New national and regional bryophyte records, 17

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1. *Bucklandiella crispipila* (Taylor) Bednarek-Ochyra & Ochyra
   **Contributors:** H. Bednarek-Ochyra and R. Ochyra
   **Papua New Guinea:** Milne Bay District, Raba Raba Subdistrict, Goé, 9°42’S, 149°02’E, 3460 m a.s.l., on rock, 5 July 1972, leg. F. C. Allen, B. emersa (BM).

   Hitherto *Bucklandiella crispipila* has been considered an Afro-American tropical montane species, widely distributed but scattered in Central (Frissvoll, 1988; Allen, 2002) and South America (Bednarek-Ochyra, Ochyra & Buck, 1999) and in the East African mountains (Ochyra, 1993). The discovery of the species at an altimontane elevation in New Guinea represents a considerable extension of its range, and consequently the phytogeographical status of *B. crispipila* has to be redefined as pan-tropical montane. After *B. subsecunda* (Hook. & Grev.) Bednarek-Ochyra & Ochyra and *B. emersa* (Müll. Hal.) Bednarek-Ochyra & Ochyra, it is the third species of the genus occurring in Malesia.

2. *Dicranella dietrichiae* (Müll. Hal.) A. Jaeger
   **Contributors:** R. Ochyra and H. Bednarek-Ochyra

   *Dicranella dietrichiae* is an Australasian endemic, widely distributed in eastern Australia where it ranges from Queensland to Tasmania (Streimann & Klazenga, 2002) and the North Island of New Zealand (Beever, Allison & Child, 1992). These widely separated centres of distribution of the species are now nicely bridged by the present record on Norfolk Island which is situated approximately midway between them. At the same time it is a new generic record for this isolated island (Streimann, 2002). The moss was collected by F. C. Allen in 1946. Allen’s collection was reported to be deposited in WELT (Streimann, 2002), but according to the label data the present specimen was deposited in Auckland Museum (AK) and was subsequently communicated to E. B. Bartram, who named it *Dicranella wattisi* Broth. This latter species is now considered to be conspecific with *D. cardoti* (R. Br. bis) Dixon (Ochyra & Newton, 1986) and is at once distinct in its having strongly roughened leaf subulae from their distinctly mamilllose cells, whereas *D. dietrichiae* has entirely smooth leaf subulae.

3. *Dicranella hookeri* (Müll. Hal.) Cardot
   **Contributors:** H. Bednarek-Ochyra and R. Ochyra

   *Dicranella hookeri* is a pan-south-temperate species that is widely distributed in southern South America, south-eastern Australia (Streimann & Klazenga, 2002) and New Zealand (Sainsbury, 1955 as *D. jamesonii*), as well as on Tristan da Cunha (Dixon, 1960) and Gough Island (Bartram, 1959) in the South Atlantic Ocean. Moreover, it is common on subantarctic South Georgia (Newton, 1977), Prince Edward Islands (Zanten, 1971) and Deception Island in the South Shetland Islands (Lewis Smith, 2005a, b, c). In South America, *D. hookeri* extends at high elevations of 3800–4100 m along the Andean chain from the Valdivian region of Chile (He, 1998), through Bolivia and Ecuador to Colombia and Venezuela in the north (Churchill, Griffin & Muñoz, 2000). Thus, the present record of the species in Peru nicely bridges its localities in the Central and North Andes. The specimen was originally named *Hygrodictyum bolivianum* Herzog (Hegewald & Hegewald, 1976) but the vaginate leaf base closely sheathing the stem and abruptly tapered to a channelled, broad and short limb are characteristic of *D. hookeri*.

   **Contributors:** R. Ochyra and H. Bednarek-Ochyra
   **South Georgia:** Cumberland East Bay, near Dartmouth Point, 54°20’S, 36°40’W, ca 105 m a.s.l., on peat amongst tussock, 27 Jan 1968, leg. S. W. Greene, G. C. S. Clarke & S. W. Greene 276 (AAS, KRAM).

