

# The moss year – 2011

In the world of bryophytes it is very unusual for Ireland to take the four-nations trophy for the highest number of vice-county records, but it happened in 2011. This is due in no small part to the efforts of Jo Denyer and the Dublin group, especially in Co. Kildare, which alone produced a remarkable 46 new and updated records. There were other targeted visits by Irish and British members to fill gaps for the *Atlas*, notably in Tipperary and Galway. England, on the other hand, was slightly disadvantaged because the spring meeting was in a well-recorded part of the Yorkshire Dales. There was increased activity in Wales, with a number of interesting finds by Sam Bosanquet. Records from Scotland were only slightly fewer than in 2010. The total number of new and amended records was 502 (411 in 2010).

## Additions to the British and Irish list

One species and one variety have been added formally to the British and Irish list in this year's report. *Leptodontium proliferum* Herzog is an exotic species that has become established on a bowling green in South Lancashire. *Syntrichia montana* var. *calva* (Durieu & Sagot ex Bruch

& Schimp.) J.J.Amann is a variety lacking a hairpoint that occurs sporadically elsewhere in Europe and has now been found in East Gloucestershire. Full details can be found in the published accounts by Porley & Edwards (2010) and Martin (2011).

## The moss year

There were two species new to Ireland. Sam Bosanquet found *Entosthodon pulchellus* on the walls of an abbey in Co. Tipperary. Its discovery in Ireland fits its British distribution, which is centred in southern England and Wales. Slightly more puzzling at the time was the discovery of *Dialytrichia mucronata* on tarmac near a car park by Lough Derg, also in Tipperary. Subsequently, however, Nick Hodgetts unearthed an earlier specimen from the banks of the Shannon at Limerick collected in 1994. So it seems that *D. mucronata* is a native species that has been overlooked in Ireland. Much of the recording in Ireland was in underworked areas and many of the new records were of widespread species. Even *Bryum argenteum* was a post-1960 update for South-east Galway! But there have been several big extensions of range. *Grimmia atrata*,

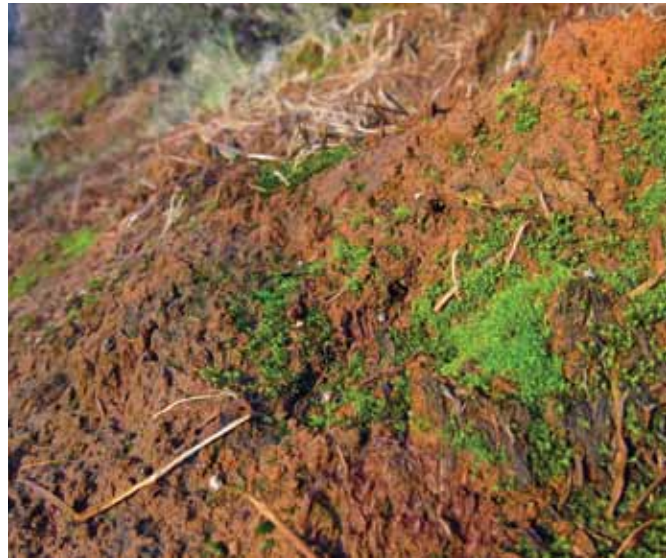
	2011				2010			
	England	Wales	Scotland	Ireland	England	Wales	Scotland	Ireland
New entries	91	41	77	132	102	9	92	93
Debrackets*	38	14	30	67	58	1	21	32
Bracketings†	–	3	–	–	–	–	–	–
Deletions	3	–	–	6	2	–	1	–
<b>Totals</b>	<b>132</b>	<b>58</b>	<b>107</b>	<b>205</b>	<b>162</b>	<b>10</b>	<b>114</b>	<b>125</b>

\*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.

with one previous site in Donegal, has now been confirmed for South Kerry, though from an old specimen collected in 1951. *Encalypta ciliata* is a very rare species in Ireland and Nick Hodgett's rediscovery of it in Antrim is only the second post-1960 record. The discovery of *Bryum donianum* in Co Kildare was also welcome in view of its few scattered Irish localities. *Schistidium elegantulum* is proving to be frequent in Ireland, apparently more so than in Britain, and a favoured habitat is on concrete wall cappings.

