



New national and regional bryophyte records, 51

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New national and regional bryophyte records, 51

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1. *Aloina rigida* (Hedw.) Limpr.

Contributors: O. Yu. Pisarenko, V. E. Fedosov and V. A. Bakalin

Russia: Primorsky Territory, Dalnegorsky District, vicinity of Dalnegorsk Town, NE-facing steep slope of Barachny Creek, 44°34'48"N, 135°33'8"E, ca 300 m a.s.l., on fine soil among dry limestone cliffs, 26 August 2016, *leg.* Pisarenko, Fedosov & Bakalin *s.n.* (NSK, MW).

In the northern hemisphere, *A. rigida* occurs mostly in xeric areas of North America, Europe, and Asia. The present find is the easternmost in Eurasia and it is the first record of the species for the Russian Far East. The nearest other localities for *A. rigida* in Russia are in southern Yakutia and in Zabaikalsky Territory (Ignatov *et al.*, 2006), while southwards it is common in Mongolia (Tsegmed, 2001) and China (Li *et al.*, 2001).

2. *Blepharostoma trichophyllum* (L.) Dumort. subsp. *brevirete* (Bryhn & Kaal.) R.M.Schust.

Contributor: N. Hodgetts

United Kingdom: Aonach Beag, Coire Cheap, Westernness (VC97), Scotland, on dry broken gritty soil among SE-facing limestone crags in high NE-facing coire, NN47177542, 1040 m a.s.l., 19 August 2014, *leg.* N. Hodgetts 9145 (E), *conf.* L. Söderström.

While no doubt collected before, this is the first time this subspecies, described as 'rather unsatisfactory' by Paton (1999), has explicitly been recorded in the UK. Essentially it is smaller and more compact than subsp. *trichophyllum*, and confined to arctic-alpine habitats. Several rather plastic characters distinguish it from subsp. *trichophyllum*, and these are described and illustrated by Damsholt (2009). In summary, subsp. *brevirete* has rigid, short leaf lobes with small, short, equally thick-walled cells 1–1.8 times as long as wide, fewer (2–5) oil bodies per cell, and is not known to produce gemmae; in addition, the perianth cells are wider (19–25 µm) and the perianth mouth cells

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shorter (0.8–4 times as long as wide). In contrast, subsp. *trichophyllum* has $\pm$ long acuminate leaf lobes with cells (2–)3–4(–6) times as long as wide, often with somewhat thinner transverse walls, 4–8 oil bodies per cell, and produces gemmae; the perianth cells are narrower (13–18 μ m), and the perianth mouth cells longer, 4–5 times as long as wide.

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

Contributor: H. Bednarek-Ochyra

Falkland Islands: (1) East Falkland, Cape Pembroke at the entrance to Port William, 51.696575°S, 57.780717°W, 5 m a.s.l., on soil in grassland associated with *Kindbergia praelonga* (Hedw.) Ochyra, 9 December 2015, *leg.* D. E. Crabtree 205A (KRAM); (2) East Falkland, Sea Lion Island, 52.429733°S, 59.077115°W, 22 m a.s.l., on soil associated with *Bryum billardi* Schwägr., 15 September 2014, *leg.* D. E. Crabtree 224A (KRAM); (3) West Falkland Island, Grand Jason Islands, 51.066238°S, 61.099160°W, 106 m a.s.l., on slope near Albatross colony, 13 December 2014, *leg.* D. E. Crabtree 341 (KRAM).

Brachythecium albicans is a widely distributed pan-Holarctic boreal-temperate species which is very rare or even absent in some areas. It is known from eastern North America (Ignatov, 2014), occasionally penetrating to the Arctic (Afonina & Czeryadjeva, 1995) and extending to north-eastern Mexico (Nuevo León) (McFarland, 1994), Macaronesia (Azores and Madeira) (Eggers, 1982; Sjögren, 2001), and Yunnan in China (Wang & Hu, 2008). Outside the Holarctic, the species is known from New Zealand (Sainsbury, 1955), south-eastern Australia and Tasmania (Hedenäs, 2002) in the eastern hemisphere, as well as from southern South America in the western hemisphere. In the latter region, *B. albicans* is reported from Chile and Argentina in the unpublished doctoral thesis by McFarland (1988) on the basis of specimens preserved in various herbaria under the name *B. sericeovirens* (Müll.Hal.) Kindb. The species occurs mainly in the southern regions of Chile (VIII, X, XI, XII), extending northwards to Región Metropolitana de Santiago (Müller, 2009), and is also known from the Province of Santa Cruz in Argentina (Matteri, 2003). Additionally, McFarland (1988) reported *B. albicans* from New Island, a small island located near Weddell Island to the west of West Falkland. Herein, the species is recorded from three localities on the two main islands of the archipelago, namely West Falkland and East Falkland. The moss flora of the Falkland Islands is still incompletely studied and the number of species reported from this archipelago varies from 140 to 150 (Matteri, 1986, 2003), although in the last decade several additions to the moss flora were made (e.g. Allen & Magill, 2003; Bednarek-Ochyra & Ochyra, 2003; Blockeel *et al.*, 2003;

Ochyra & Broughton, 2004; Ireland *et al.*, 2005; Ochyra *et al.*, 2015a).

4. *Brachythecium campestre* (Müll.Hal.) Schimp.

Contributors: J. D. Orgaz and J. Guerra.

Spain: Huesca, Pirineos, valle de Vallibierna, on the way to the tarns of Vallibierna, 42°36'26"N, 0°38'28"E, 2200 m a.s.l., in rock fissure with accumulated soil, in *Pinus uncinata* Raymond *ex* A.DC. forest, 19 August 2016, *leg.* J. Guerra *s.n.* (MUB 52440).

This species is known from the temperate zone of the Holarctic region, especially on soils in deciduous forests of mountain areas. Nevertheless, despite its wide distributional range, it is an uncommon species and appears in the Red Data lists of many countries (Hedenäs, 1995).

Brachythecium campestre has been cited several times as occurring in the Iberian Peninsula (Allorge & Allorge, 1946; Sérgio & Schumacker, 1992; Infante & Heras, 2007). However, a careful study of all the available samples deposited in different herbaria revealed that these specimens represented different species of *Brachythecium*, and consequently *B. campestre* was unrecorded for the Iberian Peninsula (Orgaz *et al.*, 2012). Therefore, this is the first record of this species for the area. The sample was collected in a sparse *Pinus uncinata* forest, in a high mountain area that is covered by snow during winter and early spring.

