

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

The hepatic year – 2012

2012 was an exceptionally busy year for liverwort recording in Britain and Ireland, in part because it was the last year from which records would be accepted for the second bryophyte Atlas. As well as a slightly increased level of recording in England, especially Nottinghamshire and Sussex, some targeted Atlas work in north Wales, and continued hard work in Scotland, there was a very high level of activity in Ireland. This included Atlas recording by Irish and visiting bryologists in the previously poorly-known counties of Cavan, Offaly, Kildare, Wexford, Down, mid Cork, east Cork and Limerick, a BBS summer meeting covering Antrim, Londonderry, Mayo and Sligo, and visits to Louth and Wicklow after the BBS autumn meeting. New and updated records from Ireland numbered 104, whilst England, Wales and Scotland together only mustered 117 new and updated records. Even these figures hide Ireland's dominance slightly: new and updated records collected in 2012 numbered 93

from Ireland and 89 from England, Wales and Scotland, with older specimens bumping up the numbers, especially for Scotland.

Mark Hill's checking of Atlas data submissions revealed plenty of older records for which specimens were sent in retrospectively. Mobilisation of data from Edinburgh and from the Irish Red Data Book project resulted in the greatest number of additions and, especially, debracketings. At the same time, MO Hill highlighted the dubiousness of historic records of *Plagiochila porelloides* and *Riccardia multifida* in parts of lowland Britain, and most deletions result from purges of these records.

There are new or updated entries for 72 of the 112 British vice-counties and 26 of the 40 Irish vice-counties, excluding deletions and corrections. The most productive vice-counties were mostly Irish – Londonderry H40 (10 records), Wexford H12 (9), Sligo H28 & Louth H31 (8 each), Cavan H30 & Antrim H39 (7 each), and Kildare H19, East Mayo H26 &

	2011				2012			
	England	Wales	Scotland	Ireland	England	Wales	Scotland	Ireland
New entries	24	12	29	59	31	23	25	79
Debrackets*	11	6	28	17	18	5	15	25
Bracketings†	–	–	–	–	2	–	–	–
Deletions	1	–	–	–	12	1	1	–
Totals	36	18	57	76	63	29	41	104

*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.

Down H38 (6 each) – with Montgomeryshire 47 & Nottinghamshire 56 (6 each) being the best of British, followed by East Sussex 14, Carmarthenshire 44 & Dumfriesshire 72 (5 each). 45 bryologists sent in voucher specimens and a further ten were named as accompanying these recorders in the field or identifying samples.

Additions to the British and Irish list

One species of liverwort was newly described and has been added to the British bryophyte list as a result: *Herbertus norenius* D.G.Long, D.Bell & H.H.Blom is present in Shetland and Norway and was separated from the Scottish endemic *H. borealis* during DNA Fingerprinting studies (Bell *et al.*, 2012). In fact the Shetland plants had previously been identified as *H. hutchinsiae*, and that species was consequently deleted for v.-c. 112.

The hepatic year

One liverwort species was recorded new to Ireland in 2012: *Lophozia perssonii* was collected from base-rich soil in Co. Kildare by Nick Hodgetts during a visit organised by the BBS Dublin Group. This eastern Irish record echoes the eastern distribution of *L. perssonii* in England, and also reflects historic records of eastern calcicoles such as *Aloina rigida* and *Microbryum curvicollum* in eastern Ireland. The same visit also produced *Cephalozia macrostachya* var. *spiniflora* new to Kildare. An inland colony of *C. crassifolia* was probably the most intriguing discovery during a long weekend in south-west Ireland by a group of British and Irish bryologists – raising the prospect that this rarity might be spreading into *Rhododendron* thickets east of its classic range – although Ireland's second known

colony of *Scapania curta*, on a forestry track, was rarer in Irish terms. The summer meeting in Antrim and Londonderry produced the second Irish record of *Ptilidium pulcherrimum* on a conifer log, which seems likely to be a casual like the only previous record, one of two 2012 records of the only slightly commoner *P. ciliare*, and *Riccia beyrichiana* on a forestry track. The following week, in Mayo and Sligo, revealed *Moerckia hibernica* s.str. in a *Philonotis* flush, and *Bazzania tricrenata* and *Plagiochila bifaria* on boulders. Neil Lockhart found *Petalophyllum ralfsii* in West Cork, Maurice Eakin had some eastern *Cololejeunea minutissima* in Meath, and Rory Hodd collected *Leiocolea fitzgeraldiae* in Donegal, *Anastrepta orcadensis* in Cavan, *R. beyrichiana* on a Cavan forestry track, and long-lost *Trichocolea tomentella* in the oft-visited Glendalough, Co. Wicklow. A targeted search of an estuary bank in Wexford yielded *Cephaloziella turneri* after more than an hour.

The most noteworthy discovery in Scotland was Nick Hodgetts' *Radula holtii* in Westernness. This hyperoceanic liverwort is known from four vice-counties in westernmost Ireland, but had not previously been found in Britain. It highlights just how much remains to be discovered about our oceanic ravines. *Scapania nimbosea* was relocated on Jura by Gordon Rothero, who also discovered *Adelanthus lindenbergianus* there, which was not a new vice-county record but was only the second Scottish site following the Islay colony. Gordon collected *Moerckia flotoviana* new to Main Argyll, *Metzgeria leptoneura* in East Sutherland, and *Jungermannia borealis* in West Perth, whilst Mid Perth had *Scapania gymnostomophila* added by Sandy Payne. David Long and Gordon located *Cephalozia loitlesbergeri* in Berwickshire, Liz Kungu had *C. macrostachya* in Dumfriesshire, and David

Chamberlain added *Plagiochila britannica* to the latter county. Jo Wilbraham spotted the easily overlooked *Diplophyllum obtusifolium* during a holiday in Kintyre.