   *Didymodon australasiae* is an exceedingly variable species as evidenced by the large number of its synonyms (Zander, 1981, 1994; Jiménez et al., 2005). It is a cosmopolitan species known from all continents except Antarctica (Ochyra & Zander, 2002). In the Southern Hemisphere *D. australasiae* is pan-temperate in distribution, having been recorded from southern Chile, South Africa, south-eastern Australia and Tasmania, as well as New Zealand (Jiménez et al. 2005). Now its range is extended to Subantarctica where *D. australasiae* was detected from a single collection from South Georgia in the South American province of this biome. It does not seem to have been collected previously.
on this cold isolated island or described under a different name (Müller, 1890), since species of subfamily Mercurioideae have been very seldom collected in this area. To date only one species of Didymodon is known to occur in Subantarctica, i.e. D. brachyphyllus in South Georgia only (Ochyra, 2005).

5. Drepanoclados aduncus (Hedw.) Warnst.
   Contributor: C.C. Townsend
   **Tanzania:** Arusha District: Nasolo River, E. slope of Mount Meru, 3°14’S, 36°45’E, forming dense mats on a broken cliff face at the foot of a waterfall above a pool full of Zannichelia and in the full spray of the fall, saturated with slightly alkaline water, 1820 m a.s.l., 14 March 1968, leg. E. Christophersen & Kanuri 13390 (S, Priv. Herb. Townsend); Ufipa District: in masses by a small stream ca 7 km along the road from Tunduma to Sumbawanga, ca 1700 m a.s.l., 31 May 1980, leg. C.C. Townsend 80/260 (EA, NAI, MO, BM, S, Priv. Herb. Townsend). Both specimens conf. Lars Hedénäs.

   Contributor: C.C. Townsend

7. Eurhynchium striatum (Hedw.) Schimp.
   Contributor: A. Schäfer-Verwimp
   **Canary Islands:** La Palma: Barranco de La Galga on north-eastern slope, on rock, 400 m a.s.l., 26 March 2005, leg. Schäfer-Verwimp & Verwimp 24698, conf. L. Hedénäs (JE, S).
   **Eurhynchium striatum** is a common species in most parts of Europe, restricted to mountainous regions in southern Europe and North Africa, and extending eastwards to Southwest and Central Asia; it is evidently very rare in Macaronesia, with certainty known only from the Azores. Hedénäs (1992, p. 108) stated that he had not seen any correctly determined material of *E. striatum* from northern Macaronesia, and Dirkse, Bouman & Losada-Lima (1993, p. 40) excluded this species from the bryophyte flora of the Canary Islands.

8. Ganguleea angulosa (Broth. & Dixon) R.H.Zander
   Contributor: A. Schäfer-Verwimp
   Ganguleea angulosa had long been known only from the Himalayas of India and Nepal until it was recently detected in S.E. Brazil (Schäfer-Verwimp, 1992; Schäfer-Verwimp & Giancotti, 1993; Zander, 1989). The record from Bali is a considerable range extension into the Malesian region. *G. angulosa* seems to occur from near sea level (150 m in S.E. Brazil) up to 1150 m in Bali; Gangulea (1972) mentioned an altitude of 2000 ft. (ca 650 m), and a specimen from Naini Tal in Uttar Pradesh, India, collected by T. Arts (In 08/39, dupl. in herb. Schäfer-Verwimp), is from 380 m a.s.l.

