Bucklandiella membranacea* is a long forgotten and inadequately known species. Cardot (1911) reduced this name to synonymy with *Racomitrium symphyodontum* (Müll.Hal.) A.Jaeger and subsequently, by devious paths, it became a synonym of the catch-all *Racomitrium crispulum* (Hook.f. & Wilson) Hook.f. & Wilson (Dixon, 1926; Clifford, 1955). Lawton (1973) was apparently the first to critically examine the type collection of *B. membranacea*, from Tristan da Cunha, and she considered it to be identical to *Racomitrium crispulum* var. *tasmanicum* (Hampe) E.Lawton. A re-examination of the type material of this species, as well as numerous non-type collections from the subantarctic Prince Edward Islands, showed *B. membranacea* to be a distinct species. It is diagnosed by having leaves with unistratose and elongate laminal cells, a long basal marginal border of pellucid cells and a capillaceous hair-point, 0.1–0.35 mm long. The latter is hyaline throughout or tinged yellow to yellow-brown in the proximal portion and hyaline in the distal portion. The true geographical distribution of *B. membranacea* is still unknown and its range given by Lawton (1973) certainly needs revision. In fact, *R. crispulum* var. *tasmanicum* is different to *B. membranacea* and inseparable from the Tasmanian endemic *B. pycnotricha* (Müll.Hal.) Bednarek-Ochyra, Ochyra & Seppelt. Until now, *B. membranacea* was known from Tristan da Cunha (Mitten, 1876), and the subantarctic Prince Edward Islands (Ochyra & Hertel, 1991). Here we report it from the Falkland Islands, Tierra del Fuego and the Juan Fernandez Island in South America. Thus, it is a typical amphiatlantic south-cool-temperate species. It is worth noting that Paris (1897, 1905) recorded *B. membranacea* from the Bermuda Islands but evidently this was in error.

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

**Contributor:** H. Bednarek-Ochyra

**Tristan da Cunha:** (1) The Peak, 37°06'S, 12°17'W, 2028 m a.s.l., 6 January 1938, *leg. Christophersen & Mejland 696a* (BM-Dixon); (2) same locality, just below The Peak, 2000 m a.s.l., *leg. Christophersen & Mejland 651, 655* (BM-Dixon).

*Bucklandiella striatipila* has long been considered an amphipacific south-cool-temperate species occurring, from one extreme in the *Nothofagus* zone on the western fringes of southern South America, from the



Juan Fernandez Islands to Tierra del Fuego (Cardot & Brotherus, 1923; Robinson, 1975; Deguchi, 1984) and subantarctic South Georgia (Bell, 1974), and from the other extreme, in New Zealand (Sainsbury, 1955). However, Bednarek-Ochyra & Ochyra (2010b) showed that the New Zealand plants actually represent a distinct species, *B. allanfifei* Bednarek-Ochyra & Ochyra. Subsequently, the species has been discovered in the subantarctic archipelagos of Îles Crozet (Bednarek-Ochyra *et al.*, 2009a) and Îles Kerguelen (Ochyra *et al.*, 2010) and these discoveries have firmly established *B. striatipila* as an amphiatlantic south-cool-temperate species. Here, the species is recorded for the first time from Tristan da Cunha in the middle of the South Atlantic Ocean. The material was originally reported by Dixon (1960) from the summit area of the main volcanic cone of the island as *Racomitrium heterostichoides* Cardot. Accordingly, the latter species has to be excluded from the moss flora of the Tristan da Cunha group, but nevertheless, retains its status as an amphiatlantic subantarctic species, since it is known from Îles Kerguelen (Bednarek-Ochyra *et al.*, 2009b).

8. *Bucklandiella sudetica* (Funck) Bednarek-Ochyra & Ochyra

**Contributor:** H. Bednarek-Ochyra

**Tasmania:** BEN LOMOND NATIONAL PARK: NW side of Legges Tor, 41°32'S, 147°39'E, 1565 m a.s.l.; occasional, growing with *Andreaea rupestris* Hedw., 29 April 1979, *leg.* M. G. Noble 28722 (HO, KRAM).