Wales had two liverwort species added to its compliment. It seemed only a matter of time before *Jamesoniella undulifolia* was discovered west of the border, as it is present in at least two places in Shropshire, and Mark Lawley duly discovered it during wide-ranging exploration of the Berwyn Mountains, which also revealed *Barbilophozia kunzeana* and *Douinia ovata* new to Montgomeryshire. Far more unexpected was *Lejeunea mandonii* on a limestone rockface in Monmouthshire, many miles from its other British populations in Cornwall and western Scotland. Both the quantity and quality of Welsh liverwort records increased since 2011, and over half of the 23 additions were Nationally Scarce or rarer. *B. kunzeana* was also identified new to Merionethshire, albeit four years after it was collected, *B. hatcheri* was relocated by Tom Ottley on Cadair Idris, and Graham Motley extended the range of the latter southwards by discovering it in the Brecon Beacons. Another southward range extension, at least in terms of extant sites, was *Marsupella sphacelata* in Carmarthenshire, where other additions were *Cololejeunea rosettiana*, *Porella cordaeana*, *Riccia beyrichiana* and *Scapania paludicola*. Tim Blackstock found both *Fossombronina fimbriata* and *F. maritima* on Anglesey, as well as *Lophocolea fragans*, whilst Des Callaghan collected *Riccardia incurvata* from Ceredigion several years after it was first discovered there.

Barbilophozia kunzeana was the best discovery during the Spring Meeting in Westmorland, and it seems astonishing that this very rare species should have three new sites identified during the year, the other two being in Wales. *Riccia subbifurca* was the most interesting of the four

other additions made during the Spring Meeting, which was generally more productive for mosses than for liverworts. Other exciting finds from the north of England included *Barbilophozia lycopodioides* in Co. Durham, *Calypogeia integristipula* in South Lancashire, Matthew Adamson's *Harpanthus scutatus* in North-west Yorkshire, and Jonathan Shanklin's amazingly north-eastern *Cololejeunea minutissima* in South Northumberland. Southern England responded with *Fossombronina caespitiformis* (*F. husnotii*) in Somerset and *Porella cordaeana* in North Wiltshire, both found by Sharon Pilkington, Mark Pool's *Lophocolea bispinosa* new to North Devon, Britain's south-easternmost *Lejeunea lamacerina* in East Sussex, discovered by Tom Ottley, and modern records of *Anastrophyllum minutum* in the New Forest, South Hampshire, and *Ricciocarpos natans* in Herefordshire.

The disparity between records of thallose and leafy liverworts mentioned in previous years continued in 2012 as *Conocephalum* and *Marchantia* segregates were mopped up in numerous vice-counties. There were 91 new or updated records of thallose liverworts and 130 new or updated specimens of leafy liverworts: 41% of the vouchers were therefore thallose, compared with 33% in 2011. That is despite the proportionately larger number of leafy taxa recorded during the year: 89 in comparison with 34 thallose taxa.

Most of the spreaders mentioned in recent reports continue to make progress, albeit more slowly than in past years. *Cololejeunea minutissima* reached South Northumberland and filled in two Irish gaps, whilst *Colura calyptrifolia* was collected new to four vice-counties, two in England and two in Ireland, all close to the eastern limits of its respective British and Irish ranges. *Frullania tamarisci* on stones at Orford Ness in Suffolk is surely indicative

of spread, like 2011's record from Essex, and a single patch of epiphytic *F. teneriffae* in a conifer plantation in Wexford also strongly suggests ongoing movement. David Chamberlain's Angus *Lophocolea semiteres* is a north-eastward extension, whereas records from either side of the Solway Firth almost bridge the gap between the Scottish and English populations. The only new vice-county records for *Metzgeria consanguinea* were from Ireland, and its expansion may well have reached a north-eastern limit, although there are still several gaps in eastern England that could be filled.

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. Records are from 2012 unless otherwise indicated.

- 1.1. *Anthoceros punctatus*. 80:** on damp soil on edge of stubble field, 108 m alt., Leader valley below Cowdenknowes, NT57603677, 2007, DG Long 37564 (E); **H28:** steep bank by forestry track, 100 m alt., John Healy Forest Park, G535006, EM Kungu (E); **H40:** sandy track in conifer plantation, Learmount Wood, C584022, N Lönnell.
- 2.1. *Phaeoceros laevis*. 4:** on heavy, shaded soil of path in woodland garden, 150 m alt., Knightshayes Court grounds, SS962150, M Pool; **13:** on damp, lightly shaded soil, 40 m alt., Midhurst Common allotments, SU876208, T Ottley; **46:** shaded bank by cliff path, 50 m alt., Craig-yr-Adar Nature Reserve, near New Quay, SN373592, JW Bates & JM Bates 4590; **49:** on damp soil in flower bed, Treborth Botanic Garden, near Bangor, SH551711, 2011, TH Blackstock; **52:** on stock trampled damp turf on edge of heathland, west side of Fedw Fawr, SH601818, 2011, TH Blackstock; **58:** sandstone rocks near pond, 50 m alt., Ness Botanic Garden, Neston, Wirral, SJ3075, 1996, DG Long & JA Paton 26705 (E).
- 2.2. *Phaeoceros carolinianus*. 72:** in damp ruts in marshy meadow, 105 m alt., Dalwhat Water, Moniaive, NX77749121, DG Long 24467 (E).
- 5.1.a. *Marchantia polymorpha* subsp. *polymorpha*. H26:** amongst mosses on wet marl lake shore, 80 m alt., north shore of Lough Nanoge, east of Kilkelly, M50369055, DG Long *et al.* 41924.
- 5.1.b. *Marchantia polymorpha* subsp. *ruderalis*. 14:** on bonfire site, 190 m alt., Old Lodge, Ashdown Forest, TQ467306, T Ottley; **24:** cracks in paving blocks on ha-ha, Claydon House, SP71892537, SV O'Leary; **51:** shaded ground in garden, 4 m alt., Sealand, SJ361676, JD Shanklin; **70:** on soil at edge of carpark, 5 m alt., Iggusund Paperboard works, Workington Mill, NY000308, M Pool; **70:** in crevices of pavement on urban street, 30 m alt., Carlisle, Coledale Meadow, NY38305604, DG Long; **73:** on gravel by boundary wall of church cemetery, 30 m alt., Irongray Church, NX914795, EM Kungu; **104:** in earthy crevices in brick paving, 5 m alt., Broadford, NG643235, NG Hodgetts 8143; **H8:** path by playground, Ballinagarry, R414362, SDS Bosanquet & JL Denyer; **H27:** roadside bank by house, Ballymulty, G0815, MO Hill; **H28:** on earth bank in green area of housing estate, Springvale, Tubercurry, G52761210, A Pielach (DBN); **H31:** car showroom forecourt, Dundalk, J052053, SDS Bosanquet; **H40:** shaded garden, King's Country Cottages,

Macosquin, C8129, RL Hodd (DBN).