9. Hygrodicranum falklandicum Cardot
   **Contributors:** H. Bednarek-Ochyra and R. Ochyra
   **Tristan da Cunha:** Stony Beach, on wet rock, 5 February 1938, leg. E. Christophersen 1429 (BM, O).
   This moss was originally named by I. Thériot as Dicranella fuegiana Cardot & Broth. (Dixon, 1960). Because the plant differed in some respects from the Fuegian type material of this species name, Thériot intended to recognize a separate variety or form to accommodate it and the relevant name is visible on the label in the Dixon herbarium at BM. H. N. Dixon had not himself completed the treatment of the Tristan da Cunha mosses collected by the Norwegian Scientific Expedition 1937–1938 when he died in 1944 and the unfinished manuscript was prepared for publication by E. B. Bartram who also made a critical re-examination of the material previously determined. This author evidently did not approve the new variety (or form) suggested by I. Thériot and accordingly the material was reported as *Dicranella fuegiana*. The type material of this species name is a *Ditrichum* species, closely related to or possibly conspecific with *D. heteromallum* (Hedw.) E.Britton, and actually one of the specimens cited by Dixon (1960) from Tristan da Cunha – Christophersen 730c – does represent this species. However, another specimen – Christophersen 1429 – represents a much larger Dicranalean moss which has nothing to do with *D. fuegiana*. A re-examination of this plant revealed that it corresponds well to *Hygrodicranum falklandicum*, a species so far known only from the type collection from West Point Island in the West Falklands (Cardot, 1911). The only real difference is the smaller stature of the Tristan da Cunha plant, a point unlikely to give any rise to problems of identification. Also, the bistratose of the leaf base at the shoulder is less prominent but in the type collection there are also large unistratose patches on some leaves and this character is evidently very variable in *H. falklandicum*, as is the case in most aquatic mosses. The discovery of *H. falklandicum* on Tristan da Cunha changes the phytogeographical status of this species and genus, which now have to be considered as amphiblentic south-temperate taxa, and it confirms the strong affiliation of the bryoflora of this isolated oceanic archipelago to South America.

10. Jungermannia borneensis Amakawa
    **Contributors:** J. Váňa & A. Schäfer-Verwimp
    **Indonesia, Sumatra:** north Sumatra: highlands of Brastagi, western slope of Gunung Sibayak, 3°20’S, 98°50’E (UTM 47 446299 E, 351870 N) on shady earth slope in
rain forest along paved road, 1670 m a.s.l., 16 May 2005, leg. Schäfer-Verwimp & Verwimp 24832 (JE, PRC).

Jungermannia borneensis is known only from the type collection from Mt. Kinabalu in Borneo, Malaysia (Amakawa, 1970). This is the first record for Sumatra and Indonesia. The species seems to be restricted to montane rain forests between 1670 m and 2146 m.

11. Leiocolea badensis (Gottsche) Jørg.  
Contributor: L. Söderström  

Leiocolea badensis is here reported as new for Bulgaria (cf. Ganeva & Natcheva, 2003) but is known from many places in the Balkan region including Romania, Serbia and Greece (Söderström, Urmí & Váňa, 2002). It is therefore not surprising that it was found in Bulgaria, but more surprising that it had not been reported earlier. It is a circumboreal species not uncommon on moist cliffs in calcareous regions of Europe. In the Trigrad Gorge it was growing among other species on vertical cliffs along the road. There were many patches but only one patch could be found with perianths.

12. Pohlia cruda (Hedw.) Lindb.  
Contributor: C.C. Townsend  

This collection is strikingly similar to a specimen in my herbarium (Herb. Townsend) from Mt. Cayambe, Ecuador (Cazalet & Pennington 96), which was at a comparable altitude, 4090 m a.s.l. Specimens which I (CCT) have determined in my herbarium as P. afro-cruda (Müll.Hal.) Broth., from the Ruwenzori, Mount Stanley, leg. Newbould 5194, and from Mount Kenya, leg. Townsend 85293, differ from the above two specimens in their much more slender form and shorter cells, up to 112 µm as opposed to up to 175 µm.

13. Pohlia nutans (Hedw.) Lindb.  
Contributors: H. Bednarek-Ochyra and R. Ochyra  

Pohlia nutans is a moss that we have long had in mind as one that should be looked for on Îles Crozet, since there seems to be no phytogeographical or other reason why it should not appear there, just as in the adjoining subantarctic islands. In austral polar regions the species is not uncommon on South Georgia (Clarke, 1973) and occasional on the Prince Edward Islands (Zanten, 1971; Ochyra, personal observations) and Îles Kerguelen (Mitten, 1876a, b; Ochyra, personal observations). In contrast to the Subantarctic, P. nutans is common in the maritime Antarctic but very rare in continental Antarctica (Greene et al., 1970; Ochyra, 1998). The discovery of the species on Îles Crozet completes a continuous geographical range in the Magellanian and Kerguelenian provinces of Subantarctica. P. nutans was found to grow in small quantity concealed within the turf of Hypnum cupressiforme Hedw. and Ditrichum conicum (Mont.) Mitt. and it is worth noting that the plants were often found with immature sporophytes.

