

Recorder for Hepatics, **Sam Bosanquet**, and Recorder for Mosses, **Tom Blockeel**, present their annual reports and new vice-county record lists.

The hepatic year – 2011

2011 was an impressive year for liverwort recording, both in terms of the sheer number of records and the quality of some of the finds. The drop from a high of 213 vouchers received in 2009, following the publication of the latest *Census Catalogue*, to 137 vouchers in 2010 was reversed, with a total of 192 specimens confirmed during the year (see table below). Five pairs of specimens were duplicates sent by different people, so the total number of amendments to the *Census Catalogue* was 187. 26 of the records were made in 2010 or earlier, but were reported in 2011.

The actual number of new county records was only 13 higher than in 2010, and it was updated records that accounted for the significant difference between the years. Most of these updated records came from Scotland and Ireland because of BBS meetings and *Atlas* recording that targeted vice-counties which have been neglected since the 1950s or earlier. The number of new records from England fell substantially,

and so did those from Scotland because the summer meeting's venues have a long history of recording. In contrast, the hauls from Wales and Ireland doubled compared with 2010, thanks to some surprising finds in south Wales, productive long weekends in Galway and Tipperary, and sterling efforts by the Dublin Bryophyte Group in Kildare and other eastern counties.

Specimens came from 67 of the 153 British and Irish vice-counties (44%), an increase on the 57 represented in 2010. The most productive counties were: H19 Co. Kildare (16 records); 109 Caithness (12); H10 North Tipperary (11); H17 North-east Galway (11); H15 South-east Galway (10); H7 South Tipperary (9); 86 Stirlingshire (7); 90 Angus (6); and 111 Orkney (5). 58 people contributed to the records either as collectors or referees, again an increase on 2010.

There were eight records of hornworts, most of them concerning *Anthoceros punctatus*. Of these, much the most interesting was the discovery of Orkney's first hornwort. There are no known

	2011				2010			
	England	Wales	Scotland	Ireland	England	Wales	Scotland	Ireland
New entries	24	12	29	59	41	6	39	36
Debrackets*	11	6	28	17	12	2	9	3
Bracketings†	–	–	–	–	–	–	–	–
Deletions	1	–	–	–	–	–	–	–
Totals	36	18	57	76	53	8	48	39

*Debrackets are existing vice-county entries for which a post-1960 record has been vouched. †Bracketings are existing entries for which the post-1960 records are unconfirmed or erroneous, but older record(s) are valid.



△ Recorders in action in Co. Kildare (from left to right: Margaret Norton using the *Field Guide*, George Smith, Jo Denyer, Rory Hoddd). *Aisling Walsh*

Shetland hornworts yet, but this record was not totally unexpected because both *A. punctatus* and *Phaeoceros laevis* have been found in the Western Isles.

There was again an imbalance in the proportion of thallose liverworts to leafy species, with 33% of specimens being thallose, when more than 80% of our liverwort taxa are leafy. *Conocephalum* and *Marchantia* were the main causes of this imbalance, benefitting as much from recent taxonomic revision as their large size. David Long's revision of *Moerckia* specimens led to records of *M. hibernica* s.s. from five further vice-counties and *M. flotoviana* from two more in addition to those in the *Census Catalogue*, although one vice-county had to be deleted for *M. flotoviana*. Both *Riccia huebeneriana* and *R. fluitans* might be introductions this year: the former on machinery working on a National Nature Reserve and the latter with Botanic Garden plants. No such doubts can be attached

to updated records of *R. crozalsii* from two north Wales counties, although it is possible that *Ricciocarpos* arrived at Lakenheath on machinery.

Epiphytic *Frullania tamarisci* was an excellent addition to the bryophyte flora of South Essex, and this species should probably be added to the list of increasing epiphytes (see below). Unfortunately, any changes in the distribution of epiphytic populations are masked by forms growing on rocks or in grassland, at least at the vice-county scale. Another epiphyte, *Drepanolejeunea hamatifolia*, was a long-awaited addition to the Carmarthenshire list. So many of the oceanic ravines in south Wales have been searched for bryophytes that it seems inconceivable that it originated locally, and spore vagrancy from western Ireland (where *Drepanolejeunea* is a locally common epiphyte and appears to be spreading eastwards) seems much more likely, a theory backed up by the presence of *Daltonia splachnoides* nearby.

There was an updated record of *Bazzania tricrenata* from Breconshire, at the southern edge of its British range. This was found during ecological

consultancy work that took the recorder to a previously unexplored area, and shows what keen and competent consultants can turn-up. *Lophocolea bispinosa* was found new to Wales on colliery tips that are popular with scramble bikers, and further spread of this non-native species seems inevitable. Much more welcome, and unexpected, was the discovery of a large colony of *L. fragrans* on flint stones in a wood in West Sussex. *Plagiochila spinulosa* was updated for West Somerset, close to the south-eastern edge of its British range, and *P. exigua* was collected new to Breconshire, marking a new south-eastern limit.

