

The moss year - 2013

Unsurprisingly, 2013 was a less busy year for new records than 2012, following cessation of intensive recording for the new edition of the national bryophyte atlas. For mosses, the number of additions and amendments to the Census Catalogue in 2013 was 389, of which 363 were new records or post-1960 updates. These breakdown as shown in the table below.

These numbers are more representative of normal levels of recording activity, as in the early 2000s, although the Irish total last year was boosted by a backlog of records from Northern Ireland. Recording in England and Wales, as measured by the number of new records, has been relatively stable, the reduction being more marked in Scotland and especially in Ireland, reflecting the end of the many targeted recording activities for the atlas in both of these regions. Once again the new records have a very wide geographical spread, and with a large number of contributors. There are new or updated entries for 90 out of the 153 British and Irish vice-counties, excluding deletions and corrections.

Additions to the British and Irish list

The British and Irish list has been augmented by the discovery of one addition to the flora, one reinstated species, and by taxonomic changes in the genus *Oxystegus*. The addition is the outstanding discovery by Sam Bosanquet of *Crossidium squamiferum* (Viv.) Jur. on the Isle of Wight (Bosanquet, 2014). This is a southern European, primarily Mediterranean species, and its occurrence is comparable with those of *Southbya nigrella* and *Plasteurhynchium meridionale* in southern England. It is impossible to know at present whether it is a recent colonist or a long-standing resident. The reinstated species is *Encalypta pilifera* Funck. It was known to 19th century bryologists as a variety of *E. vulgaris*, differing in the long hair-point of the leaf, but it subsequently fell into obscurity. It is known from the Carboniferous Limestone of the Peak District and Wales (Blockeel, 2013a).

The genus *Oxystegus* has been reviewed in the light of a recent taxonomic revision by the continental bryologists H. Köckinger, O.

	2013				2012			
	England	Wales	Scotland	Ireland	England	Wales	Scotland	Ireland
New entries	85	41	62	61	104	35	93	217
Debrackets*	42	8	17	47	46	8	49	105
Reinstated	–	–	3	–	2	–	–	2
Bracketings†	1	–	–	–	5	–	–	–
Deletions	14	3	5	–	10	1	2	52
Totals	142	52	87	108	167	44	144	376

*Debrackets are existing vice-county entries for which a post-1960 record has been vouched; this total also includes one species whose status changed from Persistent Introduction to normal current record. †Bracketings are existing entries for which the post-1960 records are unconfirmed or erroneous, but older record(s) are valid.

Werner and R.M. Ros (Köckinger *et al.*, 2010). An additional species, *O. daldinianus* (De Not.) Köckinger, O. Werner & Ros, occurs in Britain and Ireland, but its separation from *O. tenuirostris* is not always easy. Another newly described species, *O. minor* Köckinger, O. Werner & Ros, occurs in Scotland but is morphologically very difficult and requires further study. Finally, *O. tenuirostris* (*Trichostomum tenuirostre*) includes two varieties with revised definitions, var. *tenuirostris* and var. *holtii*. At present *O. daldinianus* and the two varieties of *O. tenuirostris* are being included in the vice-county recording scheme, but *O. minor* awaits further study (Blockeel, 2013b).

The moss year 2013

In England, *Atrichum angustatum*, a species though to be on the brink of extinction, has been found at a new site in Gloucestershire by Richard Lansdown and Ellie Phillips. The plants were ambiguous in the field, perhaps because of their immature state, but have been confirmed by DNA analysis, leading to the hope that it might persist undetected elsewhere. Howard Wallis' find of *Grimmia crinita* in Surrey is equally remarkable (Wallis, 2013), and may represent the only extant population in Britain and Ireland, as it is thought to have gone from the Cornish site where it was found in 1999. *G. crinita* appears to be an infrequent and temporary colonist in our islands, which are at the edge of its geographic range. *Grimmia anomala*, only recently added to the British and Irish list from Scotland and Ireland, is now known in Wales, detected by Sam Bosanquet in Snowdonia in its characteristic habitat on lakeside boulders. In Scotland the distribution of *Schistidium maritimum* subsp. *piliferum* has been extended from the previously known sites in Shetland to the remote St Kilda group in the Outer Hebrides and to the island

of Rum (from a collection made during the BBS meeting in 2004). The most outstanding find in Ireland is Rory Hodd's rediscovery of *Bartramia halleriana* at Glendalough in Co. Wicklow, a moss judged to be extinct in the recent Irish Red Data Book. *Weissia rutilans* has very few Irish sites; Nick Hodgetts has added a new one on Benbradagh (Londonderry). Clearly, in spite of extensive surveys in Ireland in recent years, there is still plenty of scope for exciting discoveries there.

These are all rare mosses in Britain and Ireland, detected by diligent recording. Other records reflect environmental changes. Epiphytes continue to astonish. The most notable range extension is that of *Uloa calvescens*, previously believed to be a species of hyperoceanic distribution but in 2013 found to be widespread in the Southern Pennines (Blockeel & Turner, 2013). There have been further records of other expanding species such as *Uloa coarctata* in Sussex, *Orthotrichum speciosum* at two new sites in Yorkshire, and *O. consimile* in Hertfordshire and Nottinghamshire. *O. consimile* is now known from 8 recent sites in England. It belongs to a complex of species mainly found in western North America, and recent research has shown that the European plant is correctly named *O. columbicum* Mitt. (Medina *et al.*, 2012). Richard Fisk has found another East Anglian site for *Antitrichia curtispindula*, in West Suffolk, but its English distribution remains fragmentary. Like *Antitrichia*, *Neckera pumila* has been very slow to spread into much of central and eastern England, but the site at Sale in Greater Manchester (VC 58) is surely an example of recent colonisation. The factors influencing these changes are complex and not clearly understood; they undoubtedly include climate change and air quality.

Wetland habitats are increasingly threatened and it is good to report several new and



△Fig. 1: Reaps Moor, Staffordshire, habitat of *Hamatocaulis vernicosus*, September 2013. T Blockeel

unexpected records. *Scorpidium scorpioides* and *Hamatocaulis vernicosus* have been found at Reaps Moor in Staffordshire (Fig. 1), an exceptional site previously known for an isolated population of *Tomentypnum nitens* (which is still present there). *Tomentypnum* itself was found unexpectedly on Raasay during the BBS summer meeting, its first Hebridean locality and remote from its other Scottish sites. *Drepanocladus sendtneri* is a declining and taxonomically rather difficult species; Sam Bosanquet has turned up good material of it in a dune slack at Laugharne Burrows, Carmarthenshire.

It is invariably a pleasure to rediscover old sites for scarce bryophytes. Upper Teesdale has long been famous for its flora, but some parts of the region have hardly been visited by bryologists in recent decades. A visit to the Cronkley area (VC 65, NW Yorkshire) in 2013 resulted in the rediscovery of *Kiaeria blyttii*, apparently not recorded on the southern watershed of Teesdale since the mid 19th century. *Sphagnum platyphyllum* and *Grimmia ramondii* were found in the same area – hard evidence that this (and other) parts of northern England remain poorly

recorded. Indeed many of the upland areas south of the Scottish highlands have been patchily covered in recent years. *Pterigynandrum filiforme* had not been observed for several decades south of the Highlands, with the exception of two epiphytic populations in East Anglia which are clearly recent colonisations. In 2013 it was rediscovered in a typical lakeside boulder habitat in Selkirkshire. Likewise *Glyphomitrium daviesii* was unrecorded in North Wales in the second half of the 20th century but several records have been made since 2000, most recently from Aberglaslyn in Merioneth. Such records show the value of systematic and informed recording.

New records of species at the edge of their known ranges are always welcome. Des Callaghan surveyed Moel Hiraddug in Flintshire at the end of 2013 and found a host of noteworthy species there, including *Entosthodon mühlenbergii*, *Microbryum floerkeanum*, *M. curvicollum*, *Bryum canariense* and *B. kunzei*. This is the first record of *M. floerkeanum* in North Wales since 1861. *Bryum donianum* has been found in Derbyshire along the NW/SE line that marks the edge of its British range. *Tortula viridifolia* has scattered

sites on the East coast of Scotland, and has now been found on the remote St Kilda group in the Outer Hebrides. The two new sites for *Sematophyllum substrumulosum* are within its recently extended range but demonstrate that it is consolidating its presence. It's amusing to see that Sam Bosanquet's record from the Isle of Wight came from 'Fantasy Land' – a case of fantasy turning into reality! The spread of *Tortula amplexa* has been slow and sporadic, and must rely on the dispersal of rhizoidal tubers or vegetative fragments. It has now arrived on the banks of the River Mersey in Cheshire.

Recording is sometimes beset with taxonomic problems. DNA sequencing helped to confirm David Long's record of *Bryum salinum* from Holy Island, Northumberland, a long jump southwards for this species on our East coast. There were suggestions that Gordon Rothero's record of *Brachytheciastrum trachypodium* from North Coires, Cairngorm (Easternness), might be a high-altitude form of *B. velutinum*, but this was improbable as *B. velutinum* does not otherwise exceed 545 m altitude in our islands. This is only the third national locality for *B. trachypodium*. The taxonomy of *Thamnobryum maderense* is difficult. Two new collections, from Breconshire and SW Yorkshire, appear to match the morphological features of *T. maderense*, but there is a nagging doubt that forms of *T. alopecurum* can sometimes mimic the complanate fronds of *T. maderense*. Its status may not be resolved without further study using molecular techniques.