Contributor: C.C. Townsend  

Thériot (1929) states of P. leikipiae (Müll.Hal.) Thér., described from Kenya, “tres proche de P. claviramea dont elle est peut-être pas spécifiquement distincte”. The Kenyan material which I (CCT) had previously named as P. leikipiae is certainly uncomfortably close to the Malawi moss. I am reluctant to make a formal reduction since I have traced no type of P. leikipiae, though writing as he did before the destruction of Müller’s herbarium, Thériot may well have seen one. Pseudeleskeopsis claviramea is the older name of a well-known southern African species, so no change would be involved for the Malawi moss. The leaves of the species usually have the nerve with a characteristic “wiggle” just below the apex such as is found in Orthotheciella varia (Hedw.) Ochyra (Amblystegium varium (Hedw.) Lindb.).

15. Rhytidiadelphus loreus (Hedw.) Warnst.  
Contributors: Ozlem Tonguç Yayıntaş and Janice M. Glime  

Rhytidiadelphus loreus is not listed in the checklists of Uyar & Çetin (2004) or Kürschner & Erdağ (2005) and it is therefore reported here as new for Turkey and Southwest Asia (Frey & Kürschner, 1991). Rhytidiadelphus loreus (Limpr.) Warnst. is a genus of mosses which mostly grow under hygrophytic conditions, generally occurring on soil and humus, rocks and tree bases.

16. Southyra organensis Herzog  
Contributors: A. Schäfer-Verwimp & J. Váňa  

Southyra organensis was described and illustrated by Herzog (1949) from a single collection made by Lützélburg
in S.E. Brazil, in the Serra dos Órgãos of Rio de Janeiro state, and was previously known only from the type (Gradstein & Costa, 2003). The present locality in the Andes of Peru is a remarkable range extension of this very little known and rare species. It may be more widely distributed, because of vegetative reproduction by numerous caducous leaves which have been observed in the specimen at hand, a feature hitherto not reported in the genus Southbya. Marginal gemmae have been seen in S. grollei Kitagawa (Kitagawa 1973). Southbya organensis must now be removed from the list of Southeast Brazilian endemics.

17. Syntrichia handelii (Schiffn.) S.Agnew & Vondr.

**Contributor:** H. M. Shabbara

**Egypt:** SOUTHERN SINAI: Jebel Abu Khisheib, ca 28°31′N, 34°04′E, in shade between rocks, on fine granite soil, 1840 m a.s.l., 3 August 1985, leg. M. Mansi (CAIA, no. MI-16).

*Syntrichia handelii* is similar to *S. caninervis* Mitt. in having a bistratose lamina and papillose cells whose papillae may be low in some parts of the leaf. This led Mansi (1988) to misidentify *S. handelii* as *Tortula* cf. *bistratosa* (= *S. caninervis*). Compared with *S. handelii*, *S. caninervis* has a broader costa, with stronger papillae on the abaxial surface, varying from simple to bi-or trifurcate or pedicellate and branched, and often extremely large towards the apex of the costa; the lamina is bistratose in the upper third and middle part of the leaf; the leaves are not constricted at the middle, and the margins are recurved near the apex (Gallego et al., 2002). In the specimen collected by Mansi, the abaxial surface of the costa has small, simple, non-pedicellate papillae (2–5 µm tall) near the apex and becomes ± smooth lower down, the leaves are ± constricted and irregularly bistratose at the middle, the upper and median cells are smaller, to 6 µm wide, and a central strand is absent. The characters of Mansi’s specimen agree with those from Spain (Gallego, 2002) except in the longer hair point (the longest equalling the length of the lamina, but only half the length of the lamina in Spain), and the broader costa (up to 115 µm wide at middle, 105 µm in Spanish plants).