*Bucklandiella sudetica* is the most widespread species of its genus, having a wide bipolar geographical range, though without intermediate occurrences in the tropical mountains (Ochyra *et al.*, 2008b). In the Holarctic this species has an almost continuous boreal-montane range, but in the southern hemisphere *B. sudetica* has two centres of distribution, and an amphipacific south-cool-temperate range. One of its centres of distribution in the austral region is in southern South America and in the western Antarctic, where it ranges from the Valdivian region in Chile through Tierra del Fuego, the Falkland Islands and subantarctic South Georgia, extending southwards to the Graham Coast and the Wilkins Coast on the Antarctic Peninsula. The second centre of its distribution is in Australasia, where it has been recorded in south-eastern Australia (Frisvoll, 1986) and in New Zealand, where it is scattered at high elevations in the South Island and very occasionally found in the North Island (Bednarek-Ochyra & Ochyra, 2011). Here, the range of *B. sudetica* is extended to Tasmania where the species occurs occasionally at alpine sites.

9. *Cephaloziella varians* (Gottsche) Steph.

**Contributor:** H. Klama

**Poland:** WESTERN CARPATHIANS, TATRA MTS: Dolina Pięciu Stawów Polskich Valley, NW bank of the Wielki Staw Polski Lake, 49°12'38" N, 20°02'16" E, 1675 m a.s.l., on the stones in water of a little stream, 4 August 1991, *leg.* H. Klama *s.n.* (KRAM, Priv. Herb. H. Klama).

This is the first report of *Cephaloziella varians* for Poland. The species has a bipolar distribution, and in the southern hemisphere it is widespread in maritime Antarctica, South Georgia and Falkland Islands (Bednarek-Ochyra *et al.*, 2000). In the northern hemisphere it has a subarctic-alpine range. In Europe the species occurs from Iceland, throughout Norway, Sweden and Finland to Arctic Russia. It has also been recorded in the Faeroe Islands, Svalbard, Novaya Zemlya and Franz Josef Land. Further south, *Cephaloziella varians* has been found in the French Pyrenees and in the Alps of Switzerland, northern Italy and Austria (Söderström *et al.*, 2002). Josef Duda reported it from Furkotská dolina Valley in the Slovak part of the Tatra Mountains (Duda & Váňa, 1974), but the plant now seems to be extinct in Slovakia (Kubinská *et al.*, 1996, 2001). In Poland, *Cephaloziella varians* grows on granite stones in streams, where it forms large, black, compact patches. The plants here are gemmiferous.

10. *Chiloscyphus pallescens* (Ehrh. ex Hoffm.) Dumort.

**Contributor:** J. Váňa

**Mexico:** STATE OF MEXICO, MUNICIPIO TOLUCA: NW slopes of Nevado de Toluca volcano, 3650 m a.s.l., 11 August 1995, *leg.* J. Váňa *s.n.* (PRC).

This is a Holarctic species, transcontinental in North America (westward from Aleutian Islands and north coast of Alaska), Europe and Asia (eastward to Sakhalin and Japan). The locality in Mexico is its southernmost occurrence and the only record of this species in the tropics. According to the present known distribution, this species can be placed in the group of holarctic species with limited penetration into the tropics (cf. Gradstein & Váňa, 1987). The known localities for this species closest to this new record are in the south-western USA (California, New Mexico).

11. *Cololejeunea distalopapillata* (E.W.Jones) R.M.Schust.

**Contributors:** L. Söderström & T. Pócs

**South Africa:** WESTERN CAPE: Knysna district, Diepwalle National Park, Ironwood, 418 m a.s.l. (33°57'48"S, 23°09'14"E). Epiphyll on small bushes in a moist ravine. 25 August 2009, *leg.* L. Söderström 2009/009d. *Det.* T. Pócs (*Herb.* Söderström & BOL).

On an excursion in South Africa, a few leaves with epiphyllous liverworts were occasionally collected from low bushes. These leaves supported four species, *Microlejeunea africana* Steph., *Drepanolejeunea hamatifolia*

(Hook.) Schiffn., *Cololejeunea cardiocarpa* (Mont.) A. Evans and *Cololejeunea distalopapillata*. The latter is new to South Africa but rather widespread in tropical parts of eastern Africa. It is reported from Zaire (Democratic Republic of Congo), Uganda, Rwanda, Burundi, Kenya, Tanzania, Malawi, Zimbabwe, Comoros and Madagascar, and was also recently reported from southern India. This new record occurred far from its nearest previously known locality in one of the south-easternmost pockets of the afro-montane broadleaved forests, but the Knysna area is notorious for the presence of such tropical African montane relic elements. It was collected along a small stream in a moist ravine.