The identification of this species can be very difficult if samples do not possess sporophytes, since there are few characters to distinguish it from similar species such as *B. laetum* (Brid.) Schimp. and *B. salebrosum* (Hoffm. *ex* F.Weber & D.Mohr) Schimp. However, some characters that can be used to identify *B. campestre* are the ovate-lanceolate or ovate-triangular leaves with quadrate or subquadrate alar cells ascending along the leaf margins, the rough seta, the autoicous sexual condition, and the branch leaves with scarcely prorate laminal cells and the costa ending in a dorsal spine.

5. *Bryoerythrophyllum inaequalifolium* (Taylor) R.H.Zander

Contributors: O. Yu. Pisarenko, V. E. Fedosov, M. S. Ignatov, E. A. Ignatova and V. A. Bakalin

Russia: Primorsky Territory, Olginsky Distr., vicinity of Olga settlement, SW-facing slope of Avvakumovka Creek valley, 43°44'38"N, 135°12'25"E, ca 10 m a.s.l., on dry shaded cliffs, 28 August 2016, *leg.* Fedosov, Pisarenko & Bakalin *s.n.* (MW, NSK).

This species is known to have a widely disjunctive distribution, mostly associated with tropical and temperate zones in western North, Central and South America, the Mediterranean, India, and East Asia (from south Siberia and Mongolia, it reaches southwards to Malesia) (Fedosov & Ignatova, 2008). The

first record of the species in Russia was made in the Altai Mountains (Ignatov, 1992). The present locality is its most north-easterly in Eurasia. The closest other localities are in China, in Henan and Zhejiang provinces (Li *et al.*, 2001), and in Russia, in Zabaikalsky Territory, Agin-Buryat Autonomous District (Fedosov & Ignatova, 2008).

6. *Bucklandiella chlorocarpa* (Paris) Bednarek-Ochyra & Ochyra

Contributors: H. Bednarek-Ochyra and V. Plášek

New Zealand, South Island, Nelson–Marlborough

Region: (1) Mount Richmond Forest Park, off Highway 6 just downstream of Pelorus Bridge, 120 m a.s.l., 41°18'02.3"S, 173°34'09.9"E, on exposed sedimentary rock outcrops and boulders in flood plain of river, in full sun, 30 November 2010, *leg.* J. R. Shevock 36476 with William M. Malcolm (KRAM); (2) NW end of Allen Range, Little Wanganui Saddle, 1060 m a.s.l., 41°22.5'S, 172°17.5'E, on jagged granite within cascade, NW exposure in *Olearia colensoi* Hook.f. scrub, more or less submerged, 18 February 1987, *leg.* A. J. Fife 8030 (CHR). **Canterbury Region:** (3) Arthur's Pass National Park, Bealey Glacier Track, near the road, ca 900 m a.s.l., 42°55.121'S, 171°33.492'E, *Nothofagus solanderi* (Hook.f.) Oerst. forest with greywacke bedrocks, on wet and partially inundated rocks, 19 February 2013, *leg.* H. Bednarek-Ochyra & R. Ochyra 1058/13, 1059/13, 1060/13 & 1075/13 with V. Plášek & A. J. Fife (CHR, KRAM); (4) Arthur's Pass National Park, headwater of Twin Creek, vicinity of ski huts at base of Temple Basin, 4500–4750 ft a.s.l., 42°54'S, 171°34'E, low alpine snow-tussock and herbfield with boggy areas and stream gorge cut in greywacke bedrock, west exposure, in spray zone of waterfall, 26 November 1984, *leg.* A. J. Fife 6904 (CHR). **West Coast Region:** (5) Haast Pass area, Cross Creek, just upstream of Rte 6, 520 m a.s.l., 44°06'S, 160°21'E, on massive schist boulders in deep, moist stream gorge, with *Brachythecium plumosum* (Hedw.) Schimp., 24 January 2006, *leg.* A. J. Fife 12096 with M. Higuchi (CHR); (6) Mount Cook National Park, Tasman River Valley Track to Wakefield Waterfall, 43°44'S, 170°06'E, on acidic rocks in subalpine scrub with mesic cliff faces near base of waterfall, 19 December 1981, *leg.* D. H. Vitt 29457 (KRAM). **Southland:** (7) Mount Burns in the Hunter Mts in the southern part of the Fiordland National Park, 120 km northwest of Invercargill, Borland Road below Saddle toward Monowai, a small tributary of Borland Burn, 45°44.822'S, 167°23.190'E, 975 m a.s.l., on wet stones and blocks in river bed, temporarily flooded with water, 1 March 2013, *leg.* H. Bednarek-Ochyra & R. Ochyra 2309/13, 2317/13, 2322/13, 2342/13, 2344 & 2345/13 with V. Plášek, J. Steel &

A. Pritchard (CHR, KRAM); (8) Fiordland National Park, Routeburn Track, 1700ft a.s.l., 44°48'S, 168°08'E, on rock near waterfall in shade of forest, 26 August 1973, *leg.* J. Child 4255 & 4327 (BM); (9) Fiordland National Park, Darran Mountains, Gertrude Valley, 810 m a.s.l., 44°46'S, 168°00'E, subalpine area with mosaic *Nothofagus menziesii* (Hook.f.) Oerst. forest, boulder field developed over avalanche rubble on valley floor, abundant on rocks and probably subject to some flooding, 21 November 1990, *leg.* A. J. Fife 9667 with B. Macmillan (CHR); (10) Te Anau, Boundary Creek, 210 m a.s.l., 45°25'S, 167°43'E, on lakeside boulders in full sun, 28 November 1970, *leg.* G. M. Taylor s.n. (AKU).

Although species of *Bucklandiella* Roiv. play an important role in the vegetation cover in New Zealand, especially in mountainous regions, until recently the genus has been taxonomically under investigated. However, intensive taxonomic research and field work during the last decade have contributed much to our knowledge of *Bucklandiella*, and its known diversity has increased in New Zealand to 12 species. Among these, three were described as new to science (Bednarek-Ochyra & Ochyra, 2010, 2011; Bednarek-Ochyra *et al.*, 2014), three others were newly added to the New Zealand's moss flora, for example *B. pycnotricha* (Müll.Hal.) Bednarek-Ochyra & Ochyra (Ellis *et al.*, 2014a), and two were reinstated from obsolescence, namely *B. elegans* (Müll.Hal.) Bednarek-Ochyra & Ochyra (Ellis *et al.*, 2011) and *B. chlorocarpa* (Paris) Bednarek-Ochyra & Ochyra (Bednarek-Ochyra, 2014).