5.1.c. *Marchantia polymorpha* subsp. *montivagans*. **72:** rocks by river, 100 m alt., Wamphrey Water, NY12759644, EM Kungu; **78:** on flushed slope by stream in moorland valley, 445 m alt., Juniper Burn, south of Peebles, NT24403530, DG Long 42188 (E).

6.1. *Preissia quadrata*. **45:** on stream edge in dune slack, 15 m alt., Brownslade Burrows, SR89809810, SDS Bosanquet; **H5:** on gravelly ground by forest road in conifer plantation, 320 m alt., Knockdov, Ballyhoura Mountains, R578170, TL Blockeel 41/036; **H7:** forestry track, Glounroe, R982120, SDS Bosanquet & CD Preston.

7.1. *Reboulia hemisphaerica*. **H35:** among base-rich rocks in pasture, north of Lough Sheskinmore, NW of Ardara, G6996, 1990, TL Blockeel 19/527.

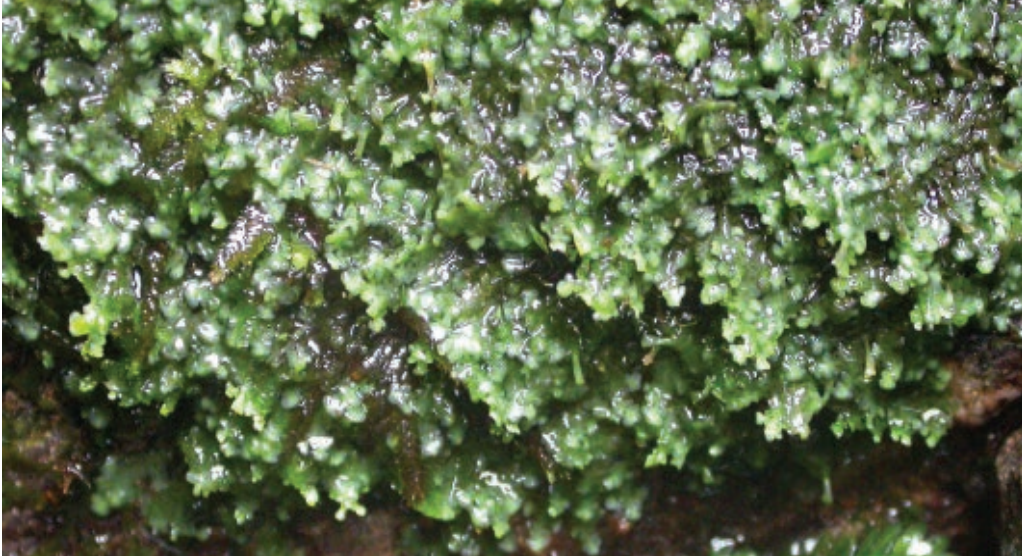
9.1. *Conocephalum conicum*. **1:** on bank of stream in marshy *Salix* woodland, 126 m alt., near Nancledra SW of St Ives, SW48963651, 2011, DG Long & D Bell 40387 (E); **2:** on rock overhang by river in wooded valley, 40 m alt., Valency Valley, Boscastle, SX1091, 2000, DG Long 29063 (E); **14:** on sandstone rock in stream, 25 m alt., The Old Laundry, Uckfield, TQ488199, T Orlley; **24:** shaded stream bank, Romer Wood, SP713232, SV O'Leary; **62:** shaded stream bank, 95 m alt., Ashberry Reserve, near Rievaulx, SE5684, TL Blockeel 41/282; **65:** on bank of rocky stream, Foxglove Covert, Catterick Garrison, SE162970, TL Blockeel 41/286; **73:** on damp rocks by stream in wooded glen, 170 m alt., Brooklands Glen, near Crocketford, NX80877309, DG Long & MO Hill 42297 (E); **74:** side of stream, near Physgill House, NW of Burrow Head, NX429361, SA McBride; **102:** on wet ledge on low cliff on rocky coast, 8 m alt., near Rubha Liath, Loch

Tarbert, Jura, NR53598165, DG Long 41875; **104:** on wet rocks and soil on vertical banks of burn in ravine just above stony beach, 5 m alt., Earlish, Allt Yelkie, Skye, NG381609, NG Hodgetts 8212; **105:** in shady recess of rock outcrop by stream in wooded ravine, 110 m alt., Allt a' Char, Dundonnell, NH11408784, 2008, DG Long 37793 (E); **H5:** on bank of small stream in wood, Ballygarrane, W of Castletownroche, R640031, MO Hill; **H12:** river bank overhung by ferns, 1 m alt., Tintern Abbey, north of, S79321003, CD Preston & SDS Bosanquet; **H31:** on silty stonework under bridge by woodland stream, 20 m alt., Cooley Peninsula, Riverstown old bridge, J16530663, DG Long 42227 (E); **H39:** banks of river, Kilroot, J4489, MO Hill; **H40:** river bank, Gallows Knowe, Curly River, C73392686, RL Hodd, SDS Bosanquet and EM Kungu (DBN).

9.2. *Conocephalum salebrosum*. **4:** on vertical rock exposure in ravine, 110 m alt., Glen Lyn Gorge, Lynmouth, SS72184912, S Pilkington; **47:** damp cliff, Craig Rhiwarth, Llangynog, SJ056266, M Lawley; **56:** stream bank, 80 m alt., Greasley, SK4946, JD Shanklin; **92:** small damp cave at foot of outcrop, Tullich Burn, Crannach, NO379993, 2011, AG Payne, conf. ME Newton; **96:** on rocks under overhang by stream in steep wooded ravine, 179 m alt., Divach Falls near Drumadrochit, NH49472727, DG Long 39423 (E); **H20:** on boulder under dripping rocks in boulder field below crags, 200 m alt., Vale of Glendalough, T08599604, DG Long 42213 (E); **H28:** on walls of limestone caves, Kesh Corran, G706122, RL Hodd & A Pielach (DBN); **H35:** in mixed calcareous and siliceous scree, Slieve League north corrie, G55247850, RL Hodd & A Korsten (DBN); **H38:** old bridge above river, 25 m alt., Crawfordsburn Country

Park, J463819, RS Weyl.