12. *Eustichia longirostris* (Brid.) Brid.

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

**Îles Kerguelen:** GRANDE TERRE: Presqu'île Bouquet de la Grye, Port Couvreux, 1 km north-west of the hut, 49°16'54.7"S, 69°41'24.4"E, ca 50 m a.s.l.; in moist rock crevices in cliffs on the right side of the stream, 19 November 2006, leg. R. Ochyra 418/06 (with C. Brumbt) (KRAM).

*Eustichia longirostris* is an Afro-American species with its optimum occurrence in the Latin American Cordillera, extending from Mexico (Crum, 1994 as *E. jamesonii*) through Central America (Allen, 2002) to central Argentina (Calabrese & Matteri, 1999) and southern Chile (Greene, 1986) at latitude ca 40°S. There are some isolated occurrences in the Dominican Republic in the West Indies (Buck & Steere, 1983) and in south-eastern Brazil (Yano, 1981). Outside the Americas, *E. longirostris* occurs in Tristan da Cunha (from whence it was described; Bridel, 1819), South Africa (Magill, 1987) and in islands adjacent to East Africa in the Indian Ocean, including Madagascar and the Mascarenes (Crosby *et al.*, 1983). Southwards, the species extends to Marion Island in the Prince Edward Islands in the Southern Ocean (Zanten, 1971). Here, the range of *E. longirostris* is extended to Îles Kerguelen, the largest archipelago in the subantarctic region.

13. *Grimmia dissimulata* E. Maier

**Contributor:** R. D. Porley

**Portugal:** ALGARVE: SE of Bensafrim, NE facing limestone escarpment above the Bensafrim-Lagos road, 29S 0525262/4112485, ca 50 m a.s.l., on shaded limestone boulder tops, 22 February 2011, leg. R. D. Porley (LISU and Priv. Herb. R. D. Porley).

The limestone escarpment is exposed on the western extremity of the 'barrocal' formation, and other notable species close by on the NE facing cliffs include *Cephaloziella baumgartneri* Schiffn., *Funariella curviseta* (Schwägr.) Sérgio, *Leptodon smithii* (Hedw.) F. Weber & D. Mohr, and *Plasteurhynchium meridionale* (Schimp.) M. Fleisch.

*Grimmia dissimulata* shows a Mediterranean-Atlantic distribution with occurrences in NW Europe and extending east to Turkey, and is not unexpected in Portugal. Unlike other members of the *Grimmia trichophylla* group it shows a preference for limestone (Maier, 2003). The record was confirmed new to Portugal by C. Sérgio.

14. *Gymnocoleopsis multiflora* (Steph.) R. M. Schust.

**Contributor:** J. Váňa

**Ecuador:** PROV. PICHINCHA: W slope of Pichincha volcano, rocks along banks of a brook, 3300 m a.s.l., 18 June 1999 leg. Z. Soldán, det. J. Váňa (PRC); Páramo de Guamani (=Páramo de la Virgen) ca 25 km WSW of Quito, saddle and surroundings of lagoons, 4000–4200 m a.s.l., 19 June 1999, leg. Z. Soldán, det. J. Váňa (PRC). PROV. COTOPAXI, NNE slope of Cotopaxi volcano, wet rocks in the end of a valley, 4460 m a.s.l., 28 June 1999, leg. Z. Soldán, det. J. Váňa (PRC). PROV. CHIMBORAZO: E slope of the Loma Guagua Lozán Mt (west of Chimborazo volcano), in shadow below ledge, 4200 m a.s.l., 3 July 1999, leg. Z. Soldán, det. J. Váňa (PRC).

**Mexico:** STATE OF MEXICO, MUNICIPIO TOLUCA: NW slopes of Nevado de Toluca volcano, intermixed in *Campylopus* sp. patches, 3650 m a.s.l., 11 August 1995, leg. J. Váňa s.n. (PRC).