Cephalozia was surprisingly popular in 2011, and there were 12 new or updated records from the genus compared with just two in 2010. Orkney proved especially productive, with *C. leucantha*, *C. pleniceps* and *C. loitlesbergeri* being the main rewards for a bryologist invited to the islands by a keen group of locals. Six vouchers of *Cephaloziella* were also a good haul, and they included a third Irish vice-county for *C. elachista*, and a third Welsh vice-county for *C. nicholsonii*. The latter was confirmed using a chromosome count because it looked relatively similar to *C. massalongi*, as seems to be the case with the entire Welsh population of the rarer species.

Barbilophozia lycopodioides reaches its southern limit in Britain on high altitude limestone pavement in Mid-west Yorkshire, so it was heartening to know of its continued presence there, many years after the last record. Another liverwort at its southern limit, *Sphenobolopsis pearsonii*, was finally vouched for Breconshire more than 10 years after its discovery there. The diverse but unpopular genus *Scapania* managed just seven vouchers, which is only one better than the six submitted in 2010 and includes a 1972 specimen of *S. curta* from East Sussex that had somehow got lost in the bracketing purge. What *Scapania* lacked in quantity was made up for in quality,

as the vouchers included *S. gymnostomophila* from West Perth, *S. lingulata* from Antrim and *S. paludicola* from Angus!

East Mayo is now the third Irish vice-county that supports the very rare *Southbya tophacea*, which was discovered during PhD studies of the vegetation of tufa springs and marl. Some beautiful, blue *Calypogeia azurea* from South Kerry was the only member of its genus submitted, but rumours from the east (Poland) suggest there may be several new species lurking undiscovered in our flora and a sudden rush of *Calypogeia* specimens from keen oil body counters is anticipated in 2012. *Leiocolea heterocolpos* was an excellent find on the BBS summer meeting in Angus, whilst *Eremonotus myriocarpus* was the star liverwort during continued recording in Stirlingshire by the Edinburgh bryologists. The very rare *Solenostoma caespiticium* was found new to West Cornwall, at one of the few sites where Jean Paton seems never to have recorded, and at the other end of the country, *S. subellipticum* was collected from a gorge in West Ross.

Three epiphytes that have been spreading north-eastwards for some years appear to be approaching some kind of limit. Vouchers for *Metzgeria consanguinea* came from Kent (2009) and Huntingdonshire, as well as several Irish counties that appeared to be gaps in the distribution. It remains absent from most of East Anglia, Lincolnshire and from Scotland north-east of Eastness and East Perth, so there may be genuine climatic limitations at play. *Cololejeunea minutissima* specimens from West Suffolk, Huntingdonshire and Mid-west Yorkshire filled in gaps, but there was no advance to the north. *Colura calyptrifolia* crept northwards into North-west Yorkshire, and may also be reaching a new climatic limit. The introduced *Lophocolea semiteres* was found in four new vice-counties, all adjacent to pre-2011 centres of its population.

New records – hepatics

1.1. *Anthoceros punctatus*. **5:** many thalli in livestock-poached culm grassland, Ruttersleigh Common, near Blackwater, ST25831609, S Pilkington; **13:** with *Sphagnum* in afforested heathland, Graffham Common, SU932193, PH Jones, det. T Ottley; **91:** arable field by church, 35 m alt., Kirkton of Durris, NO772964, CL Rickerby & DF Chamberlain, conf. SDS Bosanquet; **99:** wet earth bank by farm track, 65 m alt., Aldownick Glen, north-west of, NS269849, NG Hodgetts 7953; **111:** wet bare earth, 30 m alt., Bigswell, Stennes, HY32701069, J Crossley, conf. NG Hodgetts.

1.2. *Anthoceros agrestis*. **26:** wheat stubble field, Stoke-by-Nayland, TL985353, RJ Fisk.

2.1. *Phaeoceros laevis*. **2:** shaded pathside bank, cemetery east of Morval Church, north of East Looe, SX260567, 2008, JA Paton 8284; **14:** on sandstone blocks above stream, 130 m alt., Wakehurst Place (RBGK) Ardingly, TQ33993128, 2005, HW Matcham & M-C Sheahan, conf. TH Blackstock.

2.1. *Blasia pusilla*. **39:** in patches at edges of damp clay path in mixed woodland, near Froghall, SK024479, MF Godfrey.

4.1. *Lunularia cruciata*. **109:** gravel behind ruined cottage, Castletown, ND198682, M Lawley.

5.1.a. *Marchantia polymorpha* subsp. *polymorpha*. **107:** low bank of small stream, 190 m alt., Ben Griam Mòr, lower south-west slopes, Fèith Gur, NC79583748, EM Kungu; **109:** low bank of river, 125 m alt., River Thurso, north bank, upstream of Loch More, ND05774326, EM Kungu.

5.1.b. *Marchantia polymorpha* subsp. *ruderalis*. **86:** slabs of church gateway, 100 m alt., Killearn, NS523861, DF Chamberlain; **90:** gravel path, Fern Churchyard, NO 484616, M Lawley; **109:** by driveway, 35 m alt., Halkirk, ND135595, N Abah; **H10:** soil at base of wall, 140 m alt., Templeberry Cemetery, R9569, TL Blockeel 40/043; **H10:** gravel by graveyard, 130 m alt., Curragunneen, South-east Roscrea, S14568180, 2010, JL Denyer & DF Chamberlain JLD-B-10-82; **H15:** bare soil between graves, 70 m alt., Kilchreest Church, M56311434, CD Preston, JL Denyer, F O'Neill & GF Smith; **H19:** 115 m alt., Kildare Town Centre, N72901235, JL Denyer & DF Chamberlain.