Schistidium continues to confuse, and a number of records of rare species have been corrected. On a positive note, *S. dupretii* is confirmed for two sites in eastern Scotland, in one of which it occurred on an artificial substrate (concrete). There are some other new records associated with unusual habitats. Sandy Payne collected *Bryum warneum*, almost exclusively

a maritime moss in Britain and Ireland, from a crevice in sandstone rocks by Loch Stemster inland in Caithness. *Ptilium crista-castrensis* has been turning up in many new sites south of its core range, but Johnny Turner's discovery of an epiphytic patch on a willow in SW Yorkshire (Figs. 5 and 6) is extraordinary.

Buxbaumia aphylla remains elusive, and there have been very few new records in the past 25 years. Stewart Taylor's recent finds in Abernethy Forest (Moray and Easternness) are outstanding. One superb population is illustrated in the stunning photograph in Figure 2. Other good records of rare but widely distributed species include *Grimmia montana* on coastal rocks in Caernarvonshire, *G. ovalis* on a roof in East Sussex, *Dicranum polysetum* on a mossy stump in Roxburghshire, *Aloina rigida* in East Kent and Radnorshire, *Conardia compacta* in the Wye valley (West Gloucestershire), and *Myrinia pulvinata* on a silty willow in Carmarthenshire.

New vice-county records and amendments

Vouchers are deposited in the BBS herbarium (BBSUK) unless otherwise stated. Other herbarium abbreviations are **BM** = Natural History Museum, London; **DBN** = National Botanic Garden, Glasnevin, Dublin; **E** = Royal Botanic Garden, Edinburgh; **NMW** = National Museum of Wales, Cardiff.

- 1.4.b. *Sphagnum palustre* var. *centrale*. 92:** large, dense hummocks beside base-rich flushes in open birch woodland, with *S. warnstorffii*, 505 m alt., Morrone Birkwood, NO13018981, DA Callaghan.
- 1.5. *Sphagnum magellanicum*. H38:** raised bog, 62 m alt., Aughdarragh Lough, J441591, 1988, RS Weyl.
- 1.6. *Sphagnum squarrosum*. 4:** in *Juncus effusus*

- flush, 260 m alt., Prewley Moor, SX540911, M Pool.
- 1.7. *Sphagnum teres*. 28:** fen carr, Roydon Common NNR, TF688225, CR Stevenson, *det.* MO Hill.
- 1.8. *Sphagnum fimbriatum*. H1:** on steep sandstone rocks in ravine, O’Sullivan’s Cascade, Tomies Wood, V9146588432, JL Denyer & RL Hodd (DBN); **H14:** on cut-over peat in birch woodland, 90 m alt., Abbeyleix Bog, Ballymullen, S438832, M Eakin; **H37:** fen, 175 m alt., Outlack Bog, H906400, 2012, RS Weyl.
- 1.13.a. *Sphagnum capillifolium* subsp. *capillifolium*. 34:** Foxes Bridge Bog, Forest of Dean, SO629123, RV Lansdown, *conf.* MO Hill; **48:** on boggy plateau, 280 m alt., Cwm Bychan, SH648306, 2011, TW Ottley 11101415, *conf.* MO Hill; **105:** dense cushion in bog habitat amid heather, 370 m alt., near Lochan Fada, Letterewe Estate, NH025703, O Moore, *conf.* MO Hill; **H1:** grassy slope, Coimin Grin, Hag’s Glen, V829852, RL Hodd, *conf.* MO Hill (DBN); **H11:** in dry heath, Brandon Hill, S688407, RL Hodd, *conf.* MO Hill (DBN); **H22:** forming hummock in bog, T-Barne Bog, Garrynabolie, N542739, RL Hodd, M Eakin & JL Denyer, *conf.* MO Hill (DBN).
- 1.15.a. *Sphagnum subnitens* var. *subnitens*. 39:** in boggy field, 315 m alt., near Spouts Farm, Reaps Moor, SK081609, TL Blockeel & AJ Hodgson 42/002.
- 1.15.b. *Sphagnum subnitens* var. *ferrugineum*. H33:** blanket bog, 175 m alt., Lough Alaban, H065437, 1991, RS Weyl.
- 1.17. *Sphagnum molle*. 46:** rare on edge of acid flush on steep slope, Padell Nant Wyddon, Eisteddfa Gurig, SN785830, 2006, SDS Bosanquet.
- 1.19. *Sphagnum compactum*. H14:** wet heath near track, 340 m alt., Capard, Slieve Bloom mountains, N3611306091, 2010, JL Denyer & DF Chamberlain JLD-B-11-022, *det.* MO Hill (DBN).
- 1.20. *Sphagnum subsecundum*. 78:** on flushed slope, rocky upland valley, 535 m alt., Crunklie Moss, Games Hope Valley, Tweedsmuir Hills, NT13321672, DG Long 42834, *conf.* MO Hill.
- 1.23. *Sphagnum contortum*. 4:** in base-rich flush in culm grassland, 265 m alt., Prewley Moor, Sourton, SX54129115, S Pilkington & M Pool; **H38:** extensive carpets in fen, 32 m alt., Derryleckagh Bog ASSI, J119251, 2012, RS Weyl.
- 1.24. *Sphagnum platyphyllum*. 65:** in channel in flush with sparse *Scorpidium revolvens*, ca 410 m alt., flush system below Green Hill Scar, Cronkley Scar, Upper Teesdale, NY8429, TL Blockeel 42/320, *conf.* MO Hill.
- 1.26. *Sphagnum cuspidatum*. H38:** raised bog, 62 m alt., Aughndarragh Lough, J441591, 2012, RS Weyl.
- 1.31. *Sphagnum flexuosum*. 2:** among *Juncus effusus* in grazed mire, Cabilla Wood, SX130652, DA Callaghan, replaces only previous post-1960 record, which is unconfirmed and doubtful (Holyoak, 2012); **38:** grazed flush at edge of wet woodland, Bracebridge Pool, Sutton Park, SP0944098229, DA Callaghan; **72:** wet area in river valley, 240 m alt., Garroch Water, Lowther Hills, NX9379098119, EM Kungu *et al.*
- 1.32. *Sphagnum angustifolium*. 16:** at edge of bog in wood, 130 m alt., Keston Common, TQ416640, 2011, TW Ottley 11110601, *conf.* MO Hill; **57:** in flushed turf with *Aulacomnium palustre* on bank of moorland stream, 270 m alt., Jarvis Clough, near Ladybower Reservoir, SK211867, TL Blockeel 42/420, *conf.* MO Hill.



△Fig. 2: *Buxbaumia aphylla*, Abernethy Forest (VC 96), October 2012. S Taylor

- 2.2.a. *Andreaea rupestris* var. *rupestris*. H2:** on sandstone rock, above Horse's Glen, Mangerton North, V99228197, RL Hodd (DBN); **H11:** on summit cairn, Brandon Hill, S6970240268, RL Hodd (DBN).
- 2.6.a. *Andreaea rothii* subsp. *rothii*. 60:** on siliceous rocks in gill, Whiteray Beck, SD6762, 1986, MJ Wigginton; **H1:** on siliceous rock, Derrynablaha, above Ballaghbeama Gap, V7598577669, RL Hodd (DBN).
- 2.6.b. *Andreaea rothii* subsp. *falcata*. 5:** on damp vertical rock exposure, 260 m alt., east bank of river, River Barle, near Liscombe, SS85923271, S Pilkington; **79:** dry stone wall, 250 m alt., in field through which the little Yarrow River runs, north-west of Riskinhope Ridge, NT233189, DG Long & JE Smith.
- 2.8. *Andreaea megistospora*. 106:** wet crag, above Loch a' Choire Ghranda, Beinn Dearg, NH267809, M Lawley.
- 4.4. *Atrichum angustatum*. 33:** Vertical face of entrance to rabbit-burrow among heather, 325 m alt., Masts Field, Prestbury Hill Butterfly Reserve, Cleeve Hill, SO992258, 2011, RV Lansdown & E Phillips (E), confirmed by molecular analysis.
- 7.1. *Polytrichastrum alpinum*. 4:** on NW-facing dolerite crag, 350 m alt., Sourton Tors, Dartmoor, SX541900, S Pilkington; **H13:** west side of summit cairn, Mount Leinster, S8260252608, RL Hodd (DBN).
- 8.1.b. *Polytrichum commune* var. *perigoniale*. 110:** Bare disturbed soil near head of burn, 270 m alt., St Kilda, Hirta, Abhainn Mor, NF09609990, NG Hodgetts, RD Porley & C Rickerby 8320.
- 8.4. *Polytrichum strictum*. 14:** single patch growing through *Sphagnum capillifolium*, 125 m alt., Broadstone, Ashdown Forest, TQ43603276, JM Hutson, TGJ Rayner & DT Streeter; **41:** hummock in sloping flushed field, 335 m alt., next to Nant Pennar river, Cefn-pennar uchaf farm, Rhondda Cynon Taf, SO03580196, 2012, AR Perry.
- 9.1. *Tetraphis pellucida*. H31:** on vertical face of old, raised peat track, 40 m alt., N of R178, Redbog, Louth village, H9074903646, M Eakin.
- 11.1. *Buxbaumia aphylla*. 95:** on fallen alder, wedged in bank of River Nethy, Abernethy Forest RSPB reserve, NJ0201618267, S Taylor; **96:** Mondhuie, Abernethy Forest RSPB reserve, NH9802919750, 2012, S Taylor, voucher based on accompanying photograph (Fig. 2).
- 14.4B. *Encalypta pilifera*. 47:** a few tufts in limestone crevice on north side of outcrop, Llanymynech Hill golf course, SJ26352195, 2012, SDS Bosanquet; **51:** earth among limestone rocks, Graig Fawr, near Prestatyn,