This Afro-American, tropic alpine species (cf. Gradstein *et al.*, 1983) is known in Latin America from Bolivia, Peru, Colombia and Venezuela and in Africa from Democratic Republic of Congo (Virunga, Kivu) and Tanzania (Kilimanjaro). Its occurrence in Ecuador was expected, and this isolated new locality in Mexico represents the northernmost limit for the distribution of this species.

15. *Hymenoloma dryptodontoides* (Müll. Hal.) Ochyra

**Contributors:** R. Ochyra & V. R. Smith

**Prince Edward Islands:** PRINCE EDWARD ISLAND: western part of the island: (1) midway between Epsilon Kop and Van Zinderen Bakker Peak at the edge of the Great Escarpment, 46°37.586'S, 37°54.290'E, ca 500 m a.s.l.; on dry and exposed basalt rocks forming large, dense cushions together with *Notoligotrichum tristansiense* (Dixon) G. L. Sm. and *Cephaloziella varians* (Gottsche) Steph., 31 March 2003, leg. R. Ochyra 116/03 (with V. R. Smith) (KRAM); (2) Vaalkop in the northernmost part of the island, 46°36'30"S, 37°54'30"E, 200 m a.s.l.; on the summit of the volcanic cone on dry and exposed basalt rocks forming large compact cushions together with *Schistidium cupulare* (Müll. Hal.) Ochyra, *Hymenoloma insulare* (Mitt.) Ochyra and *Cephaloziella varians* (Gottsche) Steph., 14 April 2001, leg. R. Ochyra 856A/01 (with V. R. Smith) (KRAM).

The gametophyte of *Hymenoloma dryptodontoides* is inseparable from that of its congeners. However, it produces sporophytes in profusion and the fertile

plants are easily distinguished by their possession of emergent capsules; enlarged perichaetial leaves reach the base of the theca. *Hymenoloma dryptodontoides* is a subantarctic species, endemic to the Kerguelen Province, and until now was known only from Îles Kerguelen from where it was described as *Blindia dryptodontoides* Müll.Hal. (Müller, 1883, 1889). Here, the species is reported for the first time from Prince Edward Island, and this discovery represents a remarkable extension of its range in the subantarctic region. The population of *H. dryptodontoides* on Vaalkop is apparently the largest known population of the species. It consists of large cushions that cover extensive expanses of dry and exposed, bare rock faces, in mixture with *Hymenoloma insulare* (Mitt.) Ochyra and *Schistidium cupulare* (Müll.Hal.) Ochyra. Currently, the moss flora of the Prince Edward Islands consists of 96 species, which makes it the third richest moss flora in the subantarctic region after Îles Kerguelen and South Georgia (Ochyra, 2008).

16. *Hyophila nymaniana* (M.Fleisch.) M.Menzel

**Contributors:** A. K. Asthana, V. Sahu & A. Srivastava

**India:** EASTERN HIMALAYAS: Meghalaya, Shillong (Lum Nehru Park, Umiam), on stony wall, 1017 m a.s.l., 23 December 2010, *leg.* Vinay Sahu & Vishal Awasthi *s. n.* (LWG 251557B).

The genus *Hyophila* belongs in the family Pottiaceae, and is represented in India by four species (Aziz & Vohra, 2008). Of these, *H. involuta* (Hook.) A.Jaeger was reported from nearly all parts of India, *H. walkeri* Broth. was known from central and southern India, *H. spathulata* (Harv.) A.Jaeger was described from the western Himalaya and southern India, and *Hyophila nymaniana* (M.Fleisch.) M.Menzel is known from the western Himalaya, southern and central India, and the Gangetic Plains of India. Here, this species is reported for the first time from Meghalaya in the eastern Himalaya. It is characterized by an erect stem that is radiculose below, with leaves densely arranged in intermittent rosettes. The leaf base is narrow with recurved margins and the leaf apex is rounded-crenulate. An excurrent costa extends into a short apiculus. Laminal cells are rounded-quadrangle, incrassate and papillose, becoming narrow towards the leaf margin, and are rectangular in the extreme leaf base.

17. *Leptodontium brachyphyllum* Broth. & Thér.