- 10.1. *Riccia cavernosa*. H4:** on mud alluvium, eastern part of The Gearagh, Ashton, E of Macroom, W3671, 1984, M Scannell, conf. DT Holyoak (DBN).
- 10.4. *Riccia fluitans*. H32:** drainage ditch at woodland edge/lake margin, 30 m alt., Capragh Lough, H867062, 2011, M Lyons & D Doogue (DBN).
- 10.7. *Riccia sorocarpa*. 38:** stubble field, 80 m alt., Newton Regis, SK27490816, NJ Law.
- 10.9. *Riccia glauca*. H27:** poached muddy field among woodland, N. of L. Furnace, L9697, RL Hodd, TL Blockeel, JL Denyer & C Breen (DBN); **H39:** forestry path, Rea's Wood, J14128499, JL Denyer JLD-B-12-01 (DBN).
- 10.10. *Riccia subbifurca*. 70:** in stubble field, 145 m alt., by Baron Wood, south of Armathwaite, NY51044344, TL Blockeel 41/270; **H39:** in bryophyte crust on open turf among gorse on NE-facing coastal hillside, 10 m alt., Glenarm, Whitebay, D33361455, NG Hodgetts 8034.
- 10.13. *Riccia beyrichiana*. 44:** rare on bare soil in upland limestone grassland, 340 m alt., Banc Wernwgan, Mynydd Du, SN685184, 2000, GS Motley, conf. TH Blackstock; **H30:** on muddy track edge, Killykeen Forest Park, H349065, RL Hodd, det. SDS Bosanquet (DBN); **H40:** damp edge of forestry track, Springwell Forest, C77212761, SDS Bosanquet, EM Kungu & R Hodd.
- 11.1. *Ricciocarpos natans*. 36:** along margin of pond, Berrington Hall Pool, near Leominster, SO510631, W Watson, conf. JD Sleath.
- 14.2. *Pellia neesiana*. 14:** on damp woodland ride, 140 m alt., Shagswell Wood, Sharpthorne, TQ366330, T Ottley; **H31:** on damp stony soil by pool on grassy flushed hillside, 220 m alt., Cooley Peninsula, north slope of Slievenagloagh, J13810937, DG Long 42224 (E).
- 14.3. *Pellia endiviifolia*. H31:** on earth bank of stream, 15 m alt., west end of Beaulieu Woods, O118766, M Eakin (DBN).
- 15.1. *Petalophyllum ralfsii*. H3:** on calcareous, compact sand on trackway and in dune slack, 4 m alt., Barley Cove, V76902583, N Lockhart 2012/10a.
- 16.3. *Fossombronina caespitifformis*. 6:** in trampled, leached ground in south-facing limestone grassland, Fry's Hill, near Axbridge, ST43535512, S Pilkington.
- 16.4. *Fossombronina pusilla*. 38:** stubble field, 80 m alt., Newton Regis, SK27490816, NJ Law.
- 16.5. *Fossombronina maritima*. 52:** in bryophyte turf on thin peaty soil on flat coastal rock surface, Porth Diana, Trearddur Bay, SH253783, TH Blackstock.
- 16.6. *Fossombronina wondraczekii*. H28:** on bare peaty soil by recently excavated ditch at edge of field, 175 m alt., by minor road on north side of The Gap, southern Ox Mountains, G374168, TL Blockeel 41/347.
- 16.9. *Fossombronina fimbriata*. 52:** a few thalli on horse trampled damp mineral soil in lowland heath on the coast, Fedw Fawr, N of Llangoed, SH602816, TH Blackstock.
- 17.1. *Moerckia hibernica*. H27:** at margin of *Philonotis* flush in grassy montane valley, 452 m alt., head of valley on west side of Birreencorragh, Nephin Beg Range, G02000494, DG Long *et al.* 41960.
- 17.2. *Moerckia flotoviana*. 98:** on ledge of wet calcareous crag in ravine, 270 m alt., Stuckgoay Burn, Glen Shira, NN13461654, GP Rothero 2012010.
- 20.1. *Metzgeria violacea*. 16:** on Ash, Primrose Bank, Cudham, TQ437605, 2009, J Hendey; **50:** on old *Salix* trunk among quarry spoil heaps, 240 m alt., Minera Lead Mines, New



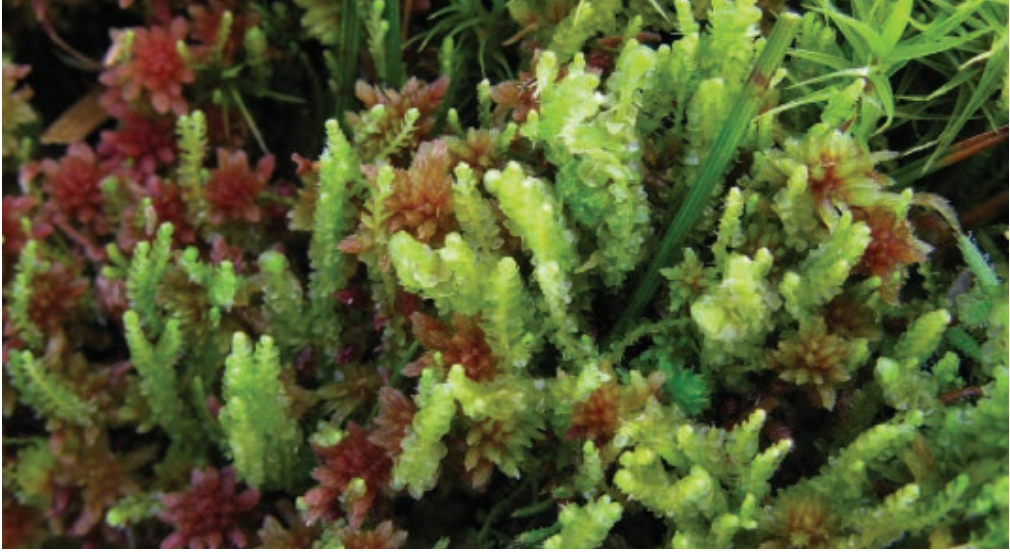
△*Radula holtii* south of Ben Laga. N. Hodgetts