9.1. *Conocephalum conicum*. **47:** on rock by small stream, Dolforwyn Wood, near Abermule, SO155959, C Savage; **90:** beside stream, Graig of Balloch, NO271613, M Lawley; **91:** riverside bank, 30 m alt., south bank of Bervie Water, Arbuthnot, NO803742, EM Kungu & DF Chamberlain E00532011; **97:** on stones by stream in woodland garden, 20 m alt., Larachmore, Arisaig, NM67328656, DG Long 41365; **101:** side of stream, 120 m alt., Allt na Cruaichlinn, NR646135, J O'Reilly; **108:** shaded bank in open ravine, 90 m alt., above Skelpick Burn, NC74735361, O Moore, R Chance, S O'Leary & CD Preston; **109:** bank of stream, Geise, west of Thurso, ND101649, M Lawley; **H9:** limestone rock face down which water drips, 20 m alt., Inishmore, Aran Islands, L87090879, CD Preston, JL Denyer & A Pielach; **H10:** on soil by small stream, 100 m alt., Templemore Demesne, Templemore, S10617206, JL Denyer JLD-B-10-90; **H15:** streamside earth bank in hazel wood, 140 m alt., North of Gortnagleav, Slieve Aughty Mountains, M54471089, JL Denyer & CD Preston; **H28:** dripping vertical tufa, 45 m alt., Knocknarea Glen, G6333, NG Hodgetts 7847.

9.2. *Conocephalum salebrosum*. **90:** on shady river bank in wooded valley, 100 m alt., Melgam Water, above Bridge of Lundies, NO30225279, DG Long 40996; **90:** soil on river bank, River North Esk, NO602690, M Lawley; **91:** wet flush on bank of stream, 30 m alt., south bank of Bervie Water, Arbuthnot, NO80267419, EM Kungu & DF Chamberlain E00532006; **99:** shaded damp rocks by burn, 200 m alt., Aldownick Glen, NS28S, NG Hodgetts 7956; **108:** crevice in rocks by stream above waterfall, 110 m alt., Skelpick Burn, south-east of Achargary, NC747535, CD Preston; **109:** bank of stream, Geise, west of Thurso, ND101649, M Lawley; **109:** foot of cliffs, 170 m alt., Creag Bheag, ND06323077, CL Rickerby & CD Preston; **111:** in cleft on shaded bank of calcareous rocks, Hill of Dwarmo, Evie, HY393250, NG Hodgetts *et al.*; **H7:** limestone rocks by stream in woodland, River Suir, west of Clonmel, S15302130, SDS Bosanquet & CD Preston; **H10:** on wooded river bank, 75 m alt., Ollatrim River, Rathurles, R9180, TL Blockeel & M Eakin 40/014; **H19:** on earthy bank by river, 105 m alt., River Liffey, New Bridge, east of Kilcullen, N87080982, TL Blockeel, JL Denyer *et al.* 40/532.

10.3. *Riccia huebeneriana*. 41: one rosette on poached sandy peat in area of fen scraped for habitat restoration in 2009, 5 m alt., Oxwich NNR, SS50098716, SDS Bosanquet.

10.4. *Riccia fluitans*. 49: floating in small man-made pond, Treborth Botanic Garden, near Bangor, SH551711, TH Blackstock.

10.9. *Riccia glauca*. H17: little-used track in plantation, 70 m alt., Demesne north of Monivea Bog, M54253588, CD Preston.

10.11. *Riccia crozalsii*. 48: soil at edge of path, Barmouth, SH6115, T Otley 11101602, det. SDS Bosanquet; **49:** soil among coastal rocks with *Fossombronina husnotii*, above Ogof Nant, north end of Bardsey Island, SH1222, 1993, TH Blackstock & MM Yeo.

11.1. *Ricciolepis natans*. 26: abundant on ditch marking north boundary of reserve, 3 m alt., RSPB Lakenheath, TL712864, JD Shanklin, conf. DG Long.

14.1. *Pellia epiphylla*. H17: peat bank of ditch at edge of raised bog, 80 m alt., south-west of Lough Nahinch, M62933793, JL Denyer & CD Preston; **H19:** edge of open water on bog, 70 m alt., Lullbeg Wetlands, Lullybeg, N691254, JL Denyer JLD-B-11-002.

16.8. *Fossombronina incurva*. 41: scattered with *Archidium* in horse-grazed damp pasture, 50 m alt., Coed Cae Marsh, Pontyclun, ST018826, SDS Bosanquet.