- SJ0580, 1975, MO Hill; **57**: on limestone rock ledge, Deepdale, near Buxton, SK0971, 1989, TL Blockeel 18/247 (and additional records cited in Blockeel, 2013a).
- 16.1. *Entosthodon mublenbergii*. 51**: thin soil over limestone outcrop in open, Moel Hiraddug, SJ0639678400, DA Callaghan.
- 16.4. *Entosthodon fascicularis*. 6**: Redhill, ST46, 1966, J Appleyard, *det.* SDS Bosanquet (NMW); **7**: bare patch in pasture, Malmesbury, ST914860, 1972, GW Garlick, *det.* SDS Bosanquet (NMW).
- 17.1. *Physcomitrium pyriforme*. 104**: wet bank with seepage by jetty just above HWM on small offshore island, 1 m alt., Pabay, NG671264, NG Hodgetts 8266.
- 18.1. *Aphanorrhagma patens*. 80**: on damp rutted footpath, edge of woodland by river, 90 m alt., River Tweed near ford at Abbotsford, NT50923459, DG Long 42783 (E); **H23**: bare tufaceous soil in dry turlough basin, Cow Park, Moate, N174387, GF Smith (DBN); **H38**: exposed on mud at reservoir edge with *Riccia cavernosa*, 120 m alt., Upper Craigantlet Reservoir, NW corner, J442778, 2002, RS Weyl.
- 21.1.a. *Schistidium maritimum* subsp. *maritimum*. 58**: on sandstone boulder of rocky shoreline, Hilbre Island, SJ1861787815, DA Callaghan; **H31**: in wet grassy side of flush area, ca 50m from high water mark, 10 m alt., Clogherhead, O174845, M Eakin.
- 21.1.b. *Schistidium maritimum* subsp. *piliferum*. 104**: rock, SE of top of Ard Mheall, Rum, NM344975, 2004, SDS Bosanquet; **110**: on rocks at base of crags, Mullach Bi, Hirta, St Kilda, NA0863400040, RD Porley & NG Hodgetts.
- 21.2. *Schistidium rivulare*. H38**: on rock in river, 35 m alt., Bannville House, Lawerencetown, J107488, 2012, RS Weyl.
- 21.3. *Schistidium platyphyllum*. 58**: sandstone rocks beside weir in river, R. Mersey, Sale, SJ8016593233, DA Callaghan.
- 21.5. *Schistidium apocarpum***. Delete **26**, the voucher (Brent Eleigh church, RJ Fisk, 1999, BBSUK) is *S. crassipilum*; **27**: asphalted road surface, shaded and overgrown by vegetation, 55 m alt., Hockering Wood, TG0714, 1997, CR Stevenson, replaces previous voucher (Marriots Way, Attlebridge TG11, CR Stevenson, 1999), which is *S. crassipilum*; delete **9**, **23**, **28** and **55** records listed in Rothero (2004) are thought to be unreliable and vouchers have not been traced.
- 21.6. *Schistidium trichodon*. 105**: limestone scree on steep north-facing slope above open birch woodland, ca 430 m alt., Rassal, Allt a' Ghuibhais, NG885452, NG Hodgetts 8234; **105**: on limestone outcrop, 190 m alt., near Allr Mor, Rassal, NG854434, RL Hodd & JL Denyer.
- 21.7. *Schistidium papillosum***. Delete **42**, the voucher (Craig Cerrig Gleisiad NNR, GP Rothero, 1999, Herb. Rothero) is *S. strictum*, *det.* SDS Bosanquet.
- 21.9. *Schistidium strictum***. Delete **3**, the record listed as *Grimmia apocarpa* var. *gracilis* in Duncan (1926) is unsubstantiated and improbable; delete **37**, the records in Bagnall (1903) from Severn Banks, Upper Arley [SO77], Leigh Sinton [SO75] and Pensax [SO76] as *Grimmia apocarpa* var. *gracilis* are unsubstantiated and improbable; delete **43**, the voucher (Abbey Cwmhir SO07, AJE Smith, 1965, NMW) is *S. apocarpum*.
- 21.10. *Schistidium dupretii*. 89**: limestone scree on steep east-facing slope, ca 500 m alt., Glen Shee, Creag nan Eun, NO132755, NG Hodgetts *et al.* 8255; **92**: concrete of sluice beside small stream in heathland, 455 m alt., Morrone Birkwood, NO1274290040, DA

- Callaghan, *det.* HH Blom.
- 21.11. *Schistidium robustum*. 58:** insulated concrete wall of long-disused water tank, RNAS Stretton, SJ6572583031, DA Callaghan.
- 21.12. *Schistidium confertum*.** Delete **3**, the record (Torquay, leg. C.H. Binstead, 1936) has not been verified against current taxonomic concepts and is unconfirmed; delete **28**, the voucher (Hardwick Cemetery, CR Stevenson, 1983, Herb. Stevenson) is *S. crassipilum*; delete **43**, the voucher (S of Abbey Cwmhir, J Appleyard, 1966, NMW) is *S. apocarpum*, *det.* SDS Bosanquet; delete **107**, the voucher (Falls of Shin, DF Chamberlain & DG Long, 1974, E) is *S. agassizii*, *det.* SDS Bosanquet.
- 21.14.a. *Schistidium frigidum* var. *frigidum*.** Delete **89**, the voucher (Bothan Ruigh Sron nan Dias, S of Loch Loch NN97, DG Long & GP Rothero, 1994) is *S. crassipilum*, *det.* SDS Bosanquet.
- 21.14.b. *Schistidium frigidum* var. *bavaasii*.** Delete **88**, the voucher (SW Coire, Ben Lawers, AJE Smith & JA Paton, 1960, NMW) is *S. dupretii*.
- 21.16. *Schistidium crassipilum*. H38:** on stone bridge, 5 m alt., Crawfordsburn Country Park, J465818, 2012, RS Weyl.
- 21.17. *Schistidium elegantulum*. 43:** on a concrete post, Esgair Rudd, SN879747, M Lawley, *conf.* SDS Bosanquet.
- 22.2. *Grimmia crinita*. 17:** on wall, ca 50 m alt., Betchworth churchyard, TQ210497, HW Wallis (see also Wallis, 2013).
- 22.3. *Grimmia laevigata*. 43:** 6 patches on dolerite, ca 230 m alt., Stanner Rocks, SO26315837, SDS Bosanquet.
- 22.5. *Grimmia montana*. 49:** sunny coastal rocks, 5 m alt., east of pool, east of Criccieth, SH512380, SDS Bosanquet.
- 22.12. *Grimmia ovalis*. 14:** on roof of outbuilding, 95 m alt., Burgess Engineering, Cross-in-hand, TQ562198, TW Ottley & TGJ Rayner 13040801.
- 22.20. *Grimmia trichophylla*. 109:** slab of sandstone, edge of loch, Loch Stemster, ND187426, AG Payne.
- 22.21. *Grimmia lisae*. 5:** on rocks by path, 265 m alt., Tarr Steps, SS865324, TW Otdley 13041307; **52:** serpentine rocks, Valley Lakes RSPB reserve, SH30927696, SDS Bosanquet, KS Birch & PS Jones; **78:** on rock within plantation, coniferous woodland, 290 m alt., Dene Wood, Broughton, NT116376, EM Kungu & JE Smith (E); **108:** on gneiss boulder on loch margin, 160 m alt., unnamed loch N of Allt nan Ramh, N of Kylestrome, NC218373, 2002, GP Rothero 12029, reinstatement of record published in *Bulletin of the British Bryological Society* 81 p. 53 (as *G. retracta*), and incorrectly omitted from current Census Catalogue.
- 22.23. *Grimmia muehlenbeckii*. 48:** igneous boulders on lake shore, 235 m alt., Llyn Cregennen, SH661145, SDS Bosanquet; **105:** boulder by river in open moorland, 50 m alt., Shildaig, Badachro River, NG79437111, NG Hodgetts & JE Smith 8342; **110:** on a boulder in S-facing block scree, 300 m alt., St Kilda, Hirta, Glacan Chonachair, NF0995799638, RD Porley, NG Hodgetts & C Rickerby, *conf.* E. Maier.
- 22.24A. *Grimmia anomala*. 49:** ca 10 tufts on boulder in lake, 380 m alt., north shore of Llyn Cwmffynon, SH649564, SDS Bosanquet.
- 22.27. *Grimmia ramondii*. 65:** small dolerite boulder below crag, ca 460 m alt., Bleaberry Scar, Cronkley Scar, Upper Teesdale, NY847290, TL Blockeel 42/324; **109:** on boulder by shore, Loch Stemster, below Achkinloch ruins, ND192424, AG Payne.
- 23.2. *Racomitrium aciculare*. 14:** on old