The summer meeting in Scotland produced 17 new records and updates for Caithness, but mainly commonplace species. More significant were the records of *Cynodontium tenellum* and *Grimmia incurva* in West Sutherland, both significantly further north than previously. The Edinburgh group have been beavering away elsewhere, and Stirlingshire did well with 13 records, of which the most noteworthy was probably *Campylostelium saxicola*. *Grimmia laevigata* is a rare species in Scotland and many of the records are old ones, so its rediscovery in Mid-Perthshire is very welcome. Other rare species found in new sites are *Dicranella grevilleana* in Banffshire, *Dicranum spurium* in Moray and *Splachnum vasculosum* in Westernness.

In Wales, Glamorgan had a good year, helped by excursions during the AGM weekend based in Cardiff, with nine new and updated records, including *Hamatocaulis vernicosus*. The star find, however, was Sam Bosanquet's *Daltonia splachnoides* (see below). Sam has also found *Grimmia tergestina* in Flintshire, comparable with its other Welsh site on Great Ormes Head, and in 2005 he and Ron Porley rediscovered *Arctoa fulvella* in Merioneth. *Glyphomitrium daviesii* is a hyperoceanic species discovered in South Wales some years ago, and it is exciting to know that it is still present in North Wales. Sam has found it near Betws-y-Coed in Caernarfonshire.



△ Habitat of *Pohlia flexuosa* on dredged metal-rich sludge in Cornwall (v.-c. 1). Des Callaghan

*Mnium thomsonii*, previously known in Wales only in Snowdonia, has now been found in Carmarthenshire, a big extension southwards, but not entirely surprising in view of its presence on fairly low ground in its southernmost English sites in the Peak District. *Fissidens fontanus* in Welshpool (Montgomeryshire) is a long way from its previous sites, but it spreads successfully along canal networks.

In England, the number of new records is not necessarily a good measure of the level of bryological activity, as many counties are already thoroughly recorded. Nevertheless, Huntingdonshire, Cheshire and South Lancashire did well, with eight or more records each. Even West Cornwall, possibly the best-recorded of all vice-counties, produced *Pohlia flexuosa* on metal-rich sludge. The Cornish plants had very few bulbils and may be the same as continental plants recorded from heavy-metal sites and at one time recognized as a separate variety. The distribution of *Tortula schimperi* (roughly

equating to the former *Tortula subulata* var. *angustata*) is beginning to take shape. Records have been confirmed from North Essex, East Suffolk, Cambridgeshire and Huntingdonshire, and it may prove to have a largely eastern and lowland distribution. It is worth checking all specimens of *Tortula subulata* from the lowlands: *T. schimperi* is readily separated by its well-developed bistratose leaf border. Several of the new records in England were well outside their existing range. Howard Wallis found *Pohlia camptotrachela* in Surrey, the first record for the south-east. Equally outstanding for the south-east was Tom Ottley's rediscovery of *Myrinia pulvinata* in West Sussex. This rare species was also found new to East Gloucestershire, closer to its core area in the Welsh borders. *Herzogiella seligeri*, on the other hand, is primarily a south-eastern species, but was extended further westwards by Mark Lawley in Herefordshire.