Bucklandiella chlorocarpa is a very distinct aquatic species which shares its overall appearance and some structural characters, which are typical adaptations to rheophytic habitats, with *B. lamprocarpa* (Müll.Hal.) Bednarek-Ochyra & Ochyra. These include the leaf laminae that are variously 1–4-stratose and bordered distally by 2–5-stratose fleshy marginal limbidia with a variable number of cell rows. The limbidia extend from the base to the apex of the leaf where they are confluent with the salient costa and merge imperceptibly with the upper laminal cells. Similar leaf structures are found in many rheophytic species of moss growing in streams with swiftly flowing water and waterfalls (e.g. Ochyra, 1985a, 1985b, 1986, 1987; Ochyra & Enroth, 1989; Sérgio *et al.*, 1995; Ochyra *et al.*, 1998; Ochyra & Vanderpoorten, 1999; Ochyra & Bednarek-Ochyra, 2011; Ochyra & Shevock, 2012). Despite the similarity in leaf anatomy, *B. chlorocarpa* is easily distinguished from *B. lamprocarpa* in having a prominent, 2–3(–4)-seriate basal marginal border composed of hyaline, pellucid cells which are usually obscured by the distinct recurvature of the proximal leaf margins;

massive peristome teeth that are 460–580 µm long and 100–125 µm wide near the base, deeply purple below and strongly papillose with large warty papillae; and larger spores, 25–30(–40) µm in diameter. Additionally, these two species have distinctly vicariant distributions in the southern hemisphere. *Bucklandiella chlorocarpa* is an Australasian species, whereas *B. lamprocarpa* has its main centre of occurrence in southern South America, where it penetrates to the northern Andes (Bednarek-Ochyra, 2015). It also occurs in South Africa (Bednarek-Ochyra & Ochyra, 2012a; Ochyra & van Rooy, 2013) and on some subantarctic islands in the Kerguelen Biogeographical Province (Bednarek-Ochyra & Ochyra, 1998).

So far, *Bucklandiella chlorocarpa* has been recorded only once on the North Island in New Zealand (Hooker, 1867). It appears to be widespread and locally common and abundant on the South Island, especially in the northern regions and in Southland, but hitherto it has not been found in the Otago Region. Besides New Zealand, the species occurs frequently in Tasmania, whereas the literature reports from Îles Kerguelen are incorrect and actually refer to other species.

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

Contributors: H. Bednarek-Ochyra and V. Plášek

Chile: XI Región Aysén del General Carlos Ibáñez del Campo, Provincia de General Carrera, 32 km west of Villa Cerro Castillo on Río Cajón, in grassland by the side of the Carretera Austral – Ruta 7, 46° 07'53"S, 72°33'60"W, 414 m a.s.l., on stones in open and insolated site at the roadside, 16 January 2015, leg. H. Bednarek-Ochyra & R. Ochyra 569/15 with V. Plášek (KRAM, SGO).

Apart from *Bucklandiella didyma* (Mont.) Bednarek-Ochyra & Ochyra and *B. lamprocarpa* (Müll.Hal.) Bednarek-Ochyra & Ochyra, *B. striatipila* is the third most widespread species of the genus in southern South America. In particular, it is common and locally abundant in the *Nothofagus* Blume zone in Chile at the western fringes of the continent, where it extends from Provincia de Ñuble in the VIII Región de Bío Bío to Provincia de la Antártica Chilena in the XII Región de Magallanes y de la Antártica Chilena on the mainland. It also has some isolated occurrences in the Islas de Juan Fernández archipelago (Robinson, 1975), which administratively belongs to Provincia de Valparaíso in the V Región de Valparaíso (Müller, 2009). Its frequency increases southwards and in the XII Región the species is known from all provinces. In the coterminous Región XI, *B. striatipila* is known from the provinces of Aisén (Müller, 2009), Coyhaique (Ellis et al., 2016b) and Capitán Prat (Larraín, 2016) and herein

the species is recorded from Provincia de General Carrera. Thus, the geographical range of the species covers the whole XI Región. In contrast, the species is infrequent and scattered in Argentina, extending from the Province of Neuquén to Isla Grande de Tierra del Fuego (Larraín, 2012 as *Racomitrium subcrispipilum* (Müll.Hal.) A.Jaeger). Outside mainland South America, it occurs in the Falkland Islands (Ochyra et al., 2015a), subantarctic South Georgia in the South Atlantic Ocean (Bell, 1974), and the northern maritime Antarctic (Ellis et al., 2013a), where it is evidently a postglacial immigrant (Birkenmajer et al., 1985).

Bucklandiella striatipila is an Afro-American temperate species. It was erroneously recorded from New Zealand, but the voucher material proved to be a separate species, *B. allanfifei* Bednarek-Ochyra & Ochyra, which is only distantly related to *B. striatipila* (Bednarek-Ochyra & Ochyra, 2010; Bednarek-Ochyra et al., 2014). The transatlantic distribution pattern is exhibited by over 80 tropical lowland and montane moss species (e.g. Ochyra et al., 1992, 2002a; Bednarek-Ochyra et al., 1999; Ochyra & Ireland, 2004, 2016; Ellis et al., 2012a, 2012b). However, it is also represented by a relatively small group of south-temperate cool-adapted mosses (e.g. Ochyra & Lewis Smith, 1998; Ochyra et al., 2002b, 2008a, 2014; Ochyra & Singh, 2008; Ochyra, 2010; Bednarek-Ochyra & Ochyra, 2012b; Ellis et al., 2013c, 2015; Ochyra & Bednarek-Ochyra, 2013), which occur in a second centre of distribution in the subantarctic archipelagoes in the South Indian Ocean. *Bucklandiella striatipila* occurs commonly in the archipelagoes of Îles Crozet and Îles Kerguelen, and these highly disjunct centres of occurrence are bridged within the southern South American region by stations in Tristan da Cunha and Gough Island in the middle of the South Atlantic Ocean (south-temperate zone), as well as in the Cape Floral Region in South Africa (see Bednarek-Ochyra & Ochyra, 2013 and Ochyra et al., 2015a for global distribution maps).

8. *Campylopus introflexus* (Hedw.) Brid.

Contributors: M. Puglisi and M. Privitera

Sicily: Lipari Island (Aeolian archipelago), Mt. Chirica, 38°30'16"N, 14°56'06"E, 550 m a.s.l., on dry, acidic sandy soil with *Archidium alternifolium* (Hedw.) Mitt., *Cephaloziella stellulifera* (Taylor ex Spruce) Schiffn., *Ceratodon purpureus* (Hedw.) Brid., *Didymodon vinealis* (Brid.) R.H.Zander, 8 April 2006, leg. M. Privitera & M. Puglisi s.n. (CAT).