- concrete slabs by stream, 95 m alt., Ashdown Forest, Pippingford, TQ44873020, JM Hutson, TW Ottley & TGJ Rayner 13111902; **24**: on flat gravestones at NW end of churchyard, Turville churchyard, SU7668191160, SV O'Leary; **H23**: on sleeper of disused railway, Conranstown, N3203745278, RL Hodd (DBN).
- 23.6. *Racomitrium sudeticum*. H2**: on rock at summit, Crohane, W04978296, RL Hodd (DBN).
- 23.7. *Racomitrium affine*. 34**: large rock, 200 m alt., Barnhill Plantation, near Coleford, Forest of Dean, SO597105, 2006, P Martin; **39**: on sheltered gritstone wall, 395 m alt., 1km NW of Royal Cottage, Staffordshire Moorlands, SK021648, TL Blockeel 42/657; **H40**: on basalt boulders among heather below cliffs, ca 350 m alt., Benbradagh, C723117, NG Hodgetts 8242.
- 23.12. *Racomitrium elongatum*. 109**: sandstone slab with *Ctenidium molluscum* and *Tortella tortuosa*, at edge of Loch Stemster, ND187426, AG Payne.
- 26.1. *Blindia acuta*. H21**: stony flush, 270 m alt., SW Walshes Lane, Glencullen, O17542030, JL Denyer (DBN).
- 30.2. *Fissidens crispus*. 58**: clayey bank in broad-leaved woodland, Dean Brook, SJ7593151512, DA Callaghan.
- 30.3. *Fissidens pusillus*. 13**: on bricks on base of culvert, 10 m alt., Knepp Castle Estate, TQ156211, TW Ottley 13060201; **H18**: thin soil on rock by path in woodland, Charleville Wood North, Tullamore, N3223, GF Smith (DBN).
- 30.6.a. *Fissidens bryoides* var. *bryoides*. H31**: on wet peaty soil in deciduous woodland, 60 m alt., Rokeby, Marlestown, Dunleer, O080858, M Eakin.
- 30.9. *Fissidens crassipes*. H21**: in stream on vertical rock of small waterfall, 70 m alt., Delvin River, Naul, O134612, M Eakin; **H38**: on partially submerged rocks in river, 5 m alt., Crawfordsburn Country Park, J4681, 2012, RS Weyl.
- 30.12. *Fissidens celticus*. 35**: vertical clay bank of stream in woodland, Trethomas, ST188888, 2003, SDS Bosanquet.
- 30.17. *Fissidens adianthoides*. 38**: mire at edge of stream, Longmoor Valley, Sutton Park, SP093961, DA Callaghan.
- 30.20. *Fissidens fontanus*. 31**: on stone retaining wall beside River Nene below old stone bridge, with *Fissidens crassipes*, 14 m alt., below old A6118 road bridge, Wansford, TL07519911, J Graham.
- 31.1. *Pleuridium acuminatum*. H38**: bare soil in rough pasture, 2 m alt., Deer Park, J5955, 2012, RS Weyl.
- 31.2. *Pleuridium subulatum*. 58**: exposed soil on grave, St John's Church, Higher Walton, SJ59838525, DA Callaghan; **79**: disturbed ground, mole hills, St Mary's Loch sailing club, NT2420, DG Long & JE Smith.
- 34.3. *Ditrichum lineare*. 42**: thinly on soil crust over rock by moorland stream, 375 m alt., Afon Arban (middle reaches), SN84956345, 2012, JW Bates & JM Bates 4628.
- 34.8. *Ditrichum flexicaule*. 13**: species-rich turf with *Abietinella*, Chalkpit Lane, SU870107, SDS Bosanquet; **17**: in calcareous grassland on edge of path, ca 165 m alt., Dawcombe LNR, TQ216524, HW Wallis.
- 34.9. *Ditrichum gracile*. 73**: fixed dunes, among short grass turf, 20 m alt., Brighthouse Bay, NX63644584, EM Kungu; **H38**: short open sward in grey dunes, 5 m alt., Cloughy dunes, J6356, 2012, RS Weyl.
- 43.3. *Cynodontium jenneri*. 104**: on wall, Dry Harbour, Isle of Rona, NG625582, MO Hill; **104**: rock crevice on volcanic 'tor' on

- low hillock in wet heathland, ca 200 m alt., Ullinish, Cnoc nam Braonan, NG33J, NG Hodgetts 8252.
- 44.1. *Oncophorus virens*.** Delete **105**, the discovery of sporophytes in 2013 has shown that the population at this site and the original voucher (Loch Maree, Coille na Glas Leitire, leg. N.G. Hodgetts, 2010) belong to *O. wahlenbergii*.
- 44.2. *Oncophorus wahlenbergii*.** **105**: among stones on shore of Loch Maree, ca 15 m alt., Beinn Eighe, Coille na Glas Leitire, NH002650, 2010, NG Hodgetts 7747, originally named *O. virens*, but re-identified following discovery of sporophytes in 2013.
- 45.3. *Dichodontium palustre*.** **H18**: seeping bank in conifer plantation, Beagh, Boheraphuca, S187958, 2012, GF Smith (DBN).
- 48.2. *Kiaeria blyttii*.** **65**: vertical face of rock in cleft on dolerite crag, ca 470 m alt., Raven Scar, Cronkley Scar, Upper Teesdale, NY836291, TL Blockeel 42/316, *conf.* GP Rothero.
- 48.4. *Kiaeria glacialis*.** **106**: on wet rock in a flush, Coire nan Con, Ben Wyvis, NH472690, M Lawley, *conf.* GP Rothero.
- 49.1. *Glyphomitrium daviesii*.** **48**: 6 cushions on one boulder, opposite cascade, 10 m alt., Ceunant Aberglaslyn, SH54, SDS Bosanquet.
- 50.1. *Schistostega pennata*.** **41**: vertical crevice in cliff at top of gully, 470 m alt., Cwar Canwyllyr, SN932036, SDS Bosanquet.
- 52.1. *Dicranella schreberiana*.** **73**: stubble field, 95 m alt., Clarebrand Farm, NX75756575, 2012, V Heppel.
- 53.1. *Dicranum polysetum*.** **80**: on mossy stump, swampy margin of conifer plantation, 245 m alt., Curdyhaugh Moss, Clarilawmoor Plantation, NT50602829, DG Long 42315.
- 53.5. *Dicranum majus*.** **H18**: birch wood on cut-over bog, Ballydownan, Geashill, N445196, 2012, GF Smith (DBN); **H37**: oak/birch woodland, 20 m alt., Peatlands Park, H9061, 1980, RS Weyl.
- 53.13. *Dicranum montanum*.** Delete **112**, the voucher (Netherfandal, Foula, D.L. Hawksworth, 1965, BBSUK) is not this species and is probably a small form of *D. fuscescens* s.l.
- 56.13. *Campylopus brevipilus*.** **H33**: lowland blanket bog, Tullywannia, G96, 1990, RS Weyl.
- 60.1.a. *Weissia controversa* var. *controversa*.** **H18**: bare disturbed calcareous soil at woodland edge, Doory Wood, Clara, N265299, 2012, GF Smith (DBN).
- 60.2. *Weissia perssonii*.** **73**: earth bank above small stream draining to shore, 10 m alt., Hare Glen near Brighthouse Bay, NX6231544611, EM Kungu; **105**: base-rich calc-silicate rock, 176 m alt., Bheinn Fhoda, near Glen Elg, Kyle of Lochalsh, NG86052472, JE Smith; **110**: earthy bank by burn, 20 m alt., St Kilda, Hirta, Abhainn Mor, NF0999, NG Hodgetts, RD Porley & C Rickerby 8323.
- 60.3. *Weissia rutilans*.** **H40**: on crumbling dry soil in crevices amongst basalt rocks near top of cliffs, ca 400 m alt., Benbradagh, C721110, NG Hodgetts 8238.
- 60.5.b. *Weissia brachycarpa* var. *obliqua*.** **H38**: stony ground of disused car park, 2 m alt., Cloughy, J642574, 2012, RS Weyl.
- 60.12.b. *Weissia longifolia* var. *angustifolia*.** **51**: exposed soil beside path through scrub over limestone, Moel Hiraddug, SJ0644277947, DA Callaghan; **55**: on limestone rubble in disused quarry, Bloody Oaks Quarry Nature Reserve, SK970108, SF Woodward.
- 61.2. *Tortella bambergeri*.** **52**: tight tufts on sunny metamorphic rocks, Cerrig Moelion, SH26357695, SDS Bosanquet & KS Birch; **96**: base of cliff, east-facing conglomerate

- cliffs, 295 m alt., Creag nan Clag south of Dores, NH60092885, DG Long 42435 (E); **109**: crevice of sandstone slab at edge of loch, west shore of Loch Stemster, ND186422, AG Payne.
- 61.5. *Tortella nitida*. 14**: on wall of railway embankment, 50 m alt., Hassocks, TQ303152, TW Ottley.
- 61.9. *Tortella flavovirens*. 18**: extensive mats on central track of raised causeway across saltings, 1 m alt., Canewdon, Lion Creek Saltings, TQ925947, Essex Bryology Group, *det.* KJ Adams; **58**: crevices of sandstone boulder on rocky shoreline, Little Hilbre Island, SJ1889587561, DA Callaghan.
- 62.2. *Trichostomum crispulum*. 58**: open calcareous waste, Clifton Limebed, SJ5279679620, DA Callaghan.
- 62.3.a. *Trichostomum tenuirostre* var. *tenuirostre*. 77, 81, 104** (Blockeel, 2013b).
- 62.3.b. *Trichostomum tenuirostre* var. *holtii*. 3, 44, 57, 59** in (), **63, 64, 69, 71, H8, H27, H38** (Blockeel, 2013b); **50**: on sloping boulder beside river in ravine, Conwy Falls, SH8089553556, DA Callaghan; **51**: rock in stream, Moel Dywyll, SJ155639, 1973, MO Hill; **88**: on rock by burn edge, Carie Burn, Loch Rannoch, NN615561, 2012, C Rickerby; **H1**: on rocks on partially shaded shore, L Leane, O'Sullivan's Cascade, Tomies Wood, V91588848, RL Hodd (DBN); **H2**: on rocks at edge of river, Torc Cascade, V966843, RL Hodd (DBN).
- 62.3A. *Oxystegus daldinianus*. 44, 48, 49, 69, 70, 76, 98, 106, H1, H3, H6, H20, H27** (Blockeel, 2013b); **46**: on boulder beside river in wooded ravine, Cwm Einion, SN6918594694, DA Callaghan; **97**: on rocks in valley, Sanna, Ardnamurchan, NM449684, 1966, MO Hill.
- 68.3. *Gymnostomum aeruginosum*. 13**: north-facing sandstone roof tiles, 70 m alt., St John's church, Coolhurst, Horsham, TQ200298, TW Ottley 13110101; **H31**: on wet rocks, 240 m alt., lower slopes of Slieve Foye, Liberties north, J168135, M Eakin.
- 72.6. *Ephemerum serratum*. 79**: disturbed ground, mole hills, St Mary's Loch sailing club, NT2420, DG Long & JE Smith (E); **87**: on mud at the inlet and on the clay banks of the stream feeding the reservoir, 200 m alt., Lossburn Reservoir, NS828988, 1972, BA Ottley & TW Ottley 72110302.
- 72.7. *Ephemerum minutissimum*. H38**: stubble field, 17 m alt., Bar Hall, J622469, 2012, RS Weyl.
- 76.2. *Bryoerythrophyllum ferruginascens*. 5**: on damp base-rich mud at edge of a ditch, 255 m alt., Prior's Park Wood, Holman Clavel, ST2246416421, S Pilkington; **7**: gravelly ground on woodland ride, 150 m alt., Chisbury Wood, Great Bedwyn, SU27056548, S Pilkington; **40**: soil-filled crevice of vertical rock exposure by stream, Ashes Hollow, The Long Mynd, SO4374792793, DA Callaghan; **46**: forestry track, 410 m alt., Esgair Fraith, SN73949118, SDS Bosanquet.
- 79.4. *Didymodon nicholsonii*. 15**: on pavement, 60 m alt., Rolvenden High Street, TQ844314, TW Ottley 13100401; **58**: edge of tarmac path in churchyard, St Cross Church, Appleton Thorn, SJ6378183870, DA Callaghan.
- 79.9. *Didymodon luridus*. 58**: on horizontal surface of sandstone block forming edge of canal, 10 m alt., Cow Lane Bridge, Chester, SJ407666, TL Blockeel 42/301; **H18**: limestone wall, Grand Canal Harbour, Edenderry, N6232, GF Smith (DBN).
- 82.2. *Aloina rigida*. 15**: on bank in chalk pit, 150 m alt., Charing, TQ970490, TW Ottley 13111001; **43**: bare soil, Llanelwedd Quarry,