**Contributors:** M. T. Colotti & M. M. Schiavone

**Argentina:** TUCUMÁN, DEPTO. TAFI DEL VALLE: La Ciénaga, Quebrada de Fidel, salida de una vega o posible vertiente, 26°46'24"S, 65°39'02"W, 2539 m a.s.l., September 2002, *leg.* D. Ruiz 936 (LIL, MO). DEPTO. TRANCAS, Camino a Lara, hacia Tolombón, quebradas y pastizales de neblina, sobre rocas al lado

de la ruta, 4000 m a.s.l., 07 July 2006, *leg.* B. Biasuso 3045 (LIL, MO).

This is the first report for *Leptodontium brachyphyllum* in Argentina. The species is known from Mexico to Bolivia in the neotropics (Zander, 1972; Churchill *et al.*, 2009) and from Africa (Allen, 2002). The discovery of *L. brachyphyllum* in Tucumán represents its southernmost known locality.

The specimens were found at two locations in 'Cumbres Calchaquíes': Lara and La Ciénaga, between 2500 and 4000 m a.s.l., near the type locality of *Leptodontium pusillum* Colotti & Schiavone (Colotti & Schiavone, 2008). The surrounding vegetation was dominated by grasslands of *Festuca* (Poaceae), some *Lobivia* (Cactaceae), and *Polylepis* (Rosaceae) (Suárez *et al.*, 2010; Suárez & Schiavone, 2010).

*Leptodontium brachyphyllum* was very abundant at the site, forming loose mats on soil and rocks along roadsides and exposed areas along streams. The plants were greenish brown above, dark green below, medium to large, 3–5(–6) cm high, with dark stems. The loosely arranged leaves were oval-lanceolate with a broadly acute apex, and subpercurrent nerve. In the upper part of the leaf, the margin possessed unicellular, hyaline teeth. Numerous simple to bifid papillae were scattered regularly over the laminal cells.

Although sporophytes were not found in the study area, these were described by Zander (1994b) from Mexican plants. Infrequent propagules, found on the stem in leaf axils were dark brown, obovate, with two transverse septa, 25–35 × 18–30 µm. The plant was illustrated by Zander (1972), and the traits reported here were observed in both the type specimen and in Argentinean plants. Central American specimens apparently lack propagules (Allen, 2002).

18. *Orthotrichum pellucidum* Lindb.

**Contributors:** Z. Hradílek & J. Chlachula

**Kazakhstan:** NE KAZAKHSTAN: Altay Mts., Uryl', road between Zhambul and Berel' on the right bank of the Bukhtarma River, ca 6 km N of Berel', stone debris, granite, 49°17'27"N, 86°19'18"E, 1100 m a.s.l., 9 July 2007, *leg.* Z. Hradílek & J. Chlachula *s. n.* (Priv. Herb. Hradílek).

In Asian Russia, *O. pellucidum* has so far been found only in Chukotka and at three sites in Gorno Altai (Ignatov & Lewinsky-Haapasaari, 1994; Ignatov, 1994). An earlier discovered site in Mongolia was recently reported (Tsegmed *et al.*, 2007). This new Kazakh record confirms the occurrence of this species in the southern part of the Altai Mountains.

19. *Orthotrichum sordidum* Sull. & Lesq.

**Contributors:** Z. Hradílek & J. Chlachula

**Kazakhstan:** NE KAZAKHSTAN: Altai Mts., Katon-Karagay National Park, village of Berel', valley of the



Belaya Berel' River, at bridge over the river *ca* 1 km E of the settlement of Jazovka, on the right river bank, 49°26'34"N, 86°22'01"E, 1194 m a.s.l., 27 June 2007, *leg.* Z. Hradílek & J. Chlachula *s.n.* (Priv. *Herb.* Hradílek); Uryl' district, village of Zhambul, floodplain birch forest on the right bank of the Bukhtarma River, 49°14'25"N, 86°19'03"E, 1007 m a.s.l., 8 July 2007, *leg.* Z. Hradílek & J. Chlachula *s.n.* (Priv. *Herb.* Hradílek); Uryl', site on the right bank of the Bukhtarma River 3.5 km SW of the village of Zhambul, floodplain forest, 49°13'06"N, 86°14'04"E, 995 m a.s.l., 9 July 2007, *leg.* Z. Hradílek *s.n.* (Priv. *Herb.* Hradílek).