Campylopus introflexus is known to be an alien invasive moss species in northern Europe and along the west coast of North America (Söderström, 1992). It is widely distributed in its native range in the southern hemisphere, where it is known from southern South America, southern Africa, southern Australia

and several South Atlantic and Pacific Islands. It was first discovered outside its native range in 1941 in Great Britain and then it rapidly invaded mainland Europe. It became common in many western countries and reached eastwards to Lithuania and Russia (Razgulyaeva *et al.*, 2001), and southwards to central-northern Spain and the central-southern Italian peninsula (Klinck, 2010; Sparrius & Kooijman, 2011). In Italy, the species is rare, being recorded only in a few regions (Puglisi *et al.*, 2015). The newly discovered locality, the first for this species in Sicily, marks the southern limit of the range of the species in Europe. As in other species of *Campylopus*, *C. introflexus* has a high ecological tolerance (Spagnuolo *et al.*, 2014), and due to its biological features (e.g. numerous small spores and abundant vegetative propagation), is able to easily colonise open and disturbed places. It is most often found on acid sandy soils, on decaying logs and stumps, peat and occasionally on acid rocks. In the Sicilian locality, *C. introflexus* was found in shrubby vegetation with *Erica arborea* L., *Cistus* sp. pl., *Spartium junceum* L., *Genista tyrrhena* Valsecchi, *Cytisus aeolicus* Guss., referable to *Genistetum tyrrhenae* (Brullo *et al.*, 1977) Brullo in Brullo and Furnari (1994). Herein, it formed dark green turfs that were hoary when dry, with hair points typically reflexed to 90°. Considering the high invasive ability of the species, and taking into account the further southward extension of its range to Sicily, the search for *C. introflexus* should be intensified in the whole Italian territory and its occurrence monitored over time.

9. *Campylopus subulatus* Schimp. *ex* Milde

Contributors: V. E. Fedosov, O. Yu. Pisarenko, M. S. Ignatov, E. A. Ignatova and V. A. Bakalin

Russia: Primorsky Territory, Chuguevka District, Oblachnaya Peak, 43°42'N, 134°12'E, ca 1700 m a.s.l., on soil in alpine meadow, 18 August 2007, *leg.* Ignatov & Ignatova *s.n.* (MHA); Olginsky District, vicinity of Timofeevka Settlement, Japan Sea coast, 43°53'01"N, 135°30'36"E, ca 30 m a.s.l., on soil in disturbed moist meadow, 28 August 2016, *leg.* Fedosov, Pisarenko & Bakalin *s.n.* (MW, NSK).

This species has a scattered distribution, mainly in temperate mountainous regions of the Holarctic. It has been recorded in Russia for the Kola Peninsula, Caucasus, Altai, Zabaikalsky Territory, Yakutia, Kamchatka and Chukotka (Ignatov *et al.*, 2006). The present locality is the first in the southern part of the Russian Far East. It is more than 1500 km distant from the nearest other localities for the species in China, Mongolia, Zabaikalsky Territory and Kamchatka.

10. *Cephaloziella elachista* (J.B.Jack *ex* Gottsche & Rabenh.) Schiffn.

Contributor: R. Natcheva

Bulgaria: Samokov Region, Rila Mt., Central Rilski Strict Reserve: in *Sphagnum*-dominated mire above Beli Iskar dam, below Kanarski lakes, 42.100781°N, 23.52221°E, 2205 m a.s.l., 09 July 2015, collected with immature perianths, *leg./det.* R. Natcheva 9486, 9487 (SOM-B).

In Bulgaria, *Cephaloziella elachista* grows among *Sphagnum capillifolium* (Ehrh.) Hedw. and *Dicranum bonjeani* De Not., or forms thin mats on bare peat, and is also associated with *Gymnocolea inflata* (Huds.) Dumort., *Scapania undulata* (L.) Dumort. and *Cephalozia bicuspidata* (L.) Dumort. At the present site, the species was relatively common in suitable microniches. Bulgarian plants are characterised by thin-walled cortical cells, (15–)17–38(–40) µm long, and a smooth cuticle. (This contrasts with the closely related *Cephaloziella spinigera* (Lindb.) Jörg., in which the cortical cells are 12–15 × 25–35 µm long and relatively thick-walled, with the cuticle striolate). Most leaves had a distinct spiniform, recurved tooth on one or both sides at the base and the female bracts had long acuminate teeth.

Cephaloziella elachista is a suboceanic species that has an amphi-atlantic distribution, being recorded in Europe and the eastern part of North America; it is also known from Siberia (Damsholt, 2002). In Europe, the species is more common to the west and north, where it is usually not threatened, although it is classified as NT in Great Britain (Hodgetts, 2011) and as VU in Estonia (Vellak *et al.*, 2015). It is rarer in Central Europe: Austria—EN (Saukel & Köckinger, 1999), the Czech Republic—EN (Kučera *et al.*, 2012), Germany—EN (Ludwig *et al.*, 1996), and Switzerland—VU (Schnyder *et al.*, 2004). In south east Europe, *C. elachista* is known only from Romania (EN, Ștefănuț & Goia, 2012) and Slovenia (DD, Hodgetts, 2015).

11. *Didymodon nicholsonii* Culm.

Contributors: M. S. Sabovljević, M. Skudnik and A. D. Sabovljević

Slovenia: Ljubljana, Trnovo, Murgle, on, wet and shaded concrete and rocks by the river Mali Graben, 46.031707°N, 14.494809°E, 21 November 2012, *leg.* M. S. Sabovljević & A. D. Sabovljević *s.n.*, *det.* Aneta D. Sabovljević, Mitja Skudnik and Marko S. Sabovljević (BEOU bryophyte collections *s.n.*).

Slovenia has a rich bryophyte flora (Sabovljević *et al.*, 2001, 2011), and is situated among bryologically well-known countries in the Balkans. Recent bryological investigations in Slovenia have been rather infrequent (e.g. Kutnar and Martinčič, 2008; Martinčič, 2008, 2014; Skudnik *et al.*, 2013a, 2013b). Even though new bryological records have been reported either from old collections (Sabovljević *et al.*, 2010) or from new field investigations (Martinčič, 2008, 2014; Blockeel *et al.*, 2009; Ellis *et al.*, 2014b), many

bryophyte reports remain based on citations in old literature (Martinčič, 2003).