- Llanelwedd, near Builth Wells, SO053522, M Lawley.
- 82A.1. *Crossidium squamiferum*. 10:** thin soil on calcareous Chert Beds cliff ledges, 130 m alt., ca 30 m east of footpath, West Cliff/Gore Cliff, SZ497759, SDS Bosanquet.
- 83.13. *Tortula amplexa*. 58:** clayey spoil beside re-worked track in open, Wigg Island, SJ5406083910, DA Callaghan.
- 83.15. *Tortula wilsonii*.** Delete **59**, the only voucher traced (Southport, leg. J. Percival, 1878, NMW) is *Hennediella heimii*, and other records are very doubtful.
- 83.16. *Tortula viridifolia*. 110:** Crumbling soil on S-facing bank behind beach, 5 m alt., St Kilda, Hirta, Village Bay, NF10159918, NG Hodgetts, RD Porley & C Rickerby 8283.
- 83.17. *Tortula modica*. 58:** exposed soil at base of sycamore in amenity grassland between houses, Beechwood housing estate, SJ5328780209, DA Callaghan.
- 83.19. *Tortula protobryoides*. 51:** thin soil over limestone outcrop in open, Moel Hiraddug, SJ0644378275, DA Callaghan; **58:** edge of gravel path through rough grassland, Ince Reservoir, SJ4505376158, DA Callaghan.
- 85.2.a. *Microbryum davallianum* var. *davallianum*. H38:** poached calcareous fen, 25 m alt., Lough Keelan, J5645, 2012, RS Weyl.
- 85.4. *Microbryum curvicollum*. 51:** thin soil over limestone outcrop, Moel Hiraddug, SJ0644478166, DA Callaghan.
- 85.5. *Microbryum floerkeanum*. 51:** on clayey soil of anthill beside track through scrub over limestone, Moel Hiraddug, SJ0639377932, DA Callaghan.
- 86.3. *Hennediella heimii*. H28:** on coastal rocks, by Easky Castle, G378386, RL Hodd (DBN).
- 89.1.a. *Syntrichia ruralis* var. *ruralis*. 84:** on concrete, 240 m alt., Petershill Nature Reserve, NS9850369491, DF Chamberlain; **H38:** car park, 120 m alt., Rathfriland, J1933, 2012, RS Weyl.
- 89.1.b. *Syntrichia ruralis* var. *ruraliformis*. 58:** sand dune, West Kirby dunes, SJ2082987574, DA Callaghan; **73:** sand dunes, 10 m alt., Brighthouse Bay, NX6361645765, EM Kungu.
- 89.6. *Syntrichia laevipila*. H18:** fallen ash branch in mixed woodland, amenity woodland, Ballylin, Ferbane, N125251, GF Smith (DBN); **H38:** large ash tree in pasture near ruined castle, 10 m alt., Audley's Castle, J577505, 2003, RS Weyl.
- 89.7. *Syntrichia papillosa*. 67:** West Holywell, NZ3070372495, 2012, D McCutcheon; **73:** on park tree near loch, 45 m alt., Carlingford Loch, Castle Douglas, NX7644661824, 2012, EM Kungu *et al.*
- 89.8. *Syntrichia latifolia*. 92:** on path, 60 m alt., church, Hatton of Fintray, NJ840165, 2011, EM Kungu.
- 90.1. *Cinclidotus fontinaloides*. 26:** on small rock in spillway by River Stour, Long Melford, TL85804329, RJ Fisk.
- 92.2. *Tetraplodon mnioides*. 44:** 5+ scattered tufts on pieces of bone, quarry SE of Pal y Cwrt, SN6817, 2004, SDS Bosanquet & GS Motley.
- 94.2. *Splachnum ampullaceum*. 39:** sparse on dung in boggy field, 315 m alt., near Spouts Farm, Reaps Moor, SK081609, TL Blockeel & AJ Hodgson 42/001; **H31:** Long Woman's Grave, Carlingford Mountain, J13231367, 2010, JL Denyer & SDS Bosanquet (DBN).
- 97.1. *Amblyodon dealbatus*. 104:** Earthy crevice in gully in damp shaded N-facing limestone cliff, 100 m alt., Raasay Forest, South Screapadal, NG57814402, NG Hodgetts 8272.
- 99.1.b. *Zygodon viridissimus* var. *stirtonii*.**

- H21:** on rocks north-west of Trinity Well, 60 m alt., Lambay Island, O314509, M Eakin; **H23:** on partially shaded limestone rock face, Carrick Hill, N553708, RL Hodd, M Eakin & JL Denyer (DBN).
- 100.2. *Orthotrichum striatum*. 38:** on *Salix* trunk in carr, Brandon Marsh, near Coventry, SP385755, JM Turner.
- 100.4. *Orthotrichum speciosum*. 63:** on *Salix* with *Ulota bruchii* at edge of small wood, 248 m alt., Heptonstall, SD98792795, JM Turner; **64:** on willow ca 50m from river bank, 10 m alt., by pumping station, Ouse banks, Redhouse Ings, near Nun Monkton, SE526575, TL Blockeel & N Gaunt 42/684; **106:** on aspen, 40 m alt., Strathconon, western end of Loch Achilty, NH42705637, TL Blockeel 42/682.
- 100.10. *Orthotrichum cupulatum*. H38:** on concrete damp wall with *O. anomalum*, 125 m alt., Creighton's Green Reservoir, South side of reservoir, J431786, 2012, RS Weyl.
- 100.13. *Orthotrichum stramineum*. 9:** a few cushions on ancient hazel coppice stool, Ringmoor and Turnworth Down, ST81430832, S Pilkington; **38:** on apple (*Malus*) in garden, Moorwood Lane, Chapel End, Hartshill, SP318939, JM Turner.
- 100.14. *Orthotrichum tenellum*. 62:** sparsely on base of ash tree on slope in pasture, 30 m alt., Stoupe Beck, near Robin Hood's Bay, NZ953032, TL Blockeel 42/648; **H18:** ornamental *Sorbus* in village park, by R Brosna, Clara, N2605032255, 2012, GF Smith (DBN).
- 100.19. *Orthotrichum consimile*. 20:** on major branch of windthrown old pollard willow, 6m from ground level, 80 m alt., Bulbourne Meadows, Boxmoor, Hemel Hempstead, TL05320590, CTW Tipper; **56:** on *Salix* by pond, Chainbridge Wood, Idle Valley Nature Reserve, Sutton, SK711858, C Wall.
- 101.1. *Ulota coarctata*. 14:** on fallen *Fraxinus*, originally at 4m from ground on main trunk, 70 m alt., Stonehouse Wood, Five Ash Down, TQ481259, TW Ottley 13041801.
- 101.2. *Ulota drummondii*. 72:** on *Sorbus aucuparia*, by Scaur Water, Chanlock Foot, Thornhill, NS7800, 2005, SDS Bosanquet.
- 101.3. *Ulota crispa*. 55:** on oak branch, Swannymote, Whitwick, SK44291688, 2009, SF Woodward.
- 101.4. *Ulota bruchii*. 51:** on willow, 70 m alt., Bryn-y-garreg, SJ2370, 2012, JD Shanklin.
- 101.5. *Ulota calvescens*. 39:** on *Salix* on bank of small stream sheltered by conifers, 380 m alt., 1km NW of Royal Cottage, Staffordshire Moorlands, SK01936471, TL Blockeel 42/655; **42:** with *U. crispa* on stunted rowan at edge of conifer plantation, 370 m alt., Coed Taf Fawr, SN99111142, GS Motley; **46:** sycamore on old mine, 400 m alt., Esgair Fraith, SN74289111, SDS Bosanquet & GS Motley; **57:** on *Salix* in wet hollow by disused railway, ca 180 m alt., Sett Valley, near Hayfield, SK02928710, TL Blockeel 42/336; **58:** on *Salix* at edge of reservoir, 245 m alt., west side of Fernilee Reservoir, Goyt Valley, SK01237765, TL Blockeel 42/415; **59:** on *Salix* in deciduous woodland, 80 m alt., Spring Wood, Whalley, SD740361, TL Blockeel 42/338; **60:** on *Salix* in scrubby woodland at edge of plantation, ca 230 m alt., Beacon Fell, SD573425, TL Blockeel 42/422; **63:** on *Salix caprea*, Nutclough, Hebden Bridge, SD998276, JM Turner; **64:** on young ash bole in woodland recently cleared of conifers, 300 m alt., Grass Wood, Grassington, SD98626553, JM Turner.
- 102.1.a. *Hedwigia ciliata* var. *ciliata*. 48:** boulder in lake, 420 m alt., NW corner of Llyn Gafr, SH709142, SDS Bosanquet; **55:** on