17.1. *Moerckia hibernica*. 95: amongst *Drepanocladus revolvens* on wet peat on moor, Wester Glenernie, NJ04, 1974, R Richter, det. DG Long; **105:** north-facing acid cliffs, on dripping rock face with *Sphagnum denticulatum*, 433 m alt., cliffs north of Ruadh-stac Beag, BeinnEighe NNR, NG97236201, 2009, D Bell & DG Long 38457, det. DG Long; **105:** wet rock face, amongst other vegetation, 402 m alt., Coire na Poite, Beinn Bhan, Applecross, NG81414501, 2009, M Flagmeier, det. DG Long; **H1:** damp basic flush by stream, 480 m alt., valley on north slope of Mullaghanattin, above Eskabehy Lough, V7377, 1983, DG Long 11789, det. AJ Kinser; **H2:** steep north-facing rocky slope, on wet ledge with *Sphagnum denticulatum* and *Pilonotis fontana*, 437 m alt., Slieve Mish Mts, head of Gormagh Valley, Q78090823, 2009, DG Long 38516, det. DG Long; **H34:** in flush, Bulbin Mountain, Inishowen, C34, 1968, JW Fitzgerald, det. DG Long.

17.2. *Moerckia flotoviana*. Delete 17: in ditch on bagshot sand, near Valley Road, Frith Hill, SU85, 1980, JC Gardiner

& M Milnes-Smith, is not *Moerckia* det. DG Long; **41:** in dune slack, Merthyr Mawr, SS8676, 1987, AR Perry 4153, det. DG Long; **82:** dunes, Gullane, NT48, 1960, AC Crundwell, det. DG Long.

18.1. *Pallavicinia lyellii*. 42: at base of *Molinia* tussocks in disturbed mire, 200 m alt., Waen Rydd, SN878454, NG Hodgetts 4549; **H17:** base of *Molinia* clump at edge of large bog pool, 60 m alt., Monivea Bog SAC, M54253509, JL Denyer & CD Preston.

20.1. *Metzgeria violacea*. H17: spruce twig at edge of plantation, 40 m alt., south-east part of plantation, Toberroe, M45582646, CD Preston, JL Denyer & M Eakin.

20.2. *Metzgeria consanguinea*. 15: on ash, 75 m alt., Hurst Wood, Charing Heath, TQ935485, 2009, J Hendey; **31:** underside of sloping willow branch, Warboys Wood, TL 29898191, JG Duckett; **H10:** on spruce twig in plantation, 260 m alt., Glenough Upper, near Hollyford, R9554, TL Blockeel & F O'Neill 40/023; **H14:** on *Salix* branch, 340 m alt., Capard, Slieve Bloom Mountains, N36620638, 2010, DF Chamberlain & JL Denyer JLD-B-11-008; **H15:** spruce twig at edge of forestry ride, 80 m alt., east of Sonnagh New, M60431041, F O'Neill, conf. CD Preston; **H30:** on willow in birch-dominated woodland, 160 m alt., Corleck, Bailieboro, H663027, M Eakin; **H31:** on ash tree within birch-dominated woodland, 70 m alt., Omeath Park, Drummulagh, J128178, M Eakin.

22.1. *Riccardia multifida*. 86: among *Preissia quadrata* on damp rocks by waterfall, 350 m alt., Corrie of Balglass, lower waterfall, NS590849, EM Kungu.

22.2. *Riccardia chamedryfolia*. H17: fen ditch in demesne woodland, 60 m alt., Monivea Demesne, M54373574, JL Denyer, CD Preston & A Pielach.

23.1. *Porella platyphylla*. H10: calcareous boulder, 60 m alt., Wilsborough Esker pNHA, N Woodpark, R86618858, 2010, JL Denyer & DF Chamberlain JLD-B-10-87; **H15:** 37 m alt., Castletaylor, M45261524, JL Denyer, CD Preston & M Eakin.

24.1. *Radula complanata*. 58: on branch of young elder in broad-leaved woodland, 45 m alt., Bird's Wood, SJ57107859, DA Callaghan 1368.

25.1. *Frullania tamarisci*. 18: on well-lit *Salix cinerea* by path through secondary *Salix* woodland in old gravel workings, 15 m alt., Gunpowder Park, Waltham Abbey, TQ38029872, K Adams.

25.5. *Frullania dilatata*. **H17**: on beech by forestry track, 40 m alt., Toberroe, south-east part of plantation, M45622645, JL Denyer, CD Preston & M Eakin.

28.3. *Cololejeunea minutissima*. **26**: branch of *Salix* in disused pit, Thorington Street, TM011349, RJ Fisk; **31**: ash trunk in ancient woodland, Warboys Wood, TL3081, JD Shanklin; **64**: trunk of Bird Cherry, 160 m alt., Dobpark Wood, north of Otley, SE18965048, C Wall 28-3; **70**: bole of sycamore tree at edge of secondary woodland, 15 m alt., Ravenglass, SD087961, TL Blockeel 40/485; **H7**: *Salix* in conifer plantation, 250 m alt., Knockahunna north, S305339, SDS Bosanquet; **H17**: spruce twig at edge of plantation, 40 m alt., south-east part of plantation, Toberroe, M45582646, CD Preston, JL Denyer & M Eakin; **H19**: on dead branch in wood, 50 m alt., Leixlip Spa, N99533675, JL Denyer JLD-B-11-005.

29.1. *Colura calyptrifolia*. **65**: on twig of spruce in dense, humid part of conifer plantation, 375 m alt., Blea Moor north side, SD774837, TL Blockeel 40/179.