Didymodon nicholsonii was stated to be quite rare in Europe (Jimenez *et al.*, 2003). However, it has lately been added to the bryophyte flora in many peri-Mediterranean countries (Jimenez *et al.*, 2003; Ellis *et al.*, 2015). Despite these new records, this suboceanic-submediterranean species still remains quite rare. Here, we report *D. nicholsonii* as new to Slovenia (not recorded for this country in Ros *et al.*, 2013). In neighbouring regions, it is known from the Apennine and Balkan Peninsulas, namely from Italy (single locality), Serbia (single locality) and Greece (three localities on the mainland and a single locality in Crete) (Jimenez *et al.*, 2003; Ellis *et al.*, 2015). All of these recent reports from Italy and Greece were based on revised historical herbarium material (2000 and older), while the Serbian material was collected during recent field investigations.

12. *Grimmia meridionalis* (Müll.Hal.) E.Maier

Contributors: J. Pantović, N. Nikolić and M. S. Sabovljević

Macedonia (Former Yugoslav Republic): Kula pr. Kapina (Mt. Karadžica), *sine dato*, leg. Teodor Soška *s.n.* (BEO bryophyte collections *s.n.*); Poreče Basain by Makedonski Brod, 16 August 1940, leg. Oleg Grebenščikov *s.n.* (BEO bryophyte collections *s.n.*), *det.* Jovana Pantović, Nada Nikolić and Marko S. Sabovljević

During the identification and revision of some forgotten and unprocessed bryophyte material in the Natural History Museum, Belgrade (BEO), we came across a collection by Tedor Soška (1876–1948) and one by Oleg Grebenščikov (1905–1980), who undertook collecting trips in Macedonia in the 1940s. Both specimens lacked ecological data, but represented *Grimmia meridionalis*, which with reference to Ros *et al.* (2013), is new to Macedonia.

Maier (2010) treats *G. meridionalis* as morpho-anatomically distinct, but related to *G. trichophylla* Grev., *G. lisae* De Not. and *G. dissimulata* E.Maier. This is in accordance with phylogenetic results based on the plastid DNA sequences as shown by Streiff (2006). *G. meridionalis* is known in the peri-Mediterranean areas, while in the Balkans, it was recorded from Greece, neighbouring Turkey and Cyprus.

13. *Haplocladium discolor* (Broth. & Paris) Broth.

Contributors: O. Yu. Pisarenko, V. E. Fedosov, M. S. Ignatov, E. A. Ignatova and V. A. Bakalin

Russia: Primorsky Territory, the boundary between Khorolsky and Khankaisky Distr., 44°34'N, 132°04'E, ca 70 m a.s.l., edge of macadam road A-182 near Melgunovka Creek Bridge, October 2008, leg. Ignatov *s.n.* (MHA); upper level of flood plain of Melgunovka Creek valley, on soil under willow canopy in meander zone of the river, 23 August

2016, leg. Pisarenko, Fedosov & Bakalin *s.n.* (MW, NSK).

Haplocladium discolor is an East Asian species, which occurs in China, Korea and Japan (Noguchi *et al.*, 1991; Wu *et al.*, 2002). The new locality is the only one known in Russia and the northernmost station worldwide.

14. *Hydrogonium gregarium* (Mitt.) Jan Kučera

Contributors: V. E. Fedosov, O. Yu. Pisarenko and V. A. Bakalin

Russia: Primorsky Territory, Partizansk District, Lozovyy Range (Chandolaz Mt.) S-facing slope, 43°00'05"N, 133°00'03"E, ca 600 m a.s.l., oak forest with *Lespedeza bicolor* Turcz., calcareous rock outcrops along a road, in crevices, 8 September 2013, leg. Ignatov, Ignatova, Malashkina *et al.* 13–1901 (MHA, MW); Primorsky Territory, Dalnegorsky District, vicinity of Dalnegorsk Town, W-facing steep slope of Barachny Creek, 44°34'48"N, 135°33'8"E, ca 220 m a.s.l.; abundant on exposed limestone cliffs, 26 August 2016, leg. Pisarenko, Fedosov & Bakalin *s.n.* (MW, NSK).

Hydrogonium gregarium is a species with its main distribution in the Himalayas and Japan with scattered occurrences in Pacific North America. Recently, it was reported for Russia from the Yakutia Republic (Ignatova *et al.*, 2013; Ivanova *et al.*, 2016). The new locality is the first for the Russian Far East. The specimens from the Dalnegorsky District differ from those, collected in Yakutia (*cf.* Ignatova *et al.*, 2013) in having green, rather than red-brown gemmae.

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

Contributors: H. Bednarek-Ochyra and M. Lebouvier

Îles Crozet, Île de la Possession: (1) plateau 2 km south of Port Alfred Station and 2 km south-east of Mont Branca, 185 m a.s.l., 46°44'59.6"S, 51°41'35.4"E, on bare ground covered with scoria in a dry and exposed situation in the fellfield, associated with *Bucklandiella membranacea* (Mitt.) Bednarek-Ochyra & Ochyra, *Ditrichum strictum* (Hook.f. & Wilson) Hampe, *Bartramia patens* Brid., *Guembelia kidderi* (James) Ochyra & Żarnowiec and *Racomitrium lanuginosum* (Hedw.) Brid., 11 November 2006, leg. R. Ochyra 181/06 (KRAM); (2) Pointe Lieutard, 200 m north-west of Alfred Faure Station, 46°25.893'S, 51°51.390'E, 150 m a.s.l.; on bare ground between rock outcrops in the fellfield in dry and exposed situations, associated with *Valdonia microcarpa* (Mitt.) Ochyra, *Racomitrium lanuginosum*, *Hymenoloma insulare* (Mitt.) Ochyra, *H. dryptodontoides* (Müll.Hal.) Ochyra and *Ditrichum sub-aurale* Broth., 22 November 2012, leg. R. Ochyra 3080/12 (KRAM).

Hymenoloma antarcticum is a pantemperate holantarctic species, common in temperate regions in New Zealand, Tasmania, south-eastern Australia, southern

Africa and southern South America, occasionally penetrating into the tropics at high elevations in the Andes (Ochyra & Bednarek-Ochyra, 2015). Moreover, it has been recorded from most subantarctic islands, where it may be considered either as a pre-glacial survivor or post-glacial immigrant (Van der Putten *et al.*, 2004, 2009, 2010), and it extends to the maritime Antarctic to ca 69°S (Ochyra *et al.*, 2008b). Surprisingly, the species has not hitherto been recorded from Îles Crozet in the Subantarctic, although its occurrence in this archipelago is indicated on the map of its global distribution (Ochyra *et al.*, 2008b). *Hymenoloma antarcticum* would be expected to occur there, as there are no reasons that could prevent its occurrence in this area. In Îles Crozet, as on other islands of the Kerguelen Biogeographical Province, *H. antarcticum* seems to be an uncommon species, growing on rocks, bare ground and rock outcrops in the fellfield. Herein are cited two exemplary records that substantiate the information on the map of its world distribution. The moss flora of Îles Crozet consists currently of over 70 species, over 30 species having been discovered during exploratory activities in recent decades (e.g. Blockeel *et al.*, 2006, 2007; Cano, 2008; Ellis *et al.*, 2013b, 2013d, 2014b, 2016a, 2017; Ochyra *et al.*, 2015b).