*O. sordidum* was discovered in association with *O. obtusifolium* Brid., *O. speciosum* Nees, *Pyralisia polyantha* (Hedw.) Schimp., and *Platygyrium repens* (Brid.) Schimp., the most frequent community of epiphytic mosses growing on trunks of *Salix* spp., *Populus laurifolia* Ledeb. and *Betula pendula* Roth in the floodplain forests in the valley of the Bukhtarma River.

20. *Philonotis polymorpha* (Müll.Hal.) Broth.

**Contributors:** R. Ochyra, H. Bednarek-Ochyra & V. R. Smith

**Heard Island:** WINSTON LAGOON: amongst *Colobanthus* and *Bryum*, 29 October 2000, *leg.* P. Selkirk, M. Skotnicki & J. Whinam *H106a* (NSW-755330).

*Philonotis polymorpha* is a pan-subantarctic species known from most of the islands south of latitude 45°S in the Southern Ocean, from South Georgia in the South American sector (Clarke, 1973) to Macquarie Island in the Australasian sector (Ochyra *et al.*, 2008a). Moreover, it occurs at high elevations in southern South America, from Tierra del Fuego to Central Chile and Mendoza Province in Argentina, and occurs occasionally in volcanic Deception Island in the maritime Antarctic where it is associated with geothermal areas (Ochyra *et al.*, 2008b). Here, *P. polymorpha* is reported from Heard Island in the Kerguelen Province of the subantarctic region. The species was originally reported from this island as *Philonotis* cf. *angustifolia* Kaal. (Selkirk *et al.*, 2008) but the voucher specimens represent a quite typical expression of *P. polymorpha*. *Philonotis angustifolia* was originally described from Îles Crozet (Kaalaas, 1912) but the type material is, in fact, closely related, or probably identical, to *Philonotis tenuis* (Taylor) Reichdt. Thus, *P. polymorpha* is now known from all the subantarctic islands.

21. *Philonotis seriata* Mitt.

**Contributors:** M. Sim-Sim & C. Sérgio

**Portugal, Madeira Archipelago:** ILHA DA MADEIRA: Trilho para o Pico Ruivo, sobre rochas húmidas expostas, 28SCB1825, *ca* 1700 m a.s.l., 07 October 2009, *leg.* M. Sim-Sim *s.n.* (LISU238487).

*Philonotis seriata* is a circumpolar species with a distribution that extends southwards to North Africa

(Dierssen, 2001). In the Iberian Peninsula, it is recorded in several provinces of Portugal and Spain, at altitudes between 700 and 3100 m. It occurs on acidic soils, in springs, fens and along stream sides from the mountains into the lowlands (Guerra *et al.*, 2010).

This is a new record for the Macaronesian region and the island of Madeira. *P. seriata* was recently found growing on exposed wet rocks, in one locality at Pico Ruivo. The habitat was representative of a mosaic of communities that occur on most of the higher peaks, dominated by the *Armerio maderensis-Parafestuco albidae microgeosigmatum* (high-altitude rock vegetation complex) (Capelo *et al.*, 2004).

This moss specimen was found in association with *Andreaea* spp., *Grimmia* spp., *Encalypta vulgaris* Hedw., *Scleropodium touretii* (Brid.) L.Koch, *Racomitrium elongatum* Frisvoll, *Marsupella adusta* (Nees emend. Limpr.) Spruce and *Marsupella emarginata* (Ehrh.) Dumort.

Although this is the first and only record of this species in Macaronesia, it is assumed that it has probably been overlooked, and it is expected that thorough sampling in the higher parts of Madeira Island will reveal additional occurrences.

22. *Pohlia bolanderi* (Lesq.) Broth.

**Contributors:** C. Sérgio & M. Sim-Sim

**Madeira:** Entre Pico Arieiro e Pico do Gato, 26SCB0824, *ca* 1700 m a.s.l., 14 October 1990, *leg.* Mues & Sauer *s.n.* (LISU239427).