- Brighton, SJ27515080, 2008, DG Long 37720 (E).
- 20.2. *Metzgeria consanguinea*. H26:** on gorse twigs in bog, Srah Upper, G548028, SV O’Leary; **H28:** on conifer trunk in plantation, 150 m alt., Dunneil River, ca 6 km north of Easky Lough, G445292, TL Blockeel 41/316; **H40:** *Salix* among conifers, Springwell Forest, C7727, SDS Bosanquet.
- 20.5. *Metzgeria leptoneura*. 107:** damp crevice on +/- base-rich gneiss crag, 750 m alt., Coire a’Mhadaidh, Conival, NC302207, GP Rothero.
- 22.1. *Riccardia multifida*. 18:** delete the entry, no reliable Essex record traced, comm. Ken Adams; **19:** delete the entry, no reliable Essex record traced, comm. Ken Adams; **20:** delete the entry, no reliable record traced, comm. Chris Tipper; **23:** delete the entry, record from chalk grassland published 1966 is unreliable; **24:** delete the entry, no reliable record traced, comm. Sean O’Leary; **38:** delete the entry, Laflin’s pre-1970 records are unreliable, comm. Mark Hill; **54:** delete the entry, no reliable record traced, comm. Mark Hill; **55:** delete the entry, no reliable record traced, comm. Mark Hill; **H19:** Ummeras Beg, N6314, 2011, JL Denyer & TL Blockeel JLD_B_2154 (DBN).
- 22.3. *Riccardia incurvata*. 41:** calcareous ridge in dune slack, Kenfig NNR north, SS78838309, SDS Bosanquet; **46:** dune slack, Ynyslas, SN60989394, DA Callaghan 1416; **H40:** roadside bank, Bonds Glen, road south of, C502069, N Lönnell.
- 22.4. *Riccardia palmata*. H12:** decaying conifer log, 150 m alt., Forth Mountain Forest, S9618, SDS Bosanquet; **H38:** rotting tree lying on edge of lake, 83 m alt., Clandeboye Estate, west of Helen’s Tower, J484775, RS Weyl; **H5:** on rotting conifer log, 110 m alt., north side of Knockdub, Ballyhoura Mountains, R582183, TL Blockeel 41/037.
- 22.5. *Riccardia latifrons*. 72:** on *Sphagnum*, partially drained lowland raised bog, 60 m alt., Hellshole Moss, N of Templand, NY085876, EM Kungu; **H26:** on wet peat in open mire, 40 m alt., Cloondoolough NW of Kiltimagh, M32669095, DG Long *et al.* 41939 (E); **H31:** on peaty side of ditch in cut-over acid mire, 30 m alt., near Glack, west of Ardee, N91319221, DG Long 42235 (E).
- 23.1. *Porella platyphylla*. H5:** limestone outcrop in woodland, Funshion valley, Ballynahane, R726081, SDS Bosanquet & G Smith.
- 23.2. *Porella cordaeana*. 7:** lower trunk and exposed roots of *Fraxinus* tree by sluggish woodland stream, 90 m alt., Webbs Wood, near Royal Wootton Bassett, SU04508550, S Pilkington; **44:** west-facing rockface above river, 10 m alt., Afon Teifi south bank, Cenarth Bridge, SN268415, SDS Bosanquet.

- 23.3. *Porella arboris-vitae*. H9:** limestone boulder under *Corylus* below cliff, 180 m alt., The Burren, S side of Glen of Clab, M2902, 1994, DG Long 25441 (E).
- 24.4. *Radulaholtii*. 97:** on wet rocks by burn in deep shade in small wooded ravine, 30 m alt., south of Ben Laga, NM646606, NG Hodgetts 8172, conf. JA Paton. New to Great Britain.
- 25.1. *Frullania tamarisci*. 25:** vegetated shingle ridge, Orfordness, TM408466, RJ Fisk.
- 25.2. *Frullania teneriffae*. H12:** *Sorbus aucuparia* among *Pinus* in hilltop plantation, Carrickbyrne Hill, S824245, SDS Bosanquet & CD Preston.
- 25.3.a. *Frullania microphylla* var. *microphylla*. H12:** coastal rocks, Baginbun Bay, S801032, SDS Bosanquet.
- 26.1. *Jubula hutchinsiae*. 34:** frequent on rocks in stream, Hudnalls, above the River Wye, SO532031, RV Lansdown.
- 27.1. *Aphanolejeunea microscopica*. H4:** on spruce twig in plantation, 370 m alt., Carrigeannon, Boggeragh Mountains, W393907, TL Blockeel 41/022.
- 28.2. *Cololejeunea rossettiana*. 44:** 300+ patches on limestone outcrop in woodland, 35 m alt., Dryslwyn Castle mound, south-east, SN554203, SDS Bosanquet; **H12:** under arch of bridge, 20 m alt., Sow Valley, T044273, SDS Bosanquet.
- 28.3. *Cololejeunea minutissima*. 67:** sycamore near north edge of wood, 40 m alt., Morpeth, NZ18398558, JD Shanklin; **H22:** on willow tree, 100 m alt., Littlewood Forest, Littlewood, N970758, M Eakin (DBN); **H5:** on poplar in plantation near small stream, Ballygarrane, W of Castletownroche, R640031, MO Hill.
- 29.1. *Colura calyptrifolia*. 5:** old gorse bushes on open heath, 360 m alt., Withypool, between Picketstones Farm & Landacre, Exmoor, SS818370, JG Duckett; **63:** on birch and sallow in sheltered wet woodland with flushes and seepages, 240 m alt., Broadhead Clough, Cragg Vale, near Mytholmroyd, SD993249, TL Blockeel & J Turner 41/433; **H38:** *Salix* overhanging stream, 190 m alt., Ghann River, J189230, SDS Bosanquet; **H40:** willow & gorse trunks, Carrick Wood, C660172, N Lönnell & MO Hill.
- 31.1. *Harpalejeunea molleri*. H15:** quarry 4 or 5 km SE of Ballinasloe, M87452591, M Long & F O'Neill, det. RL Hodd (DBN).
- 32.2. *Lejeunea lamacerina*. 14:** on tree roots by stream, 65 m alt., Dallington Forest, TQ653204, T Otleby; **77:** on sandstone cliff by river in wooded valley, 150 m alt., S bank of Mouse Water, Jerviswood, Lanark, NS88764584, 2001, DG Long 30121 (E).
- 32.7. *Lejeunea mandonii*. 35:** limestone face below Yew tree, 30 m alt., north end of Whippington Brook, Lady Park Wood, SO552143, SDS Bosanquet, conf. JA Paton. New to Wales.
- 34.1. *Microlejeunea ulicina*. H19:** on willow in ride of conifer plantation, 80 m alt., Coolree, N7737, NG Hogetts & JL Denyer 8187.
- 35.1. *Ptilidium ciliare*. 41:** on tussocky flushed slope in grazed heath, 85 m alt., Llantrisant Common south of Pontypridd, ST04848422, 2011, DG Long, D Bell & SDS Bosanquet 40397 (E); **H20:** Hollywood, St Kevin's Bed, N94000519, 2007, NG Hodgetts 7185 (DBN); **H29:** on rock at top of cliff, Benveg, The Playbank, H03332438, RL Hodd (DBN); **H39:** heathy knoll near reservoir, Dungonnell, D192173, RS Weyl.
- 35.2. *Ptilidium pulcherrimum*. H39:** conifer log in pile by forestry track, Essathohan Burn, D18952162, SDS Bosanquet.
- 36.1. *Blepharostoma trichophyllum*. 63:** place in (), most recent record dates from 1953 *fid.* TL Blockeel.