This species is recorded in Europe (Spain, Italy and Greece), North Africa (Morocco) and Southwest Asia (Cyprus and Turkey eastwards to Afghanistan).

18. Syntrichia virescens (De Not.) Ochyra

**Contributor:** H. M. Shabbara

**Egypt:** SOUTHERN SINAI: Wadi El-Teffaha, ca 28°29′N, 33°47′E, between rocks and the ground in shade and on fine granite soil, April 1982, leg. Abou Salama (CAIA, no. U.F3b).

*Syntrichia virescens* is distinguished from related species (*S. laevipila* Brid. and *S. montana* Nees) in having a weak costa with 1–2(–3) sterial rows, and the margins plane or recurved only in the middle and lower part of the leaf; the costae in the related species are strong and the margins are recurved to above mid-leaf. The hair point in *S. laevipila* is nearly smooth but denticulate in *S. virescens*, and the cells in the upper part of the leaves are smaller in *S. montana*, 8–10(–12) µm wide (Smith, 2004), but 10–16 µm wide in *S. virescens*.

*Syntrichia virescens* in Egypt has some characters which differ slightly from those recorded in other regions. It has a shorter and less denticulate hair point than that recorded in England (Smith, 2004), shorter basal cells (up to 40 µm long) than those recorded in Spain (up to 82.5 µm long: Gallego, 2002) and a weaker costa, with a less well defined group of dorsal sterials than that recorded in Iraq (Agnew & Vondráček, 1975). The rather weak costa originally led to confusion with the genus *Tortula* (Abou-Salama, 1985), but the specimen has a crescent-shaped dorsal sterial band and lacks a dorsal costal epidermis. It therefore belongs to the genus *Syntrichia* (cf. Zander, 1993). No sporophytes are present.

The species is recorded in Europe (from Spain, Sardinia and Sicily north to C. Scandinavia), North Africa (Canary Islands, Morocco and Algeria) Asia (Turkey eastwards to Kashmir), and North America.

19. Zygodon bartramiioides Malta

**Contributors:** F. Lara, R. Garilleti & V. Mazimpaka

**Argentina:** NEUQUEN: Villa La Angostura, península Quetrihué, Parque Nacional Los Arrayanes, Nothofagus dombyei (Mirb.) Oerst, forest, 40°49′52″S, 71°36′58″W, 890 m a.s.l., on base of *Maytenus boaria* Mol., 19 December 2005, leg. F. Lara & E. San Miguel (MA-Musci, and Herb. Universidad Autónoma de Madrid).

*Zygodon bartramiioides* was known previously only from Chile (Malta, 1926; He, 1998). After the segregation of *Z. chilensis* Calabrese & F. Lara (Calabrese, Elias & Lara, 2006), the known distribution of *Z. bartramiioides* was limited to regions IX and X of Chile (Calabrese, 2006). The new report from Argentina is consistent with this previous distribution, and enlarges its southernmost extent 60 km to the east, although this is the only known locality of this moss on the eastern slopes of the Andean range. The studied sample has several turfs of *Z. bartramiioides* with sporophytes. Growing as associates were *Zygodon magellanicus* Dusén ex Malta, *Z. jaffuelii* Thér., and *Orthotrichum repertrecht* Schwäg. *Zygodon bartramiioides* is easily differentiated, even in the field, by its robust and erect habit, its rhomboidal leaves arranged in five rows (the pentastichous condition is very evident in the studied Argentinean specimens), and its sporophytes with a short seta, less than 0.5 cm long.