*Pohlia bolanderi* (Lesq.) Broth. is a very scattered species in the Holarctic region. It was once regarded as a North American endemic from British Columbia, Washington, Oregon, California, and Nevada (Shaw, 1982), and is probably a relict species of the alpine regions. *P. bolanderi* was first reported from Europe in the south of Spain in the Sierra Nevada Mountains (Rams *et al.*, 2004). Subsequently, it was found at Serra da Estrela in the central northern part of Portugal (Guerra *et al.*, 2007) where it was initially identified as *P. andalusica* (Höhn.) Broth. (Garcia *et al.*, 2008).

During a recent revision of some moss specimens collected by R. Mues and M. Sauer on an expedition to Madeira Island in 1990, a specimen of *Pohlia bolanderi* was found mixed with a very compact colony of *Marsupella adusta* (Nees emend. Limpr.) Spruce. It was growing with *Andreaea* spp., on rocks associated with rupicolous vegetation. This occurrence of *Pohlia bolanderi* is a new record for the bryophyte flora of Macaronesia.

These plants from Madeira fit well within the concept of this species and are easily recognized by several distinct characters. According to Rams *et al.* (2004) and Guerra *et al.* (2010), the following characters clearly distinguish *P. bolanderi* from other

Iberian species of *Pohlia*. It grows in compact turfs of slender, erect, glossy pale whitish-green plants; the stem transverse section is typically pentagonal-rounded, showing a central strand. The leaves are strongly imbricate, ovate to ovate-lanceolate and carinate, with a unistratose lamina. The laminal cells bulge from both faces of the leaf. Sporophytes were absent from this Madeiran material.

*Pohlia bolanderi* is represented in the Iberian area by the type variety and *P. bolanderi* var. *seriata* A.J.Shaw. The Madeiran plants belong to the type variety.

This new record was found ca 1700 m a.s.l., and the nearest other location for the species is in the Iberian Peninsula more than 1200 km away, in an area corresponding to the highest volcanic peak of Madeira island.

This discovery considerably enlarges the distribution of the species, but it may be rare in the island's bryoflora as it was not apparent among the collections of *Pohlia* from Madeira held in LISU and INA.

23. *Riccia beyrichiana* Hampe ex Lehm.

**Contributor:** R. Natcheva

**Bulgaria:** BLAGOEVRAD DISTRICT: at the foothills of Lovchanski Pazlak hill, east of village Nova Lovcha, on bare calcareous soil among tussocks of *Dichanthium ishemum* (L.) Roberty in dry grassland, 23.723405°E, 41.425302°N, 715 m a.s.l., 3 February 2011, leg. R. Natcheva s.n. (SOM-B 9413).

*Riccia beyrichiana* is here reported new to Bulgaria. On the Balkan Peninsula it is known only from Greece and Macedonia (Ros *et al.*, 2007). It is surprising that the species has not been found earlier in Bulgaria since the site has repeatedly been studied by bryologists. The same site was first visited by S. Petrov who reported the rare *Riccia crustata* Trab. (Petrov, 1966). *Riccia beyrichiana* grew together with other interesting species with Mediterranean affinities, e.g. *Entosthodon muhlenbergii* (Turner) Fife, *Gymnostomum viridulum* Brid., *Mannia androgyna* (L.) A.Evans, *M. triandra* (Scop.) Grolle, *Southbya nigrella* (De Not.) Henriq., and *Sphaerocarpos michelii* Bellardi, among others.

24. *Riccia crinita* Taylor

**Contributor:** S. Ștefănuț

**Romania:** DOBRUDJA PROVINCE: Consul Hill, Tulcea County, 45°01'32"N, 28°31'07"E, 133 m a.s.l., on soil, 8 November 2010, leg. et det. S. Ștefănuț s.n. (BUCA B4238-B4241, B4243, B4246, B4269).

This is the first report of *Riccia crinita* for Dobrudja Province and Romania (Ștefănuț 2008). It was collected from the eastern side of Consul Hill. The plants were growing among other liverworts, such as *Riccia ciliifera* Link ex Lindenb., *R. glauca* L. var. *glauca* and var. *ciliaris* Warnst., *R. sorocarpa*

Bisch. var. *sorocarpa* and var. *heegii* Schiffn. (this specimen was determined by V. Hugonnot), *Oxymitra incrassata* (Brot.) Sérgio & Sim-Sim, *Reboulia hemisphaerica* (L.) Raddi and male plants of *Mannia fragrans* (Balb.) Frye & L.Clark.