30.1. *Drepanolejeunea hamatifolia*. **44**: two patches on *Salix* twig overhanging *Sphagnum* ditch surrounded by spruce, 260 m alt., Allt Tyllwyd north, Brechfa Forest, SN48813055, SDS Bosanquet; **H7**: on *Salix* in area which was planted with conifers but has reverted to wet fen carr, 90 m alt., Marl Bog, R9544, CD Preston; **H10**: forming extensive patch on trunk of ash tree, 220 m alt., Nenagh Gorge, near Templeberry, R9067, TL Blockeel 40/035; **H17**: on *Salix cinerea* by roadside ditch, 60 m alt., road north of Monivea Bog, M543356, CD Preston, JL Denyer & M Eakin.

32.1. *Lejeunea cavifolia*. **H19**: on trunk of birch tree in conifer plantation, 60 m alt., Coolnafearagh, 1 km west of Monasterevin, N61341062, TL Blockeel, JL Denyer *et al.* 40/543.

32.2. *Lejeunea lamacerina*. **58**: roots and base of birch tree at reservoir edge, 245 m alt., Fernilee Reservoir, west bank, Goyt Valley, SK0177, TL Blockeel & AJ Hodgson 40/496.

32.3. *Lejeunea patens*. **H15**: on *Thuidium* on bank in hazelwood, 140 m alt., North of Gortnagleav, Slieve Aughty Mountains, M54531083, JL Denyer & CD Preston.

34.1. *Microlejeunea ulicina*. **25**: branch of oak tree, Purdis Heath, Ipswich, TM212429, RJ Fisk; **38**: bole of birch tree on edge of wood, Hay Wood, Baddesley Clinton, SP21537154, NJ Law.

35.1. *Ptilidium ciliare*. **109**: vegetated dune, north end of Loch More, Flow Country, ND080465, MO Hill.

40.2. *Bazzania tricrenata*. **42**: soil beneath rock in field, Claerwen, south of, SN893618, RV Lansdown.

41.1. *Kurzia pauciflora*. **H10**: on *Sphagnum* in cut-over bog, 85 m alt., Lough Nahinch, 8 km east of Borrisokane, R9993, TL Blockeel & M Eakin 40/010.

41.3. *Kurzia trichoclados*. **H15**: on peat on sides of deep, narrow crack in small remnant area of bog, 70 m alt., Gloves East, M56092869, JL Denyer & CD Preston.

42.1. *Lepidozia reptans*. **H19**: on tree stump, 105 m alt., Mooreabbey Demesne, N6309, TL Blockeel, JL Denyer *et al.* 40/518.

44.2. *Lophocolea bispinosa*. **41**: abundant patches on north-facing colliery spoil, Nant Gwyn Bach, Caerau, SS860940, SDS Bosanquet. New to Wales.

44.3. *Lophocolea heterophylla*. **H10**: on tree stump in woodland on river bank, 75 m alt., Ollatrim River, Rathurles, R9180, TL Blockeel & M Eakin 40/015; **H17**: soft rotting stump in small hazel wood, 30 m alt., south of Carhennlea, M44173457, JL Denyer & CD Preston; **H19**: on tree stump, 105 m alt., Mooreabbey Demesne, N6309, TL Blockeel, JL Denyer *et al.* 40/521.

44.4. *Lophocolea semiteres*. **3**: on peaty soil in hollow among *Calluna* and stunted *Molinia* on heath, 220 m alt., Little Haldon, SX923769, M Pool; **58**: decorticated rotting log, 55 m alt., Row's Wood, SJ59028387, DA Callaghan; **66**: on bare peat in shallow depression in burnt heather moorland, Wolsingham North Moor, NZ090419, D Shimwell; **87**: on margin of gravel track in wooded valley, 110 m alt., Pass of Leny north-west of Callander, NN59510902, DG Long 41348.

44.6. *Lophocolea fragrans*. **13**: closely appressed on embedded flints, 60 m alt., Lady Winkins Copse, Goodwood Estate, Halnaker Park, SU907100, HW Matcham; **H7**: rock on path below dam, Raheen south, S013245, SDS Bosanquet & CD Preston; **H15**: dead hazel branch on ground in small area of hazel woodland in middle of raised bog, 80 m alt., Raforde River Bog, M65102843, F O'Neill, det. CD Preston.

45.1. *Chiloscyphus polyanthos*. **H31**: on rock in stream (old road culvert), 185 m alt., Slievenaglogh, J135097, M Eakin.

45.2. *Chiloscyphus pallescens*. **H19**: in middle of sedge-rich fen, 80 m alt., Garvoge, N809289, M Eakin.