20. Zygodon chilensis Calabrese & F. Lara

**Contributors:** F. Lara, R. Garilleti & V. Mazimpaka

**Argentina:** NEUQUEN. Villa La Angostura, peninsula Quetrihué, Parque Nacional Los Arrayanes, Nothofagus dombyei (Mirb.) Oerst and Luma apiculata (DC.) Burret, forest, 40°51′09″S, 71°37′01″W, 835 m a.s.l., on decayed trunk of *Nothofagus dombyei*, 19 December 2005, leg. F.
Zygodon chilensis has been described recently from herbarium specimens from six localities in regions X and XI of Chile (Calabrese, Elias & Lara, 2006). The new report from Argentina is some 180 km south-eastward of the northern population nucleus known in Chile. The sample had many turfs of Zygodon chilensis in full fruit, mixed with other species of the genus: Z. nagellianus Dusén ex Malta, Z. pentastichus (Mont.) Müll.Hal., and Z. hookeri Hampe var. leptobolax (Müll.Hal.) Calabrese. Z. chilensis is easily distinguished from Z. bartramioïdes by several conspicuous characters, especially its long seta (more than 1 cm), its lanceolate, not rhomboidal leaves, and its brown propagula.

21. Zygodon hookeri Hampe var. leptobolax (Müll.Hal.) Calabrese

Contributors: F. Lara, R. Garillette & V. Mazimpaka


Zygodon hookeri var. leptobolax has an amphiatlantic cool-temperate distribution, occurring on Table Mountain in the Cape Peninsula of South Africa (Magill & van Rooy, 1998), and in south-western South America (Calabrese, 2006), but it has not previously been reported from Argentina. The specimens studied were fruiting, and their taxonomic placement presented no problems because of the dioicous condition, quadrate to short-rectangular basal leaf cells with thickened walls (especially at the angles), and the abundant brown-tinted, clavate to sub-cylindrical propagula, composed of (2–)3–4 aligned cells. These characters prevent confusion with Z. hookeri var. leptobolax, which is similar in habit (Calabrese 2006). However, when comparing our material with the description in Calabrese (2006), the Argentinean Zygodon jaffuelii shows some differences in leaf morphology and propagula size. The leaves are frequently somewhat undulate, patent to recurved when moist and their bases are often recurrent. The propagula are (43.0–)49.0–57.5(–63.7) μm long and 17.5–21.5 μm wide, which somewhat extends their known size range.

The new reports of Zygodon bartramioïdes, Z. chilensis, Z. hookeri var. leptobolax and Z. jaffuelii from the surroundings of Nahuel Huapi Lake increase to ten the number of taxa in the genus Zygodon known in Argentina. In Chile, all of the 13 taxa of Zygodon recognised for South America are present (Calabrese 2006), but none is now restricted to that country.

23. Zygodon stirtonii Schimp.

Contributors: Adam Stebel, Jan Žarnowiec & Anna Rusińska

Poland: West Pomerania: Wolin Island, beech forest near Wiselka village, ca 53°57’57.1”N 14°34’23.7”E, leg. S. Lisowski s.n., 8 November 1957 (POZG, no. 64127).

Zygodon stirtonii was originally described by W.P. Schimper in a paper by Stirton (1871, p. 75). For a long time it was widely treated at a lower taxonomic rank, as Z. viridissimus subsp. stirtonii (Schimp.) Dixon, Z. viridissimus var. stirtonii (Schimp.) I.Hagen or Z. viridissimus fo. stirtonii (Schimp.) Malta. Smith (2004) and Hill et al. (2006) considered it as an independent species. The key features distinguishing it from Z. viridissimus are the less acutely pointed leaves and the costa widened in the upper part and then excurrent in a stout point (Nyholm, 1998; Smith, 2004; Frey et al., 2006). Zygodon stirtonii is a European species strongly associated with an oceanic climate (Nyholm, 1998; Smith, 2004). Like many taxa in the genus Zygodon, it occurs on the bark of trees and on base-rich rocks.

During revision of Zygodon from Poland we found one specimen collected by S. Lisowski on Wolin Island (north-western part of Poland) in the 1950s. Quite a large tuft of Z. stirtonii occurred on bark covered with dust, probably at the base of a trunk of Fagus sylvatica, and was mixed mainly with Neckera complanata (Hedw.) Huebener, Dicranella heteromalla (Hedw.) Schimp. and Hypnum sp.
Z. stittonii is a new moss taxon for the flora of Poland (Ochyra, Žarnowiec & Bednarek-Ochyra, 2003).

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REFERENCES