16. *Molendoa warburgii* (Crundw. & M.O.Hill) R.H.Zander

Contributors: N. Hodgetts, N. Lönnell, T. Hallingbäck and M. Luth

Sweden: Västerbotten, Lycksele Lappmark, Rödingsnäset, scattered shoots growing through biotic crusts on irrigated vertical base-rich rock faces by the Ruthjiejohke river, 65.850867°N, 14.76155°E, 520 m a.s.l., 8 August 2016, *leg.* N. Hodgetts 9145 (S); in the same habitat a few hundred metres upstream, 65.863561°N, 14.755758°E, 540 m a.s.l., 8 August 2016, *leg.* T. Hallingbäck & M. Luth *s.n.* (S); and by a small tributary brook just above the forest line, 65.860974°N, 14.742111°E, 690 m a.s.l., 8 August 2016, *leg.* N. Lönnell 4080 (S), Hodgetts 9145 and Lönnell 4080 *det.* N. Hodgetts, *conf.* G. Rothero. (Also seen higher up the hill, on irrigated phyllite rock exposures, 65.861917°N, 14.730883°E, 790 m a.s.l.)

This species has been known in Britain since its discovery in the Outer Hebrides by E. F. Warburg in 1946. However, it was not described as a new species until 1977 (Crundwell & Hill, 1977), being facetiously referred to as ‘the moss’ during the intervening time. Originally regarded as endemic to Britain and Ireland, it was later found in the Faroe Islands (Averis & Averis, 1991), Iceland (Jóhannsson, 2003) and Norway (Birks, 1992). It is therefore not surprising that it also occurs in the mountains of Sweden, and can be expected at further localities in

Scandinavia. The habitat in Sweden is absolutely typical of its habitat elsewhere. The Swedish specimens are very similar to specimens collected in Scotland, but the leaves are perhaps a little less obtuse.

17. *Orthotrichum dentatum* T.Kiebacher & Luth

Contributor: T. Kiebacher

Austria: Tyrol, Innsbruck, at the Innpromenade, 47° 15'38.6"N, 11°22'46.1"E, 576 m a.s.l., parkway, on bark of deciduous tree, 15 April 2016, *leg.* T. Kiebacher (priv. herb. T. Kiebacher 1074).

Orthotrichum dentatum has recently been described from the Italian and Swiss Alps (Kiebacher & Luth, 2017) and has now also been found in western Austria in the town of Innsbruck. This locality is approximately 60 km north of the nearest known locality in the province of South Tyrol in northern Italy (Weissenbach; Kiebacher & Luth, 2017). In the town of Innsbruck, *O. dentatum* has been observed on a couple of trees (one locality is cited above). It seems that the species performs well in urban environments where tree barks are characterised by high nutrient levels (Stapper & Kricke, 2004; Saipunkaew *et al.*, 2007). *Orthotrichum dentatum* is most similar to *O. schimperi* Hammar and differs from the latter in that it has denticulate to dentate leaf apices, strongly keeled leaves and a hairy calyptra (Kiebacher & Luth, 2017).

18. *Orthotrichum denticulatum* Lewinsky

Contributors: J. A. Calleja, R. Garilleti, V. Mazimpaka, B. Vigalondo and F. Lara

Kenya: Meru County, Mt Kenya, Sirimon Gate, 00° 00'18"N, 037°14'47"E, 2650 m a.s.l., on *Olea* sp. trunks at the edge of evergreen forest, 12 August 2014, *leg.* F. Lara 1408/03, with R. Garilleti, B. Vigalondo & J. A. Calleja (MAUAM 4892). *Ibidem*, close to Old Moses Camp, 00°02'55"S, 037° 17'12"E, 3400 m a.s.l., ericaceous belt, on basal branches of an isolated *Erica trimera* (Engl.) Beentje, *leg.* F. Lara 1408/06, with R. Garilleti, J. A. Calleja & B. Vigalondo, 13 August 2014 (MAUAM 4893).

Tanzania: Arusha Region, Ngorongoro Conservation Area, Nainokanoka village, garden area with autochthonous woody species, 03°01'33"S, 035°41'08"E, 2665 m a.s.l., on trunk of *Gnidia glauca* (Fresen.) Gilg, 28 August 2014, *leg.* F. Lara 1408/67, with R. Garilleti, B. Vigalondo & J. A. Calleja (MAUAM 4894).

Orthotrichum denticulatum is a rare epiphytic moss found in the mountains and highlands of Eastern Africa, where it has been previously recorded from only four localities: Nekemte and Belleta Forest near Shebe in Ethiopia, Mt Gahinga (Volcanoes National Park) in Rwanda and Lake Kusare (Arusha National Park) in Tanzania (Lewinsky, 1978; O'Shea, 2006). Its ecological preferences remain poorly documented, other than it has been recorded growing between

1700 and 2700 m a.s.l., and as an epiphyte on *Neoboutonia macrocalyx* Pax (Lewinsky, 1978). Our findings provide the first two records for Kenya and an additional one for Tanzania, with an increase in the available information on its ecology (altitudinal range and habitat preference) in Eastern Africa.

In Kenya, the species has been found on Mt Kenya in two very different vegetation and altitudinal belts: 1) at an altitude of 2650 m, on a trunk of *Olea* sp. at the edge of a well-preserved orotropical montane forest (Bussmann, 2006) dominated by *Juniperus procera* Hochst. ex Endl., *Olea* sp. and *Podocarpus latifolius* (Thunb.) R.Br. ex Mirb., among other evergreen woody plants; and 2) at an altitude of 3400 m, on branches of *Erica trimera* (Engl.) Beentje within a fragmented and after-fire resprouting altotropical Ericaceous shrubland (Bussmann, 2006) codominated by *Stoebe kilimandscharica* O.Hoffm and heaths (*Erica* sp. pl.) along with *Alchemilla argyrophylla* Oliv., *Helichrysum* sp. pl. and *Protea caffra* Meisn. subsp. *kilimandscharica* (Engl.) Chisumpa & Brummitt. In Tanzania, *O. denticulatum* has been gathered in the Ngorongoro region, at an altitude of 2665 m, on a trunk of *Gnidia glauca* in a small garden on the periphery of a Maasai village surrounded by habitats disturbed by traditional farmland activities.