- 48.2. *Plagiochila porelloides*. **H19**: 110 m alt., New Bridge, east of Kilcullen, N87080982, RL Hodd, JL Denyer & TL Blockeel.
- 48.3. *Plagiochila asplenioides*. **H7**: bank by stream, 80 m alt., Gurtnapisha, north of, S293344, SDS Bosanquet; **H7**: loamy stream bank in hazel woodland at edge of conifer plantation, 170 m alt., north side of Slievenamuck, south-east of Rathkea, R855314, CD Preston & GF Smith; **H19**: earth bank, 110 m alt., Moore Abbey woodland, N63270901, JL Denyer, TL Blockeel *et al.*
- 48.4. *Plagiochila britannica*. **H7**: limestone rocks by stream in woodland, River Suir, west of Clonmel, S15302130, SDS Bosanquet & CD Preston; **H39**: basalt rock crevice at base of gully on north-facing cliff, 330 m alt., Knock Dhu, D33730687, NG Hodgetts 7972.
- 48.7. *Plagiochila spinulosa*. **5**: abundant on one rock face in deep ravine near small waterfall, Frog Combe, Quantock Hills, ST150386, A Branson.
- 48.8. *Plagiochila bifaria*. **H7**: bank by waterfall, Raheen south, S012246, SDS Bosanquet & CD Preston.
- 48.10. *Plagiochila exigua*. **42**: six patches on rock outcrop by path, with *Neckera crista* and *Tortella tortuosa*, above Pont Rhyd-y-cnau, Ystradfelte, SN91291179, GS Motley; **H7**: rocky cleft, 530 m alt., above Lough Borheen, Galtee Mountains, R8987024459, RL Hodd & K McNutt.
- 52.4.a. *Cephalozia macrostachya* var. *macrostachya*. **H19**: creeping amongst *Sphagnum* in large raised bog, 90 m alt., Mouds Bog, N80171874, NG Hodgetts, JL Denyer & R Hodd 8005.
- 52.4.b. *Cephalozia macrostachya* var. *spiniflora*. **109**: valley bog, 45 m alt., Bloody Moss, Dunnet Head, ND2072, EM Kungu.
- 52.5. *Cephalozia leucantha*. **80**: on rotten log in boggy *Betula/Salix* woodland, 248 m alt., Whitmuir Moss, near Selkirk, NT50352677, DG Long 40432; **111**: creeping amongst *Sphagnum* in blanket bog, 120 m alt., Burn of Lushan, HY3423, NG Hodgetts, R McCance, J Crossley & J Branscombe 7989.
- 52.6. *Cephalozia lunulifolia*. **34**: among grasses and other bryophytes on large conglomerate boulder in field, 210 m alt., Buck Stone Wood, SO539123, RV Lansdown *et al.*; **79**: on log under *Larix* in ravine among conifers, 370 m alt., Birnie Cleuch, Ettrick Valley, NT19320922, DG Long 40443.
- 52.7. *Cephalozia pleniceps*. **47**: amongst *Sphagnum* in mire, Mynydd Waun Fawr, near Llanerfyl, SJ022063, M Lawley; **108**: scattered shoots at base of *Sphagnum* hummock in flushed area of wet heath, 100 m alt., above Skelpick Burn, NC746536, O Moore, R Chance, S O'Leary & CD Preston; **111**: creeping amongst *Sphagnum subnitens* in flush in blanket bog, 120 m alt., Burn of Lushan, HY3423, NG Hodgetts, R McCance, J Crossley & J Branscombe 7990.
- 52.8. *Cephalozia loitlesbergeri*. **111**: creeping amongst *Sphagnum* in blanket bog, 120 m alt., Burn of Lushan, HY3423, NG Hodgetts, R McCance, J Crossley & J Branscombe 7988.
- 52.9. *Cephalozia connivens*. **79**: on rotten stump in ravine among conifers, 350 m alt., Birnie Cleuch, Ettrick Valley, NT19280927, DG Long 40437; **107**: locally frequent in *Sphagnum* hummocks, 150 m alt., patterned bog south of Garvault Hotel, NC780379, O Moore, E Kungu & M Pool.
- 53.1. *Cladopodiella fluitans*. **H19**: among *Sphagnum magellanicum* in bog hollow, 90 m alt., Ballynafagh Bog, N817281, M Eakin; **H19**: among *Sphagnum cuspidatum* in pools, 90 m alt., Mouds Bog, N80511906, RL Hodd, JL Denyer & NG Hodgetts; **H20**: submerged at edge of bog pool, 525 m alt., Liffey Head Bog, Wicklow Mountains National Park, N13971422, JL Denyer & P Perrin JLD-B-11-032; **H22**: among *Sphagnum cuspidatum* in pools, 80 m alt., Girley Bog, Chamberlainstown, N710700, M Eakin.
- 55.1. *Nowellia curvifolia*. **20**: abundant on oak stump in mixed woodland, 145 m alt., Hitch Wood, TL19362309, JD Shanklin; **27**: on large decorticated fallen tree in wet broadleaved woodland, 40 m alt., Bluestone Plantation, Cawston CP, TG13832613, R Carter, conf. M Ghullam.
- 56.1. *Odontoschisma sphagni*. **H10**: on *Sphagnum* in cut-over bog, 85 m alt., Lough Nahinch, 8 km east of Borrisokane, R9993, TL Blockeel & M Eakin 40/009; **H31**: amongst *Sphagnum* in cut-over bog, 40 m alt., Red Bog, H906036, M Eakin.
- 56.2. *Odontoschisma denudatum*. **28**: on very rotten fallen pine, damp with algae, Holkham Pines NNR, TF8747 4541, A Prendergast; **109**: with *Drosera rotundifolia* on

peaty soil, Backlass Moss, Crofts of South Dunn, ND1935 5377, CD Preston; **H15**: bare peat amongst *Trichophorum* and *Calluna* on raised bog, 80 m alt., Raford River Bog, M65132833, CD Preston, JL Denyer, F O'Neill & GF Smith; **H19**: on peat in large raised bog, 90 m alt., Mouds Bog, N80521907, NG Hodgetts, JL Denyer & R Hodd 8007.