- 37.1. *Trichocolea tomentella*. 85:** base-rich flushed slope among sedges, 165 m alt., Clatto Reservoir, above, NO364075, 2009, DF Chamberlain (E); **86:** under *Corylus* on waterlogged floor of wooded valley, 70 m alt., Carron Glen, below Middle Barnego, NS78708328, 2008, DG Long 37609 (E); **H20:** in wet area at base of cliff, Glendalough, T08609602, RL Hodd & PM Perrin (DBN).
- 39.2. *Herbertus hutchinsiae*. 112:** delete the entry, all Shetland specimens of *Herbertus hutchinsiae* are *H. norenius* det. D. Bell & D. Long.
- 39.4. *Herbertus norenius*. 112:** in mossy turf, exposed slope with boulders and *Calluna*, 335 m alt., Black Butten, Ronas Hill, HU30368416, 2009, DG Long & D Bell 38632 (E, Bell *et al.*, 2011). New species described from Norway and Shetland.
- 40.1. *Bazzania trilobata*. 66:** edge of cliff face, 300 m alt., Overlooking Gibraltar Point, NY944491, 1990, J O'Reilly.
- 40.2. *Bazzania tricrenata*. H26:** base of small boulder sheltered by bracken in heathery ground, 220 m alt., south side of The Gap, southern Ox Mountains, G375161, TL Blockeel 41/335.
- 41.1. *Kurzia pauciflora*. H30:** in wet blanket bog, Alteen, H15272828, RL Hodd, det. NG Hodgetts (DBN); **H31:** on peaty side of ditch in cut-over acid mire, 30 m alt., near Glack, west of Ardee, N91319221, DG Long 42234 (E); **H40:** cutover bog, Craigmole Road, C8121, SDS Bosanquet.
- 41.2. *Kurzia sylvatica*. 41:** side of *Molinia* hummock in M24, Welsh Moor, SS52229262, SDS Bosanquet.
- 41.3. *Kurzia trichoclados*. 47:** peat overhanging buttress of rock, Craig y Mwn, SJ076286, M Lawley; **H19:** peat bank, 100 m alt., Narraghmore Bog, N8001, 2011, JL Denyer & TL Blockeel JLD_B_3126 (DBN).
- 42.1. *Lepidozia reptans*. 56:** plentiful on and around sandstone outcrops on north-facing bank with oak and pines, 70 m alt., High Rocks, Clipstone, SK580643, TL Blockeel 41/411.
- 44.2. *Lophocolea bispinosa*. 4:** on acid gravelly ground at edge of carpark, 190 m alt., Cookworthy Moor, Devon Wildlife Trust depot, SS413013, M Pool.
- 44.3. *Lophocolea heterophylla*. H4:** on bole of Sitka spruce, Lyradane Mountain, W5586, AT Walsh; **H27:** rotten log in conifer wood, Belleek Castle woods, G255207, EM Kungu.
- 44.4. *Lophocolea semiteres*. 70:** under birch trees, Glessom Moss, NY23285977, M Lawley; **73:** at base of rotten tree stump in mixed woodland, Tottlehams Glen, east of B794, NX7769, EM Kungu *et al*; **90:** litter in open woodland, 50 m alt., Friockheim Wood, NO595495, DF Chamberlain.
- 44.6. *Lophocolea fragrans*. 52:** on decaying log by stream in wooded ravine, Beaumaris Dingle, SH597760, TH Blackstock.
- 48.2. *Plagiochila porelloides*. 19:** delete the entry, no specimen traced, comm. Ken Adams; **31:** delete the entry, no specimen traced, comm. Mick Burton; **32:** delete the entry, no specimen traced, comm. Rachel Carter; **53:** delete the entry, no specimen traced, comm. Mark Seaward.
- 48.4. *Plagiochila britannica*. 72:** silt-covered rocks by river, 50 m alt., Border Bridge over the Liddel Water, at Kilnholme, NY433775, DF Chamberlain.
- 48.6. *Plagiochila heterophylla*. H1:** on rock, Derreen Garden, Lauragh, V7659, 1998, W Labeij, conf. DT Holyoak (DBN).
- 48.7. *Plagiochila spinulosa*. H12:** block scree