- rock, Croft Pasture Nature Reserve, SP509959, 2012, SF Woodward; **105**: slabby boulder near waterfall by river in open moorland, 50 m alt., Shieldaig, Badachro River, NG7971, NG Hodgetts & JE Smith 8343.
- 102.2. *Hedwigia stellata*. 41**: on Old Red Sandstone quartz-conglomerate rock erratic in grassland, Frog Moor, Cefn Bryn, Gower, SS4707590723, B Stewart; **58**: on stone gatepost, Goyt Valley, near Mellor, SJ9700087320, A Bamforth, east side of river, but 20 m inside the VC 58 boundary; **65**: on dolerite boulder in boulder field, ca 425 m alt., near Tarn Dub, Cronkley Scar, Upper Teesdale, NY85252879, TL Blockeel 42/330; **67**: south-facing side of sandstone boulder in cattle-grazed upland pasture, Settlingstones Burn, NY836695, A McLay.
- 105.1. *Bartramia halleriana*. H20**: in cleft in cliff, Glendalough, T0842596082, RL Hoddd & PM Perrin (DBN).
- 107.4. *Philonotis caespitosa*. 58**: damp sandy soil near edge of mere, 75 m alt., Marbury Big Mere, SJ557456, 1980, MJ Wigginton.
- 107.5. *Philonotis fontana*. H22**: at edge of pool on recolonising bare, rocky ground, 240 m alt., Teevurcher, N7101493276, M Eakin.
- 107.8. *Philonotis calcarea*. 4**: in streamside flush, 310 m alt., Prewley Moor, SX543906, M Pool, *conf.* NG Hodgetts.
- 109.1. *Plagiobryum zieri*. H1**: in crevice on base-rich cliff, west of summit, Mullaghanattin, V73737716, RL Hoddd (DBN).
- 110.2. *Anomobryum concinnatum*. 6**: on soil ledges on a shaded limestone bluff, Velvet Bottom, near Cheddar, ST48995491, S Pilkington; **H31**: on wet rock in stream, 170 m alt., Liberties, Golden River, Carlingford, J1783812342, M Eakin.
- 111.2. *Bryum warneum*. 102**: on damp sand by small burn through dunes, 1 m alt., Killinallan dunes, NR32347312, 2001, GP Rothero, reinstatement of record published in *Bulletin* 79, p. 50, and accidentally omitted from current Census Catalogue; **109**: crevice in sandstone slab by loch, Loch Stemster, ND187426, AG Payne, *det.* MO Hill, *conf.* DT Holyoak.
- 111.3. *Bryum calophyllum*. 59**: place in (), the last verified record was made in 1933 (Freshfield, leg. WG Travis, NMW); subsequent records belong to *B. pseudotriquetrum* (*B. neodamense*) or are unsubstantiated; **102**: on damp sand by small burn through dunes, 1 m alt., Killinallan dunes, NR32347312, 2001, GP Rothero, reinstatement of record published in *Bulletin of the British Bryological Society* 79, p. 50, and accidentally omitted from current Census Catalogue.
- 111.6. *Bryum pallens*. H38**: mining spoil, 110 m alt., Helen's Tower, J492763, 2012, RS Weyl.
- 111.12. *Bryum salinum*. 68**: on sand, edge of saltmarsh, east end of The Snook, Holy Island, NU10594340, 2010, DG Long 39594 (E).
- 111.13. *Bryum knowltonii***. Delete **58**, the voucher (near Wallasey Station, JA Wheldon, 1903, NMW) is *B. warneum*, *det.* DA Callaghan.
- 111.14. *Bryum archangelicum*. 18**: old gravel workings, scattered patches, 5 m alt., The Chase, Dagenham, TQ5185, 1999, T Pyner; **58**: sandstone boulder in open, Runcorn Hill, SJ507819, DA Callaghan.
- 111.16. *Bryum donianum*. 57**: thin soil on ledge of long-disused cutting of Magnesian Limestone, 95 m alt., Poulter Country Park, Whaley Thorns, SK52577117, TL Blockeel 42/015, *conf.* DT Holyoak.
- 111.18. *Bryum elegans*. 40**: soil crevice of sloping rock, The Batch, Long Mynd, SO443955, M Lawley, replaces previous voucher (Titterstone

- Clee Hill SO67, leg. Lawley, 1999), which is *B. capillare* (Lawley, 2013).
- 111.20. *Bryum torquescens*. 43:** soil, rock ledge, Llanelwedd Quarry, Llanelwedd, near Builth Wells, SO055519, M Lawley, *conf.* DT Holyoak; **47:** shallow soil in scree, disused quarry, Moel y Golfa, SJ287119, M Lawley, *det.* DT Holyoak.
- 111.21. *Bryum canariense*. 51:** soil in crevice of limestone outcrop, Moel Hiraddug, SJ0631578350, DA Callaghan, *conf.* DT Holyoak.
- 111.23. *Bryum pallescens*. 14:** on soil under pylons, 30 m alt., Mill Wood, Beckley, TQ874236, TW Ottley 13080201.
- 111.24.a. *Bryum pseudotriquetrum* var. *pseudotriquetrum*. 104:** wet ledge at base of limestone crag, South Screapadal, Isle of Raasay, NG5844, TL Blockeel 42/428; **105:** growing in flush with *Campylium stellatum* and *Scorpidium revolvens*, 310 m alt., at edge of Lochan Fada, Letterewe Estate, NH024707, O Moore.
- 111.24.b. *Bryum pseudotriquetrum* var. *bimum*. 109:** crevice in sandstone slab, by Loch Stemster, ND186424, AG Payne, *det.* DT Holyoak.
- 111.25. *Bryum caespiticium*. 109:** stony/earthy vehicle track to Munsary Cottage, Munsary peatlands reserve, ND209451, AG Payne, *conf.* MO Hill, replaces previous records, which are unconfirmed and may have been based on sterile material.
- 111.26. *Bryum kunzei*. 51:** thin soil over limestone in grassland, Moel Hiraddug, SJ0635078007, DA Callaghan, *conf.* DT Holyoak.
- 111.33. *Bryum radiculosum*. 66:** Marsden Old Quarry, NZ394643, 2011, J O'Reilly, *det.* DT Holyoak; **109:** mortar of north-facing wall and surrounding dyke, Munsary Cottage, Munsary peatlands, ND212450, AG Payne.
- 111.41. *Bryum bornholmense*. 60:** disturbed soil on track through moorland plantation, Brownslow, Longridge Fell, SD66254010, M Wilcox; **92:** large root plate of fallen pine, near back route to A'Charaig Dhuibh, Crannach, NO393986, 2011, AG Payne, *det.* MO Hill.
- 114.6. *Poblia drummondii*. 38:** on poached, acidic soil at margin of pool, Little Bracebridge Pool, Sutton Park, SP0950798315, DA Callaghan.
- 114.19.b. *Poblia wahlenbergii* var. *glacialis*.** Delete 57, the voucher (wet rock ledges, Grindsbrook, FJ Taylor & EF Warburg, 1947, BBSUK) is probably a lax form of var. *wahlenbergii*.
- 115.1. *Epipterygium tozeri*. H37:** steep bank above east bank of river with *Fissidens bryoides*, 20 m alt., Dyne's Bridge, J041511, 2012, RS Weyl.
- 1171. *Cinclidium stygium*. 96:** Flush near head of burn in wide N-facing valley, 340 m alt., Carn a' Chrasgie, NH8643, NG Hodgetts 8261.
- 118.1. *Rhizomnium punctatum*. H19:** on woodland floor, wet willow-ash-alder woodland, 71 m alt., Moyvally, Kilmore Bridge on Royal Canal, N7308141530, EJJ O'Sullivan.
- 118.3. *Rhizomnium pseudopunctatum*. 38:** mire at edge of stream, Longmoor Pool, Sutton Park, SP0935096175, DA Callaghan; **H38:** flush, 330 m alt., opposite Slieve Croob car park, Ribadoo, J300453, 2012, RS Weyl.
- 119.1. *Plagiomnium cuspidatum*. 46:** rare on mortar of ruin, W end of Coed Simdde Lwyd, Cwm Rheidol, SN713787, 2004, SDS Bosanquet; **72:** sandy bank above river, 25 m alt., R. Annan, east bank, S of Brydekirk, NY19257030, EM Kungu; **H33:** tree bole in fen carr, 50 m alt., Crom, H32, 1998,