Orthotrichum denticulatum is a small epiphytic moss, less than 1.0 cm tall, which is easily recognised by several sporophytic and gametophytic traits. It is a cryptopore species, with capsules immersed to shortly emergent, strongly ribbed and contracted when dry, and characteristically with ovate-lanceolate leaves ending in a short, frequently irregularly denticulate awn. However, the leaves of this species are quite variable. The leaf apex consists of a short, thin and fragile awn that can be yellowish or partially hyaline and irregularly dentate, more or less denticulate or almost entire at margins. At their apex, leaves taper into the awn, but sometimes suddenly narrow, forming a well-differentiated apiculus. Individuals with apiculate and dentate leaves are particularly easy to identify, even in the field, but often the leaf apices are less striking. Lewinsky (1978) stated that the leaf width could vary among populations, being more broadly ovate in Ethiopia than in Rwanda and Tanzania. This leaf variability has also been found among the new populations. The higher altitude population on Mt. Kenya has plants with broad leaves, comparable to those from Ethiopia, whereas the lower altitude population on that mountain, as well as the new Tanzanian population, has plants with ovate-lanceolate leaves as described by Lewinsky (1978) for the territories south of the equator.

19. *Orthotrichum schofieldii* (B.C.Tan & Y.Jia) B.H.Allen

Contributors: Z. Skoupá and Q. H. Wang

China, Gansu Province: SE of the province, Diebu County, Duoer tree farm, 2550 m a.s.l., 30 July 1998, leg. M. Z. Wang 54349, det. Q. H. Wang, teste Z. Skoupá & V. Plášek, (PE#01086856).

Two species, formerly placed within the genus *Orthomitrium*, *O. schofieldii* B.C.Tan & Y.Jia and *O. tuberculatum* Lewinsky-Haapasaari & Crosby, have been reported from China (Lewinsky-Haapasaari & Crosby, 1996; Lewinsky-Haapasaari, 1999). However, this genus was subsequently placed by Allen (2002) into *Orthotrichum*, as *O. schofieldii* (B.C.Tan & Y.Jia) B.H.Allen and *O. jetteae* B.H.Allen.

The occurrence of *Orthotrichum schofieldii* in China is known only from Qinghai Province in the western part of the country, while *O. jetteae* was collected from Guizhou and Hunan Provinces in southern part of China (Jia *et al.*, 2011). Neither species has been reported from Gansu Province. The specimen cited above was collected by M. Z. Wang in 1998, and was subsequently identified by Q. H. Wang. During a visit to the Chinese National Herbarium in Beijing (PE) in 2015, the identification was confirmed. This epiphytic species is a new addition to the moss flora of Gansu Province of China. GPS coordinates and detailed ecological data were not available.

Orthotrichum schofieldii differs from *O. jetteae* in having the walls of basal leaf cells only moderately thick to thin and non-nodulose (Tan & Jia, 1997). Moreover, *O. schofieldii* has a longer seta than *O. jetteae* and the vaginula hairs are often branched (Lewinsky-Haapasaari & Crosby, 1996; Lewinsky-Haapasaari, 1999). The most important differences between these two species are the features of the spores and peristome. In *O. schofieldii*, the spores are unicellular and the peristome linear, while in *O. jetteae* spores are multicellular and the peristome wide and truncate.

20. *Orthotrichum stellatum* Brid.

Contributors: V. Plášek, A. Nowak and M. Nobis

Georgia: Lesser Caucasus range, Adjara region, ca 15 km NE of Batumi town, between Khala and Chakvistskali villages, valley of the Chakvistskali River, Mitrala National Park, along a public road, on bark of *Pterocarya fraxinifolia* Spach, (WGS 84): 41°41'14.0"N, 41°49'49.0"E, ca 200 m a.s.l., 1 May 2015, leg. A. Nowak & M. Nobis *s.n.* (OSTR #B1862), det. V. Plášek.

A total of 17 taxa of the broadly understood genus *Orthotrichum* Hedw. have so far been reported from Georgia (Chikovani & Svanidze, 2004; Kürschner *et al.*, 2013; Ellis *et al.*, 2016b) and herein one more epiphytic species of this genus, *O. stellatum*, is added to the bryoflora of the country. The species was collected in 2015 during the Polish Botanical Expedition to Georgia. It was collected near a public

road towards the Mitralla National Park from the bark of a *ca* 120-year-old *Pterocarya fraxinifolia* Spach, and the plants produced sporophytes in great profusion. The mountainous area is considered the most humid in Georgia with an annual precipitation of more than 4000 mm. The main vegetation types on the valley slopes are pristine Colchic humid broad-leaved and mixed forests that are relicts of ancient Tertiary evergreen woods. *Orthotrichum stellatum* was found growing together with *O. pumilum* Sw. and *Ulotia crispa* (Hedw.) Brid. agg.

Orthotrichum stellatum is a species with a disjunct transatlantic distribution. It occurs in eastern North America, Europe and locally in western Asia (cf. Schäfer-Verwimp, 2001; Lara & Garilleti, 2014). In Europe, its geographical range stretches from Norway, across Central Europe (Czech Republic, Hungary) to the Mediterranean and south-eastern Europe, extending to the Pontic Mountains in Turkey. The latter is the only known locality for the species in Asia.

21. *Oxymitra incrassata* (Brot.) Sérgio & Sim-Sim

Contributor: J. Larraín

Chile: Región de Valparaíso, Provincia de Valparaíso, Comuna de Valparaíso, Reserva Nacional Lago Peñuelas, en suelo de espinal de *Acacia caven* Molina, sendero 'las orquídeas', en sitio abierto, 350 m a.s.l., 33°10'57.7"S, 71°29'13.1"W, 13 July 2016, leg. J. Larraín 40318 (CONC); sector Este de la reserva, en suelo de bosque esclerófilo abierto, con *Peumus* Molina, *Maytenus* Molina & Azara Ruiz & Pav., 33°11'22.5"S, 71°26'35.7"W, 20 July 2016, leg. J. Larraín 40373 (CONC); Comuna de Quilpué, orilla de tranque junto a la Ruta F-50 entre Villa Alemana y Lo Orozco, a medio camino entre Los Quillayes y la viña Catrala, en suelo de matorral abierto de *Lithrea* Miers ex Hook. & Arn., *Colliguaja* Molina, *Acacia* Mill. & *Trevoa* Miers ex Hook., 259 m a.s.l., 33°10'01.0"S, 71°21'01.3"W, 25 July 2016, leg. J. Larraín 40519 (CONC); Provincia de Petorca, Comuna de la Ligua, Los Molles, parque privado Puquén, en suelo expuesto entre matorrales de *Bahia ambrosioides* Lag., *Baccharis* L., *Lithrea caustica* Hook. & Arn., *Pouteria splendens* (A.DC) Kuntze & *Fuchsia lycioides* Andrews, 20 m a.s.l., 32°14'17.9"S, 71°31'19.4"W, 31 July 2016, leg. J. Larraín 40632 (CONC).