*Ephemerella readeri* is now known from a second station, in North Devon, where it was found in 2004, a long way from its Yorkshire



△ *Pylaisia polyantha* with its usual abundance of capsules, Bonsall, Derbyshire (v.-c. 57). Tom Blockeel

locality. If it is a recently introduced species, then it may have arrived in the country more than once. The distribution of *Grimmia dissimulata* continues to expand, with records from North Somerset, North Wiltshire and East Gloucester, but it is probably still very much under-recorded. Likewise *Tortula amplexa* continues to turn up in random places, the latest records being from North Essex and East Gloucestershire. Off-road vehicles may be one of the means by which it spreads. Sean O'Leary has added another Thames-side locality for *Dialytrichia saxicola*, further upstream in Buckinghamshire, confirming that it is likely to be widespread in the Thames basin. *Dicranum leioneuron* is a poorly understood species and many of its British records are doubtful, but the new population found on the English part of Fenns & Whixall Moss (Shropshire) is morphologically convincing. Another good *Dicranum* record was Richard Lansdown's find of *D. scottianum* in West Gloucestershire.

The spring meeting in the Yorkshire Dales produced two good finds. Mark Hill found *Ditrichum plumbicola* on the old lead mines near Grassington, Mid-west Yorkshire, a second site for the Yorkshire Pennines. *Grimmia hartmanii* is common enough in Scotland and Wales, but has few English records outside the Lake District. Michael Lüth's discovery of it on bouldery ground in Wensleydale (North-west Yorkshire) was an unexpected extension of range to the south-east.

Epiphytes have been a common theme in recent years, and some of the rare species continue to turn up unexpectedly. Richard Fisk found *Uloa coarctata* in East Suffolk, and Sam has detected both *Orthotrichum pumilum* and *O. pallens* in Monmouthshire, while *O. obtusifolium* has turned up in East Gloucestershire and Huntingdonshire. *Pylaisia polyantha* never quite disappeared from central England during the worst years of industrial pollution, as it found

an acceptable niche on dust-covered trees by limestone quarries. It is clearly now expanding outwards from these retreats, having been found just inside the Nottinghamshire border and in Northamptonshire. It also occurs widely in South Wales, most recently in Glamorganshire. Other epiphytes, though widespread in parts of Britain, are now appearing in places that would once have been improbable, such as *Syntrichia papillosa* and *Neckera pumila* in urban South Lancashire. There are some epiphytes whose expansion appears to have more to do with climatic factors and the humidity provided by conifer plantations, than with air quality. No oceanic mosses have spread as dramatically as *Colura calyptrifolia*, but the occurrence of *Daltonia splachnoides* in Glamorganshire, its

second county in South Wales, is of great interest. It occurs in small quantity at its Welsh sites, and spreads by means of gemmae as well as spores. *Sematophyllum substrumulosum* is in some ways comparable, though it is more often on rotten than living wood. It continues to spread slowly, and has now arrived in Monmouthshire.

The year was a particularly good one for *Sphagnum*, with 43 new and updated records. The known range of *S. skyense* continues to expand, both in Scotland (Islay) and Ireland (Galtee Mountains), and *S. pulchrum* in Westmorland was a notable find. *S. girgensohnii* in South Devon was the first recent record for south-west England, and North Wiltshire increased its complement of extant species from one to three!

## New records and amendments – mosses

Vouchers are deposited in the BBS herbarium (BBSUK) unless otherwise stated. Other herbarium abbreviations: CGE, Cambridge Botanic Garden; DBN, National Botanic Garden, Glasnevin, Dublin; E, Royal Botanic Garden, Edinburgh; NMW, National Museum of Wales, Cardiff.

1.1. *Sphagnum austinii*. **H17**: intact raised bog with *Sphagnum fuscum*, 60 m alt., Monivea Bog SAC, M5478 3520, JL Denyer JLD-B-11-045 & CD Preston.

1.2. *Sphagnum affine*. **95**: at edge of *Phragmites/Salix/Betula* fen, 230 m alt., south side of A938, south-west of Loch Mor, NH95952532, A Amphlett, conf. MO Hill.

1.4.b. *Sphagnum palustre* var. *centrale*. **48**: rare in flushed mires, Cors Goch Trawsfynydd, SH69553443, SDS Bosanquet, conf. MO Hill.