- in clearing in hilltop plantation, Carrickbyrne Hill, S824245, SDS Bosanquet & CD Preston; **H29**: on steep, east-facing slope, Slieve Anierin, H02751630, RL Hodd (DBN).
- 48.8. *Plagiochila bifaria*. H26**: among *Hymenophyllum* on ledge of rock outcrop on steep north-facing slope, 260 m alt., south side of The Gap, southern Ox Mountains, G375160, TL Blockeel 41/338.
- 48.9. *Plagiochila punctata*. H28**: on peat under heather over rock outcrop, 250 m alt., rocky slopes on east side of Easky Lough, G4523, TL Blockeel 41/313; **H28**: boulder, 280 m alt., East Lough Aghree, Carrowcullen, G52392899, JL Denyer JLD-B-12-03 (DBN); **H31**: in shade of rocks in scree, Slievenaglogh, J138090, RL Hodd (DBN); **H36**: rock crevice in ravine, 280 m alt., Sperrin Hills, Sawelbeg, H643934, EM Kungu & DF Chamberlain (E).
- 50.2. *Jamesoniella undulifolia*. 47**: flushed mire, near Afon y Dolau Gwynion, Vyrnwy, SJ023219, M Lawley. New to Wales.
- 52.4.a. *Cephalozia macrostachya* var. *macrostachya*. 72**: among *Sphagnum*, partially drained lowland raised bog, 60 m alt., Hellshole Moss, N of Templand, NY085876, EM Kungu; **H3**: peat, 200 m alt., Sheep's Head Peninsula, Caher Mountain, vicinity of ruins of Kilcrohane, above Kileen's South, V7938, 1983, BO van Zanten 83.10.038, conf. DT Holyoak (DBN); **H34**: unshaded wet peaty humus and *Sphagnum* on bog, 20 m alt., SE of Gorey (NW of Gleneely), C52544636, 2002, DT Holyoak 02-819 (DBN).
- 52.4.b. *Cephalozia macrostachya* var. *spiniflora*. H19**: disturbed bog by esker, 60 m alt., Derries, N6600, NG Hogetts & JL Denyer 8189.
- 52.6. *Cephalozia lunulifolia*. H12**: bank under *Rhododendron*, 20 m alt., Sow Valley, T044273, SDS Bosanquet; **H31**: among *Dicranum* on hummock in cut-over acid mire, 30 m alt., near Glack, west of Ardee, N91319221, DG Long 42236 (E); **H35**: on twigs and debris on vertical rock face in oak woodland, Ballyarr Wood, ca 5km east of Kilmacrenan, C1820, 1990, TL Blockeel 19/514; **H35**: in blanket bog near coast, Malin More, G49278337, OH Daly & CS Muldoon, det. RL Hodd (DBN).
- 52.7. *Cephalozia pleniceps*. H16**: in wet peaty hollow in coastal heath, 6 m alt., Aughrus Point, L54375715, DG Long 42002 (E); **H38**: flushed *Sphagnum* mire, Craignamona south, J149233, SDS Bosanquet.
- 52.8. *Cephalozia loitlesbergeri*. 81**: amongst *Sphagnum magellanicum* in wet hollow on raised acid bog, 208 m alt., Dogden Moss, central part, NT68224990, DG Long & GP Rothero 42248 (E).
- 52.10. *Cephalozia crassifolia*. H7**: deep shade under *Rhododendron* by stream, Glounroe, R98381188, SDS Bosanquet & CD Preston.
- 53.1. *Cladopodiella fuitans*. 14**: in wettest part of bog, 140 m alt., Ashdown Forest, Broadstone, TQ435327, T Ottley 12091202.
- 54.1. *Hygrobiella laxifolia*. 47**: wet rockface by stream, 145 m alt., Afon Twymyn, Pennant, SN879974, 2011, SDS Bosanquet.
- 56.1. *Odontoschisma sphagni*. 57**: on peat in small bog among *Erica tetralix* and *Eriophorum*, 360 m alt., North-west of Ladybower Tor, Ashopton, SK198870, TL Blockeel 41/390.
- 58.6. *Cephaloziella divaricata*. 33**: entrance to rabbit hole in ant-hill in abandoned workings, 300 m alt., Cleeve Hill, SO992269, 2011, RV Lansdown, det. DA Callaghan.
- 58.11. *Cephaloziella turneri*. H12**: crumbly estuary bank, 5 m alt., Ferrycarrig, T01702329, SDS Bosanquet.



△*Barbilophozia kunzeana* Nant Y Twyn, v.-c. 35, March 2011. D.G. Long

- 60.2. *Barbilophozia kunzeana*. 47:** flushed mire, near Afon y Dolau Gwynion, Vyrnwy, SJ024218, M Lawley, det. SDS Bosanquet; **48:** in wet hollow amongst *Calluna* in valley mire, 280 m alt., Cors y Sarnau, NE of Bala, SH97053870, 2008, DG Long 37758 (E); **69:** scattered shoots in *Sphagnum* hummocks in stream valley with rich flushes, 391 m alt., Annas Sike below Jeanie Brewster's Well, Helton Fell, NY47932042, D Bell, GP Rothero & DG Long 1037 (E).
- 60.5. *Barbilophozia attenuata*. 56:** sparse on sandstone outcrops on north-facing bank with oak and pines, 65 m alt., High Rocks, Clipstone, SK581643, TL Blockeel 41/409; **H30:** on rock under heather, 201 m alt., Bruse Hill, Bruse, N32089835, M Eakin (DBN).
- 60.6. *Barbilophozia hatcheri*. 42:** on top of Old Red Sandstone boulder high up on slope, 575 m alt., Craig Cerrig Gleisiad NNR, SN95992221, GS Motley; **48:** on rock ledge on basic cliffs, 470 m alt., Llyn Gafr, Cadair Idris, SH711139, T Ottley, det. H Wallis.
- 60.7. *Barbilophozia lycopodioides*. 66:** on rocky short-grazed outcrop in limestone grassland, 660 m alt., Coldberry Edge, NY830359, 1998, DE McCutcheon.
- 61.1. *Anastrepta orcadensis*. H30:** in rocky, north-facing heath, Moneenterriff, The Playbank, H02622620, RL Hodd (DBN).
- 64.1. *Anastrophyllum minutum*. 11:** on vertical face of a slump at the head of a mire, Picket Bottom, New Forest, SU19300655, A Bolton.
- 65.1. *Tritomaria exsectiformis*. 78:** on shaded sandstone steps, 190 m alt., Dawyck Arboretum near Stobo, NT168351, 1993, DG Long 23255 (E).
- 66.5. *Lophozia sudetica*. H38:** boulder side, Leckan More west, J184218, SDS Bosanquet.
- 66.6. *Lophozia excisa*. 56:** on small exposure of sandstone on steep heather-covered bank, 100 m alt., Rainworth Heath, SK591594, TL Blockeel 41/445; **H12:** edge of forestry track, Tinnacarrick, S80012277, SDS Bosanquet & CD Preston.
- 66.7. *Lophozia perssonii*. H19:** on calcareous soil of root plate at edge of wooded strip, 120 m alt., Hartwell Upper, N94362121, NG Hogetts, JL Denyer, M Lyons & M Eakin 8185. New to Ireland.
- 66.13. *Lophozia bicrenata*. H40:** thin soil on rocky bank, Windy Castle, below carpark, H822882, SDS Bosanquet.
- 67.1. *Diplophyllum albicans*. 56:** on sandstone outcrop on north-facing bank with oak and pines, 65 m alt., High Rocks, Clipstone, SK580643, TL Blockeel 41/410.
- 67.3. *Diplophyllum obtusifolium*. 67:** detritus on acid boulder, 400 m alt., White Crag, Kielderhead, NY734996, DE McCutcheon; **101:** side of ditch on open moorland adjacent to conifer plantation, 190 m alt.,

NE of Corradale, just N of Cnoc nan Gabhar, NR802403, J Wilbraham (BM).