- RS Weyl; **H38**: small patch on bank next to footpath leading south from church, 15 m alt., Greyabbey Churchyard, J584681, 2012, RS Weyl.
- 119.2. *Plagiomnium affine*. 87**: shady stream bank, under conifers, 150 m alt., Torrie Forest, NN6204, 1971, BA Ottley & TW Ottley 71112801; **H1**: on rocks, on shore of L Leane, O’Sullivan’s Cascade, Tomies Wood, V91588848, RL Hodd (DBN); **H39**: hazel woodland, 50 m alt., Glenarm near UWT Reserve, D303112, 2005, RS Weyl.
- 119.4. *Plagiomnium elatum*. 46**: rare in flush, 100m north of Llwyn Llwyd, Banc y Mwldan, SN20144889, 2004, SDS Bosanquet; **H38**: calcareous fen, 25 m alt., Lough Keelan, J5645, 2012, RS Weyl.
- 119.7. *Plagiomnium rostratum*. H38**: on banks by river, 5 m alt., Crawfordsburn Country Park, J4681, 2012, RS Weyl.
- 127.1. *Daltonia splachnoides*. H18**: on *Salix* overhanging stream in forestry, Glendine, S221991, RL Hodd (DBN).
- 130.1.c. *Fontinalis antipyretica* var. *cymbifolia*. 25**: on wooded staging in intertidal zone, bank of Oulton Dyke, Oulton, TM501935, RJ Fisk.
- 132.2. *Palustriella falcata*. 39**: in moderately base-rich part of mire complex, 318 m alt., Reaps Moor, SK079610, TL Blockeel & R Tratt 42/658.
- 132.3. *Palustriella decipiens***. Delete **61**, voucher in E (Naburn SE54, leg. W. Bellerby, 1930) is *P. falcata*; delete **62**, voucher in E ([Crosscliff], Scarborough SE89, leg. G. Masee, 1881) is *Cratoneuron filicinum*.
- 134.2. *Campylium protensum*. 58**: open calcareous waste, Clifton Limebed, SJ5270476909, DA Callaghan; **H38**: flush in calcareous grassland, 25 m alt., Lough Keelan, J5645, 2012, RS Weyl.
- 135.1. *Campyliadelphus chrysophyllus*. 73**: fixed dunes, among short grass turf, 20 m alt., Brighthouse Bay, NX63644584, EM Kungu; **84**: soil among vegetation overlying limestone, 230 m alt., Petershill Nature Reserve, NS984695, DF Chamberlain; **H38**: lead mine spoil, 120 m alt., Helen’s Tower, J492763, 2012, RS Weyl.
- 135.2. *Campyliadelphus elodes*. H38**: on fallen tree in fen, 32 m alt., Derryleckagh Bog, J119251, 2012, RS Weyl.
- 137.1. *Hygroamblystegium fluviatile*. 18**: on concrete wall, just submerged, with *Fissidens fontanus*, *Fontinalis antipyretica* and *Leptodictyum riparium*, 8 m alt., Walthamstow Reservoir, TQ349891, 2008, T Pyner; **92**: on stones at edge of river, 140 m alt., R Don at Houghton Country Park, NJ5816, 2011, EM Kungu.
- 137.2. *Hygroamblystegium tenax*. 91**: on rocks in river, 100 m alt., Luther Water, woods south of Auchenblae, NO7277, 2011, EM Kungu; **H21**: boulder in ± calcareous river, ca 200m m alt., near Glencullen Bridge, Glencullen, O175203, JL Denyer (DBN).
- 139.1. *Conardia compacta*. 34**: rocks in wooded valley, 45 m alt., The Slaughter, Wye Valley, SO5543314345, P Martin.
- 140.1. *Drepanocladus polygamus*. 73**: damp ground draining to shore, 5 m alt., between Dunrod Point and Point of Green, near Brighthouse Bay, NX62664459, EM Kungu; **H38**: upper saltmarsh, 0 m alt., Crawfordsburn - Seapark, J446826, 2012, RS Weyl.
- 140.3. *Drepanocladus sendtneri*. 44**: fen in dune slack, Laugharne Burrows, SN301071, SDS Bosanquet, *conf.* MO Hill.
- 141.1. *Tomentypnum nitens*. 104**: in base-rich flush, near Druim an Aonaich, Raasay, NG5759541681, RL Hodd.
- 142.1. *Sanionia uncinata*. 25**: branch of willow



△Fig. 3: *Hamatocaulis vernicosus* at Reaps Moor, Staffordshire. T Blockeel

in fen carr, Aldringham, TM45545960, RJ Fisk; **34**: growing over dead wood in young birch woodland, Wigpool Common, near Mitcheldean, SO650194, RV Lansdown, K Meakin & K Marsh; **H18**: on *Salix* overhanging stream in forestry, Glendine, S221991, RL Hodd (DBN).

143.8. *Hygrohypnum duriusculum*. 88: on rocks in river, 15 m alt., travellers' site, R. Almond, near Almondbank, NO0822526038, 2012, N Broad & J Lindsay.

144.1. *Pseudocalliergon lycopodioides*. H38: base rich marsh, 1 m alt., North of Strand Lough, J539379, 1985, RS Weyl.

145.1. *Warnstorfia fluitans*. H38: cut-over bog, 18 m alt., Inishargy Bog, J614642, 2012, RS Weyl.

146.1. *Sarmentypnum exannulatum*. 28: damp hollows in grassy area, with *Sphagnum inundatum*, *Aulacomnium palustre* and *Straminergon stramineum*, Derby Fen, Pott Row, TF69942078, CR Stevenson; **39**: in moderately base-rich part of mire complex, 320 m alt., Reaps Moor, SK07936097, TL Blockeel & R Tratt 42/659; **H14**: in mesotrophic flush in upland bog, 255 m alt., Tinnahinch, Slieve Bloom mountains, N3573507365, C Douglas & N Lockhart.

147.1. *Straminergon stramineum*. H14: in mesotrophic flush in upland bog, 255 m

alt., Tinnahinch, Slieve Bloom mountains, N3573507365, C Douglas & N Lockhart.

148.1. *Hamatocaulis vernicosus*. 39: in moderately base-rich part of mire complex, 318 m alt., Reaps Moor, SK07946105, TL Blockeel & R Tratt 42/661 (Fig. 3); **H38**: flush, 330 m alt., opposite Slieve Croob car park, Ribadoo, J300453, 2012, RS Weyl.

149.1. *Scorpidium revolvens*. 39: in small base-rich mire in boggy field, 330 m alt., near Spouts Farm, Reaps Moor, SK07986065, TL Blockeel & AJ Hodgson 42/005.

149.2. *Scorpidium cossonii*. H38: calcareous fen, 25 m alt., Lough Keelan, J5645, 2012, RS Weyl.

149.3. *Scorpidium scorpioides*. 39: in channel in base-rich part of mire complex, 320 m alt., Reaps Moor, SK07906096, TL Blockeel & R Tratt 42/660 (Fig. 4); **H14**: calcareous seepage/pool, 90 m alt., Clonaslee Eskers & Derry Bog SAC, N2719412227, M Lyons.

150.1. *Calliergon cordifolium*. H38: fen, 30 m alt., Turmennan, J4850, 1984, RS Weyl.

151.1. *Leskea polycarpa*. H40: willow by river, Toome, H990912, RS Weyl.

157.2. *Thuidium delicatulum*. 35: on sandstone rock in stony spring, oak woodland, Parc Lodge Wood, SO2818, 2000, SDS Bosanquet; **H38**: flushes, 340 m alt., Slieve Croob, J3045, 2012, RS Weyl.



△Fig. 4: *Scorpidium scorpioides* at Reaps Moor, Staffordshire. T Blockeel

- 163.2. *Platyhypnidium lusitanicum*. 59:** on rocks below waterfall, Gorpley Clough, near Todmorden, SD9123, JM Turner; **63:** mostly submerged, on rocks in woodland stream with *Hygrohypnum ochraceum* and *Racomitrium aciculare*, 210 m alt., near Jerusalem Farm, Luddenden Dean, SE027287, JM Turner.
- 164.2. *Rhynchostegium confertum*. H18:** concrete in churchyard, St Michael's Church, Portarlinton, N53331242, 2012, GF Smith (DBN).
- 164.3. *Rhynchostegium megapolitanum*. 58:** foredune ridge of dune system, West Kirby dunes, SJ2074587527, DA Callaghan.
- 165.4. *Rhynchostegiella teneriffae*. 87:** on wet rocks at base of waterfall in wooded ravine, 170 m alt., Burn of Care, Dollar Glen, NS96189933, GP Rothero 2013152; **H38:** on rocky ledge below waterfall, 130 m alt., Craigantlet Woods, J422757, 2012, RS Weyl.
- 166.2. *Cirriphyllum crassinervium*. 31:** on ash by stream at edge of ancient woodland, 40 m alt., Raveley Wood, S of Little Raveley, TL252784, CD Preston; **104:** on rocks at edge of upland loch, 140 m alt., Loch Sneosdal, NG41326938, NG Hodgetts 8368; **H21:** on low tiles of barn, 20 m alt., north of castle, Lambay Island, O310509, M Eakin.
- 167.1. *Oxyrrhynchium pumilum*. 78:** base-rich crag by river, Cat Walk/Den Wood, West Linton, NT144521, EM Kungu & JE Smith; **H18:** soil under spruces, Garryhinch Forest, Portarlinton, N494109, 2012, GF Smith (DBN).
- 167.2. *Oxyrrhynchium bians*. H36:** river bank, 80 m alt., Lissan Demense, H797825, RS Weyl.
- 167.4. *Oxyrrhynchium speciosum*. H20:** *Phragmites* reedbed, The Murrrough, O3114108577, 2012, MP Long.
- 169.4. *Sciuro-hypnum populeum*. H37:** stones in woodland, 40 m alt., Clare Glen, J0144, 2012, RS Weyl.
- 170.5. *Brachythecium mildeanum*. 7:** on gravel at edge of track in wood, 155 m alt., Cobham Frith, SU255670, TW Otdley 13100905; **106:** on wooden walkway in marsh by river, 20 m alt., R. Conon, near Easter Moy, south of Strathpeffer, NH495544, TL Blockeel 42/451; **H18:** edge of gravel track, Derryounce, Portarlinton, N5414, 2012, GF Smith (DBN).
- 171.1. *Scleropodium cespitanus*. H38:** on grassy slope near edge of lake used as access to footbridge, 12 m alt., Mountstewart Estate, J552699, 2012, RS Weyl.
- 171.2. *Scleropodium touretii*. 44:** rare in thin turf over limestone, Dolwen Point, Pendine, SN233078, SDS Bosanquet.
- 173.2. *Brachytheciastrum trachypodium*. 96:**



△Fig. 5, left: Habitat of *Ptilium crista-castrensis* (large moss on trunk just below centre of picture), at Lumbutts, Todmorden. △Fig. 6, right: Closer view of *Ptilidium crista-castrensis* as an epiphyte at Lumbutts, Todmorden. J Turner

in bryophyte turf under wet overlap in crag, 1000 m alt., W of Great Slab, Coire an Lochain, North Coires, Cairngorm, NH981026, 2011, GP Rothero 2011169.