58.2. *Cephaloziella elachista*. H19: on *Leucobryum glaucum* on cut-over part of raised bog, 70 m alt., Globeisland or Cloncarlin Bog, N6609, TL Blockeel, JL Denyer & RL Hodd 40/525.

58.3. *Cephaloziella rubella*. 43: floor of quarry, Aberedw Rocks, SO07634601, SDS Bosanquet; **64**: on hummock in damp grassy hollow on old mine workings, 340 m alt., east of Yarnbury, north-east of Grassington, SE01816571, DG Long 40562.

58.4. *Cephaloziella hampeana*. H15: soil on stream bank along forest track, 170 m alt., north of Gortnagleav, Slieve Aughty Mountains, M55071079, JL Denyer & CD Preston, det. SDS Bosanquet.

58.8. *Cephaloziella massalongi*. 49: old mine spoil of leat bank in mixed woodland, 60 m alt., Coed Aberglaslyn, SH59264612, DA Callaghan.

58.9. *Cephaloziella nicholsonii*. 49: old copper mine spoil on north-facing moorland slope, 60 m alt., Drws-y-coed, SH54485338, DA Callaghan.

60.3. *Barbilophozia floerkei*. H1: in flushed montane heath facing NNE, 748 m alt., Masatiompan, Brandon, Q46601461, 2009, R Hodd.

60.7. *Barbilophozia lycopodioides*. 64: in leached turf on soil covering buried limestone pavement, Cam High Road, SD851838, R Goodison.

62.1. *Tetralophozia setiformis*. 108: block scree, Beinn Stumanadh, NC642499, M Lawley.

63.1. *Sphenolobopsis pearsonii*. 42: mats on wet crag with *Hymenophyllum wilsonii*, Hepste Vally, SN928099, 1999, SDS Bosanquet & GS Motley, colony found by ME Newton.

65.1. *Tritomaria exsectiformis*. 109: in very small quantity on peat, Long Loch north side, Dunnet Hill, ND202762, CD Preston.

66.2. *Lophozia ventricosa*. H17: cut-over bog, 60 m alt., Monivea Bog SAC, M54893531, JL Denyer &

CD Preston; **H19**: wet peaty soil under spruce, 110 m alt., Narraghmore Bog, south of Calverstown, N8001, TL Blockeel, JL Denyer *et al.* 40/538.

66.6. *Lophozia excisa*. 77: rock outcrop in short pasture, 230 m alt., Podowrin Burn, Low Broomeside, Douglas Water, NS790284, 2009, K Watson, det. DF Chamberlain.

66.11. *Lophozia incisa*. H15: cut peat at edge of bog, 80 m alt., Raford River Bog, M65522863, CD Preston, JL Denyer, F O'Neill & GF Smith.

67.3. *Diplophyllum obtusifolium*. H10: quarry face, 290 m alt., Fiolmahonmore Quarry, R876560, SDS Bosanquet.

69.1. *Scapania compacta*. 86: boulder field, 200 m alt., Corrie of Balglass, lower part, NS59088597, DF Chamberlain & EM Kungu.

69.2. *Scapania gymnostomophila*. 87: rock ledges, Meall an Fhiodhain, NN515244, 1994, K Watson, conf. NG Hodgetts.

69.5. *Scapania scandica*. 109: peat bank, Maiden Pap, ND042299, CD Preston, MO Hill & CL Rickerby, det. O Moore & CD Preston; **H14**: gravel track, 340 m alt., Capard, Slieve Bloom Mountains, N36360616, 2010, DF Chamberlain & JL Denyer JLD-B-11-004.

69.6. *Scapania curta*. 14: sandy soil and soil in small bit of sandstone, edge of woodland path, 137 m alt., Old Mill House, Crowborough Warren, TQ485304, 1972, JA Paton, conf. AR Perry.

69.7. *Scapania lingulata*. H39: basalt pinnacle in gully on north-facing cliff, 350 m alt., Knock Dhu, D33860682, NG Hodgetts 7961.

69.14. *Scapania paludicola*. 90: in flushed *Juncus* mire in extensive moorland mire system, 120 m alt., near Loch Lemann, Rossie Moor, south-west of Montrose, NO6531 5407, DG Long 41053.

69.20. *Scapania aspera*. H7: thin turf by limestone rock outcrop, 140 m alt., West side of Church Hill, Laffansbridge, S19274663, JL Denyer & CD Preston.

70.1. *Mylia taylorii*. H19: sparsely on *Sphagnum magellanicum* on intact part of raised bog, 70 m alt., Globeisland or Cloncarlin Bog, N6609, TL Blockeel, JL Denyer & RL Hodd 40/526.

73.1. *Southbya tophacea*. H26: on marl heaps under *Schoenus* tussocks beside pond cut out from alkaline fen,

83 m alt., Island Lake, near Ballyhaunis, M48208226, N Lockhart & C Campbell 2011/10a.

74.3. *Calypogeia azurea*. H1: *Juncus squarrosus* heath on ridge, 830 m alt., Binn Caorach, Macgillycuddy's Reeks, V804855, R Hodd.