- 68.1. *Douinia ovata*. 47:** on boulder in moorland, above Lluest-wen, Vyrnwy, SH957204, M Lawley.
- 69.1. *Scapania compacta*. 59:** on damp soil in mossy grassland, 45 m alt., Clock Face Country Park, SJ53979183, DA Callaghan 1425; **111:** on tussock in base-rich damp grassland, 10 m alt., South Liddel, ND4683, NG Hodgetts 8045.
- 69.2. *Scapania gymnostomophila*. 88:** growing in cushion of *Grimmia torquata* on calcareous schist rock at base of crags, 900 m alt., Cam Chreag, Meall nan Tarmachan, NN580381, AG Payne.
- 69.5. *Scapania scandica*. 34:** sandy soil on the edge of the long trail, Nagshead RSPB, SO602091, RV Lansdown. Colony discovered by GS Motley; **H30:** earth bank alongside track under coniferous woodland, 290 m alt., Bracklin, Loughanleagh, N723968, M Eakin (DBN).
- 69.6. *Scapania curta*. H4:** on gravelly ground by forest road in conifer plantation, 320 m alt., Carrigeannon, Boggeragh Mountains, W394907, TL Blockeel, CD Preston & JL Denyer 41/023 (BBSUK, DBN).
- 69.11. *Scapania nemorea*. 78:** on base of stone urn in arboretum, 200 m alt., Dawyck Arboretum near Stobo, NT169350, 1997, DG Long 27353 (E).
- 69.11. *Scapania nemorea*. H19:** Harristown Common, N8813, 2011, JL Denyer JLD_B_3353, det. SDS Bosanquet (DBN).
- 69.14. *Scapania paludicola*. 44:** flushed mire, Cwm Nant y Bai, SN78664493, SDS Bosanquet.
- 69.18. *Scapania paludosa*. 48:** delete the entry, specimen is *Scapania paludicola* not *S. paludosa*, det. SDS Bosanquet.
- 69.23. *Scapania nimbose*. 102:** in heath over quartzite scree on N-facing slope, 490 m alt., Corra Beinn, Jura, NR52627570, GP Rothero 2012011.
- 70.2. *Mylia anomala*. H38:** flushed *Sphagnum* mire, Craignamona south, J149233, SDS Bosanquet.
- 74.2. *Calypogeia muelleriana*. 56:** on peaty soil on the ground in plantation of young deciduous trees, 115 m alt., south of Strawberry Hill, Rainworth, SK581599, TL Blockeel 41/447.
- 74.5. *Calypogeia integristipula*. 59:** in damp sandstone crevice of disused quarry wall, Pex Hill, SJ50038871, DA Callaghan.
- 74.6. *Calypogeia sphagnicola*. H26:** in *Sphagnum* hummock in open mire, 100 m alt., bog north of Lough Nanoge, east of Kilkelly, M50529089, DG Long *et al.* 41921 (E); **H30:** creeping through *Sphagnum austinii* in very wet bog, Alteen, H15642760, RL Hodd (DBN); **H39:** on *Sphagnum cuspidatum* in bog pool, 115 m alt., Carrivcashel, D064289, SDS Bosanquet; **H40:** on *Sphagnum* in peat cutting, 40 m alt., Dumlamp Bog, H92339626, SDS Bosanquet.
- 74.8. *Calypogeia arguta*. 92:** side of ditch by track, Crannach, Deeside, NO393987, AG Payne.
- 75.3. *Leiocolea bantriensis*. H30:** in rich flush in stream valley, Dunmakeever, H10242704, RL Hodd (DBN).
- 75.4. *Leiocolea fitzgeraldiae*. H35:** on calcareous rocky ledge, Slieve League north corrie, G55267840, RL Hodd & A Korsten, det. NG Hodgetts (DBN).
- 75.7. *Leiocolea badensis*. H39:** floor of disused quarry, Craigmore, J054913, MO Hill; **H8:** on gravelly ground by forest road, 300 m alt.,

- NE slopes of Seefin Mountain, R6518, TL Blockeel 41/014.
- 78.2. *Jungermannia pumila*. 110:** on shady rock face, 120 m alt., St Kilda, Hirta, Abhainn Mhor gully above Village Bay, NF096995, 1991, DG Long 19729 (E).
- 78.4. *Jungermannia borealis*. 87:** on ledge of wet, base-rich crag, 430 m alt., Stob a'Choin, N-facing slopes, NN41851671, GP Rothero 2012016.
- 80.6. *Solenostoma parvicum*. 63:** place in (), most recent record dates from 1951 *fid.* TL Blockeel.
- 80.7. *Solenostoma obovatum*. 110:** wet rock by burn, 350 m alt., Cleieabhal, Glac Smearasmal, NB0808, NG Hodgetts 8088; **H36:** rocks by stream, 280 m alt., Sperrin Hills, Sawelbeg, H643934, EM Kungu & DF Chamberlain.
- 82.2. *Harpanthus scutatus*. 65:** boulder in woodland, 230 m alt., North Wood, Leighton Reservoir, SE1478, M Adamson.
- 86.1.b. *Marsupella emarginata* var. *aquatica*. 63:** on wet grit rocks in small stream draining from blanket peat, 560 m alt., Black Hill, SE075048, TL Blockeel 41/418; **67:** rocks in stream, White Cliff & Blackhope Burn, NY736991, J O'Reilly, DE McCutcheon & A McLay; **92:** in stony flush on rocky floor of coire, 950 m alt., above Dubh Lochain, Coire an Dubh-Lochain, Beinn a' Bhuid, NO09329921, 2010, DG Long & GP Rothero 39565 (E); **96:** on stones in small side-stream in steep-sided wooded valley slope, 200 m alt., Coille an Leth-uillt, above Tomich, NH26362374, 2008, DG Long & M Flagmeier 37805 (E); **H28:** on rock in upper part of R. Moy, Laughil, Ox Mountains, G49232313, RL Hodd (DBN).
- 86.1.c. *Marsupella emarginata* var. *pearsonii*. 88:** on slabs at edge of stony flush, 770 m

alt., Coire Odhar, Lawers Range, NN6140, 1990, DG Long 18322 (E); **H20:** among *Campylopus atrovirens* on wet rock face on north-facing crags, Glendalough, west of Upper Lake, T0896, TL Blockeel 41/384.

86.3. *Marsupella sphacelata*. 44: locally abundant on shaley forestry track, 465 m alt., Carn Twrch, SN804458, SDS Bosanquet, det. GP Rothero.

86.4. *Marsupella funckii*. 80: boulder scree, 490 m alt., Maiden Paps, NT50050237, RWM Corner, conf. GP Rothero.

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