174.2. *Homalothecium lutescens*. 73: fixed dunes, among short grass turf, 20 m alt., Brighthouse Bay, NX63644584, EM Kungu; **H38:** sand dune with *Ditrichum gracile*, 2 m alt., Cloughy dunes, J6356, 2012, RS Weyl.

175.1. *Myrinia pulvinata*. 44: mixed with *Hypnum* on silty *Salix* by ox-bow, 6 m alt., Bishop's Pond, SN443207, SDS Bosanquet.

178.1. *Taxiphyllum wissgrillii*. 87: on soil in crevice of crag in wooded ravine, 165 m alt., Burn of Sorrow, Dollar Glen, NS96049933, GP Rothero 2013153.

179.1. *Pylaisia polyantha*. 14: on horizontal branch, on apple tree in garden, 60 m alt., Framfield, TQ498204, TW Ottley 13101201.

181.4. *Hypnum andoi*. H22: on mature oak tree, 145 m alt., Broomfield, Collon, N9757580639, M Eakin.

181.7. *Hypnum imponens*. 9: on wet heathland, 10 m alt., Slepe Heath, SY9485, 1975, BA Ottley & TW Ottley 75022301.

182.1. *Ptilium crista-castrensis*. 63: on horizontal *Salix* bole in wet woodland at edge of fishing lake, with *Sanionia uncinata*, Lumbutts Clough, near Todmorden, SD95242364, JM Turner (Fig. 5 & 6); **67:**

Sidwood, Kielder Forest, NY7720888518, A McLay.

183.1.b. *Ctenidium molluscum* var. *condensatum*. 44: slightly flushed rock by track, Rhydygroes, SN77044731, 2009, SDS Bosanquet; **65:** among rocks in gully, ca 470 m alt., east end of Green Hill Scar, Cronkley Scar, Upper Teesdale, NY8429, TL Blockeel 42/321.

183.1.c. *Ctenidium molluscum* var. *robustum*. 104: On ground in mountain coire, 500 m alt., Fionn Choire, lower part, NG45822648, SJ Bungard, *det.* NG Hodgetts.

184.1. *Hyocomium armoricum*. 13: tree roots in stream, abundant, 65 m alt., Sheepwash Gill, St. Leonard's Forest, TQ207299, TW Ottley 13103003.

186.1.b. *Heterocladium heteropterum* var. *flaccidum*. H37: ash woodland, 40 m alt., Clare Glen, J0144, 2012, RS Weyl; **H38:** on sheltered rocks in woodland, 65 m alt., Ravernet, J272603, 2012, RS Weyl; **H39:** hazel woodland, 50 m alt., Glenarm near UWT Reserve, D303112, 2005, RS Weyl.

186.2. *Heterocladium wulfsbergii*. 41: on rock in stream in small ravine, 256 m alt., Glencorrig, Nant yr Allor, SS88179931, S Pilkington; **47:** on a crag by stream, Rhaeadr Wen, near Glaslyn, SN816933, M Lawley; **59 in ():** on moist shaded sandstone rocks,

- Jumbles, near Bolton (“ad rupes arenaceas humidias et umbrosas in loco ‘The Jumbles’ dicto, prope Bolton”), SD71H, 1874, JB W[ood], *det.* L Hedenäs (BM: see Hedenäs & Isoviita, 2008); **102**: rock wall by upland burn, ca 100 m alt., Abhainn Ghleann Aoistail, Jura, NR609881, NG Hodgetts 8253; **105**: wet rocks by waterfall in north-facing wooded ravine, 100 m alt., Ben Damh, Allt Coire Roill, NG8853, NG Hodgetts 8378.
- 187.1. *Pterigynandrum filiforme*. 79**: on flat-topped boulder, lake shore, ca 250 m alt., NE end of St Mary’s Loch, NT26182376, DG Long & JE Smith 42323 (E).
- 190.1. *Loeskeobryum brevirostre*. H37**: oak/birch woodland, 20 m alt., Peatlands Park, H9061, 1995, RS Weyl.
- 195.1. *Platydictya jungermannioides*. 97**: Creeping through *Ctenidium molluscum* etc on calcareous sandstone crag in deep wooded ravine, 30 m alt., Glen Buck, lower Calder Burn, NH3403, NG Hodgetts 8340.
- 197.1. *Plagiothecium latebricola*. 58**: base of *Carex paniculata* stump in alder carr, south of Catton Hall, Frodsham, SJ5527376500, DA Callaghan.
- 197.4. *Plagiothecium laetum*. 13**: on *Castanea* stump, 90 m alt., Snapelands Copse, SU922242, TW Ottley 13042102; **14**: on a stump in old *Castanea* coppice, 55 m alt., New Place, Framfield, TQ505202, TW Ottley 13100501; **27**: on bark of roots by stream, 29 m alt., Marsham Great Wood, TG17542271, CR Stevenson; **87**: one patch on a tree base, 95 m alt., Kippenrait Glen, NS797996, 1971, BA Ottley & TW Ottley 71110601.
- 197.6. *Plagiothecium platyphyllum*. 94**: high-level flush, N side of Corriehabbie Hill, NJ27722939, 2010, SDS Bosanquet.
- 197.7. *Plagiothecium cavifolium*. 42**: overhang on Old Red Sandstone crag, 450 m alt., Craig Cerrig Gleisiad, SN967218, SDS Bosanquet.
- 197.8. *Plagiothecium succulentum*. H21**: river bank, 270 m alt., SW Walshes Lane, Glencullen, O17542030, JL Denyer (DBN).
- 197.9. *Plagiothecium nemorale*. H38**: oak-hazel woodland, 80 m alt., The Park, Dumaness, J3947, 2012, RS Weyl.
- 199.1. *Pseudotaxiphyllum elegans*. H18**: Sitka spruce plantation, Glendine Gap, Slieve Blooms, S2299, GF Smith (DBN).
- 200.2. *Herzogiella seligeri*. 41**: 30cm strip on conifer log, 115 m alt., forestry north-west of Bonvilston, ST048751, SDS Bosanquet; **43**: mixed with *Hypnum* on log, 160 m alt., Aberithon Turbary, SO015573, SDS Bosanquet.
- 204.2. *Sematophyllum substrumulosum*. 10**: pile of conifer logs, 110 m alt., “Fantasy Land”, Blackgang Chine theme park, SZ488765, SDS Bosanquet; **H38**: on at least 10 decorticated pine stumps, 55 m alt., Ballyherly Wood, J591526, RS Weyl.
- 207.1.a. *Leucodon sciuroides* var. *sciuroides*. H18**: ash tree, mixed woodland, amenity woodland, Ballylin, Ferbane, N125251, GF Smith (DBN).
- 208.1. *Antitrichia curtipendula*. 26**: branch of ash, on bank of feeder stream to mill, Clare, TL770451, RJ Fisk.
- 209.1. *Pterogonium gracile*. 68**: on vertical sandstone rock exposures, north bank of College Burn, Hethpool Linn, NT9018428479, Northumberland and Cumbria BBS Group; **H21**: on rocks north-west of Trinity Well, 60 m alt., Lambay Island, O314509, M Eakin.
- 210.2. *Neckera crispa*. 20**: on low horizontal hazel branch, 110 m alt., Ardeley, TL30582697, JD Shanklin; **H38**: cliffs in woodland, 80 m alt., The Park, Dumaness, J3947, 2012, RS Weyl.

- 210.3. *Neckera pumila*. 58:** semi-mature ash trunk in deciduous woodland, Sale Water Park, SJ8052992527, DA Callaghan.
- 212.2. *Thamnobryum maderense*. 42:** 2m strip in cave in limestone cliff where stream flows out, Coed Fedw-ddu, Cwm Clydach, SO21271238, SDS Bosanquet; **63:** damp recess in rocks above river, below Eaves Wood, near Hebden Bridge, SD9827, JM Turner.
- 214.1.b. *Isoetecium myosuroides* var. *brachythecioides*. 78:** on ledge, east-facing montane crags, 635 m alt., Stirk Craig, head of Games Hope Valley, Tweedsmuir Hills, NT14061467, DG Long 42845 (E); **H11:** on summit cairn, Brandon Hill, S6970240268, RL Hodd (DBN); **H38:** exposed steep coastal rocks, 2 m alt., Orlock Point, J5583, 2012, RS Weyl.

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