75.3. *Leiocolea bantriensis*. 112: with *Cratoneuron filicinum* and *Scorpidium cossonii* in fen, Mire by Burn of Urie, Fetlar, HU592932, 2007, AG Payne, det. SDS Bosanquet.

75.5. *Leiocolea collaris*. 99: on cliff in wooded ravine, 160 m alt., Tüllich Farm, Glen Douglas, NS3099, GP Rothero & CL Rickerby.

75.6. *Leiocolea heterocolpos*. 90: back of a rock overhang on a cliff, Corrie Doune, Glen Effock, NO43427638, DF Chamberlain E00452619.

75.7. *Leiocolea badensis*. 8: north-facing chalk bank by military track, Sidbury Hill, Salisbury Plain, SU2116 5098, S Pilkington; **H10:** on stony track below limestone slope, 55 m alt., near Scarragh Lough, 7 km west of Borrisokane, R8493, TL Blockeel 40/030; **H14:** edge of calcareous ditch near track, 270 m alt., Capard, Slieve Bloom Mountains, N36230679, 2010, DF Chamberlain & JL Denyer JLD-B- 11-006.

77.1. *Eremonotus myriocarpus*. 86: humid rock ledge, 400 m alt., Corrie of Balglass, upper part by second waterfall, NS559848, DF Chamberlain & EM Kungu E0045 2591, det. SDS Bosanquet.

78.1. *Jungermannia atrovirens*. H17: forest track, 40 m alt., Toberroe, south-east part of plantation, M4515 2666, JL Denyer, CD Preston & M Eakin, det. SDS Bosanquet.

78.5. *Jungermannia exsertifolia*. 86: rocks by stream, Below Corrie of Balglass, NS5885, DF Chamberlain & EM Kungu.

79.1. *Nardia compressa*. 39: submerged on gritstone rocks in stream, 420 m alt., Knotbury Common, 1 km east of Three Shires Head, SK01936868, TL Blockeel 40/386.

80.4. *Solenostoma caespiticium*. 1: on small bare patch of metal-rich spoil on bank dominated by tall *Calluna*, 5 m alt., Lower Carnon Valley, SW78743983, DA Callaghan 1402.

80.8. *Solenostoma subellipticum*. 105: rocks by river in deep gorge, 50 m alt., Corrieshalloch Gorge, NH1978, NG Hodgetts 7842.

84.1. *Anthelia julacea*. 78: on flushed rocks by small stream in north-facing corrie, 640 m alt., Polmood Craig, Broad Law, NT15262437, DG Long 41329.

85.2. *Gymnomitrium obtusum*. 86: large boulder in boulder field, 220 m alt., Corrie of Balglass, lower part, NS59098598, DF Chamberlain & EM Kungu.

85.4. *Gymnomitrium crenulatum*. 109: open dry scree of conglomerate rock, Maiden Pap, ND0429, CD Preston, MO Hill & CL Rickerby.

86.1.b. *Marsupella emarginata* var. *aquatica*. 3: sides of granite boulders in stream, 210 m alt., River Dart below Dartmeet, SX675721, M Pool; **86:** boulders by stream, Corries of Balglass, NS590849, EM Kungu; **90:** on wet rocks in small cascade in rocky mountain valley, 505 m alt., Water of Unich below falls of Damff, NO38347947, DG Long 41012.

86.1.c. *Marsupella emarginata* var. *pearsonii*. 48: on flushed rocks with *Campylopus atrovirens*, *Anthelia julacea*, *Andreaea alpina*, etc., 550 m alt., Gau Graig, Cadair Idris, SH744141, SDS Bosanquet.

86.3. *Marsupella sphaecelata*. 107: rocks on west edge of lochan on peaty plateau, Knockfin Heights SSSI, NC9034, 2006, SDS Bosanquet.

Contributors/collectors of records 2011

N. Abah, K.J. Adams, T.H. Blackstock, T.L. Blockeel, S.D.S. Bosanquet, J. Branscombe, A. Branson, D.A. Callaghan, C. Campbell, R. Carter, D.F. Chamberlain, R. Chance, J. Crossley, A.C. Crundwell, J.L. Denyer, J.G. Duckett, M. Eakin, R.J. Fisk, J. Hendey, M.O. Hill, R.L. Hodd, N.G. Hodgetts, A.J. Hodgson, P.H. Jones, E.M. Kungu, R.V. Lansdown, N.J. Law, M. Lawley, N. Lockhart, D.G. Long, H.W. Matcham, R. McCance, K. McNutt, O. Moore, G.S. Motley, S. O'Leary, F. O'Neill, J. O'Reilly, T. Ottley, J.A. Paton, A.G. Payne, P. Perrin, A.R. Perry, A. Pielach, S. Pilkington, M. Pool, A. Prendergast, C.D. Preston, R. Richter, C.L. Rickerby, C. Savage, J.D. Shanklin, M.-C. Sheahan, D. Shimwell, G.F. Smith, C. Wall, K. Watson, M.J.M. Yeo

Sam Bosanquet

Cnwc y Llwyn, Brechfa, Carmarthen SA32 7QR
(e s.bosanquet@ccw.gov.uk)