The nearest other localities of this species are in Bosnia-Herzegovina, Croatia, Montenegro and Ukraine.

In Europe *R. crinita* has been reported from Austria, Balearic Islands, Bosnia-Herzegovina, Corsica, Canary Islands, Croatia, Crete, Czech Republic, France, Germany, Greece, Switzerland, Spain, Italy, Montenegro, Portugal, Poland, Slovak Republic, southern and northwestern Russia and the Ukraine (Söderström *et al.*, 2002, 2007).

25. *Syntrichia laevipila* Brid.

**Contributors:** G. M. Suárez & M. S. Jimenez

**Uruguay:** MONTEVIDEO: Barrio Peñarol, 34°49'23.82"S, 56°12'34.14"W, 37 m a.s.l, sobre *Tipuana tipu* (Benth.) Kuntze, 22 January 2011, leg. G. Suárez 1008 (LIL). COLONIA DEL SACRAMENTO: Barrio histórico de Colonia, frente a la casa del Virrey, 34°28'21.76"S, 57°51'00.45"W, 12 m a.s.l., 24 January 2011, leg. G. Suárez 1000 (LIL).

As part of the 'Mosses of Uruguay' project, specimens recently collected from Montevideo and Colonia (and deposited in LIL), were identified as *Syntrichia laevipila*, which was previously unknown from Uruguay.

*Syntrichia laevipila* has been reported from Africa, North, Central and South America, Asia, Australia, Europe, and New Zealand (Gallego, 2005). In South America this species has been recorded mainly as *Syntrichia pagorum* (Milde) J.J.Amann, being cited from Argentina (Matteri, 2003), Bolivia (Churchill *et al.*, 2009), Brazil (Schäfer-Verwimp, 1996), and Colombia (Churchill *et al.*, 2000). Recently, Müller (2009) included it as *S. laevipila* in the Chilean moss flora. According to Matteri (2004), the genus *Syntrichia* was represented in Uruguay only by *S. brachyclada* (Cardot) R.H.Zander, from a single collection made in Canelones Department (Kramer, 1988). The present new record contributes to the scattered distribution of the genus in this country.

This Uruguayan collection of *Syntrichia laevipila* had its leaves spirally twisted when dry, they were suborbicular to spatulate, constricted in the middle, blunt, emarginate, unbordered, with plane margins. The costa was excurrent in a long, smooth, hyaline awn. Specialized asexual propagula were borne at the tip of the stem and in the axils of distal leaves. These propagula were elliptical or oval, multicellular, ecostate, papillose, but with 1–3 smooth apical hyaline cells. According to Gallego *et al.* (2005) this combination of characters is frequent in the so called 'morphotype B' that represents the typical *S. pagorum*.



As in other parts of the world (Gallego *et al.*, 2004), the Uruguayan plants grow in disturbed, anthropic environments.

26. *Zygodon catarinói* C.Garcia, F.Lara, C.Sérgio, M.Sim-Sim, R.Garilleti & V.Mazimpaka

**Contributor:** L. T. Ellis

**North Cyprus:** KARTAL GAGH FOREST: ridge road (through pine forest) from Alevkayasi to Antiponitis Church, ca 6 km east of Alevkayasi Forest Station. On upper surface of trunk of recumbent pine (*Pinus brutia* Ten.) growing from north-facing limestone cliff, associated with *Syntrichia* sp. and *Frullania dilatata* (L.) Dumort., ca 700 m a.s.l., 21 October 2006, leg. L.T. Ellis, A.J. Harrington & C. Hesseberg NC001 (BM).

Coincidentally described twice in the same year as new to science (Garcia, *et al.* 2006; Calabrese & Munoz, 2006), *Z. catarinói* is known from the Iberian Peninsula and Morocco at the western end of the Mediterranean (Draper *et al.*, 2006). This isolated collection from North Cyprus represents the first record for the island of Cyprus and the eastern Mediterranean region generally. The leaves in *Z. catarinói* are highly distinctive, as the lamina is bistratose in patches and bears tall papillae.

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