Oxymitra incrassata is a characteristic species of Mediterranean habitats and dry areas with a wet season and mild winters (Schuster, 1992; Bischler & Jovet-Ast, 2004). It is one of two species in the genus *Oxymitra* Lindenb., with the other taxon endemic to South Africa (Perold, 1993). It is readily distinguishable from *Riccia* L. species by the conspicuous pyriform involucre arranged in two rows along the median sulcus, which contain the sporophytes, the

hyaline ventral scales projecting far beyond the margins of the thallus, and the epidermal pores surrounded by a ring of cells with thickened radial walls.

This taxon was incidentally mentioned for Chile (as *O. paleacea* Bisch., no voucher indicated) by Hässel de Menéndez & Villagrán (2007) when describing the taxa accompanying the new species *Fossombronia valparaísiana* Hässel, but was not listed for Chile in the checklist by Hässel de Menéndez and Rubies (2009). Consequently, these are the first specimens ever reported for the country. *Oxymitra incrassata* seems to be a common component of the ephemeral bryophyte flora of central Chile, where it grows on bare neutral soils on dry coastal shrublands or *Acacia* savannahs.

The general distribution of this species includes the whole Mediterranean basin in Europe and North Africa, reaching north to the Czech Republic, Hungary and Romania, and west to south-west Asia, it is also known from North America (Texas, Oklahoma, Kansas) and South America from Brazil, Paraguay and Argentina (Hässel de Menéndez, 1962; Schuster, 1992; Bischler and Jovet-Ast, 2004).

22. *Plagiothecium latebricola* Schimp.

Contributor: M. F. Boiko

Ukraine: Steppe Zone, Mykolaiv oblast, Ochakiv district, village Vacylivka. Nacional Park 'Biloberezjska Sviatoslava', natural boundary 'Komendats'ke', 46.52032°N, 031.66748°E, found on fallen branches of rotten wood in low areas of the sands, with *Aulacomnium palustre* (Hedw.) Schwägr., *Bryum capillare* Hedw. & *Hypnum cupressiforme* Hedw., in large grove in *Populus tremula* L., *Alnus glutinosa* (L.) Gaertn., *Quercus robur* L. forests, 20 July 2016, leg. M. Zakharova s.n., det. M. F. Boiko (KHER).

This find of *Plagiothecium latebricola* is the first for the steppe zone of the Ukraine. The species grows in many regions of the world, but most often occurs in the boreal zone of Europe, Asia and North America. However, in all localities it is very rare. *P. latebricola* occurs on rotten wood and humus-rich soil in the forests of *Alnus* Mill., *Betula* L., *Populus* L. and others. Southerly penetration of the species from the boreal zone to the forested river banks in the steppe zone is very rare (Boiko, 2009). The copious production of four-celled fusiform gemmae from the tips of the leaves is typical of this species.

23. *Struckia enervis* (Broth.) Ignatov, T.J.Kop. & D.G.Long

Contributors: M. S. Ignatov, E. A. Ignatova, V. E. Fedosov and O. Yu. Pisarenko

Russia: Yakutia Republic, Tomponsky Distr., Sette-Daban Range, valley of right tributary of Segenyakh Creek 2.5 km upstream from road crossing Yakutsk–Magadan, 63°03'N, 137°57'E, 520 m a.s.l., in niches among boulders, 16 July 2015, leg. Ignatov & Ignatova 15–450 (MHA). Khabarovsk Territory,

southern spurs of Badzhalsky Range, E-facing steep slope of Yarap River valley 50°18'N, 134°43'E, ca 650 m a.s.l., abundant in shaded moist niches of andesite rock, 1 August 2016, *leg.* Fedosov & Pisarenko *s.n.* (MW, NSK).

The species is known to be endemic to central Asia, having been reported from a few disjunctive localities in the mountains of south Siberia, Mongolia and China (Ignatov *et al.*, 2007). Among the newly reported localities, the one from Yakutia is the most northern and eastern worldwide, while the second, from Khabarovsk Territory, is the first locality of the species in the Russian Far East.

24. *Tortula canescens* Mont.

Contributors: S. Poponessi and M. Aleffi

Italy: Basilicata—Matera city ‘Sasso Barisano’, World Heritage Site (UNESCO). 46°40.051'N, 16°36.565'E, ca 374 m. a.s.l., on unshaded wall in the ‘Sassi’, 31 August 2016, *leg.* S. Poponessi *s.n.*, *det.* S. Poponessi and M. Aleffi (PERU).

Together with *Didymodon insulanus* (De Not.) M.O.Hill, *Tortula canescens* was found on a wall of ‘Calcarene di Gravina’, a type of limestone for building houses. In Europe, *D. insulanus* is assigned to the mediterranean-temperate phytogeographical element (Dierßen, 2001). The present report of *T. canescens* is the first for the Basilicata Region. Its presence in the Apennine peninsula has only recently been confirmed: Umbria, Emilia Romagna, Tuscany, Marches, Latium, Molise, Campania, Calabria, Sardinia and Sicily (Aleffi *et al.*, 2008; Poponessi *et al.*, 2014).

The distribution of this species is restricted to Europe and the Mediterranean area. It is listed as *Critically Endangered* in Switzerland, *Endangered* in Bulgaria, *Vulnerable* in Luxembourg, *Risk assumed* in Germany (Hodgetts, 2015). Its Mediterranean distribution, including Bulgaria, Canary Islands, Corsica, Egypt, Spain, France, Greece, Israel, Morocco, Madeira, Montenegro, Portugal, Sardinia, Sicily, Slovenia and Syria, has only recently been confirmed (Ros *et al.*, 2013).

Tortula canescens differs from *T. muralis* Hedw. in having the leaf margin plane or only slightly recurved in the middle of the leaf and in the peristome teeth being united into a tube, becoming free above; in *T. muralis*, the peristome teeth are completely free (Lockhart *et al.*, 2012). The discovery of this species is interesting because it is located in a habitat where it is more common to find *T. muralis*.

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Ditrichum pallidum (Hedw.) Hampe (Bryophyta, Ditrichaceae) in southern England, new to Britain

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Since 2009, the first author (HWM) has systematically recorded organisms within a four-kilometre radius of his home. These organisms have included bryophytes,