1.6. *Sphagnum squarrosum*. **H10**: Ditch at cut edge of raised bog, in conifer plantation, 100 m alt., Monaincha Bog, south-east Roscrea, S17568815, DF Chamberlain & JL Denyer JLD-B-10-83 (voucher in National Botanic Gardens, Glasnevin; DBN); **H21**: flushed hillside, ca

300 m alt., above east bank of River Dodder, O11801944, JL Denyer JLD-B-11-034 & Dublin Naturalists' Field Club.

1.7. *Sphagnum teres*. **H7**: basic flush on hillside, 410 m alt., north-facing slope below Lough Muskry, Galtee



△ *Sphagnum austinii* from Co. Galway (v.-c. H17).  
Jo Denyer





△ *Sphagnum teres* from Lough Muskry, Galtee Mountains, Co. Tipperary (v.-c. H7). Jo Denyer

Mountains, R92002517, JL Denyer JLD-B-11-043.

1.8. *Sphagnum fimbriatum*. **H30**: in *Sphagnum* cushions on birch woodland floor, ca 160 m alt., Corleck, Bailieboro, H662027, M Eakin.

1.9. *Sphagnum girgensohnii*. **3**: frequent in ravine in oak-birch woodland, above Dart valley, Combestone, Dartmoor, SX6753872183, S Pilkington.

1.11. *Sphagnum quinquefarium*. **H15**: bank in woodland, ca 180 m alt., north of Gortnagleav, north Slieve Aughty Mountains, M54531084, JL Denyer JLD-B-11-037 & CD Preston.

1.12. *Sphagnum warnstorfi*. **99**: small fen in hollow at base of slope, ca 150 m alt., north-west of Aldownick Glen, NS27038537, NG Hodgetts 7952; **H7**: basic flush on hillside, 410 m alt., north-facing slope below Lough Muskry, Galtee Mountains, R92022530, JL Denyer JLD-B-11-042, conf. MO Hill; **H10**: boggy field, 285 m alt., Muingatunna Bridge, 5.5 km south-west of Templederry, R9065, TL Blockeel 40/037, det. MO Hill.

1.13.a. *Sphagnum capillifolium* subsp. *capillifolium*. **68**: bog, west of Redheugh Crag, NU117071, J O'Reilly; **104**: blanket peat near top of hill, ca 360 m alt., Skriaig, NG44724095, NG Hodgetts 7932, conf. MO Hill; **106**: slope at edge of valley bog, 145 m alt., Achnasheen, south-east of the village, NH165585, EM Kungu, conf. MO Hill; **108**: dense hummock in wet heath, 120 m alt., above Skelpick Burn, NC747536, O Moore *et al.*, conf. MO Hill; **109**: peaty bank in bogland, 110 m alt., Flow

Country near Loch More, ND0946, MO Hill; **H2**: 27 m alt., Newfoundland Bog, Upper Lake, Killarney National Park, V9290783155, RL Hoddd, conf. MO Hill; **H7**: in dry heath, 440 m alt., slopes of Greenane, Galtee Mts., R9303222343, RL Hoddd & J Roche, conf. MO Hill; **H27**: bank at base of hill grading into bog, Bangor Erris, F8622, MO Hill; **H27**: heathery slope, 348 m alt., eastern corrie of Slievemore, Achill Island, F6600108603, RL Hoddd, conf. MO Hill.

1.15.a. *Sphagnum subnitens* var. *subnitens*. **7**: quite abundant in a small acid flush in cattle-grazed pasture, among *Juncus effusus* and other coarse vascular species, Cook's Meadow CWS, Lea, near Malmesbury, ST94998552, S Pilkington & L Moore.

1.15.b. *Sphagnum subnitens* var. *ferrugineum*. **H1**: upland blanket bog, 310 m alt., to north of Cnoc Mhaoillionain, near Anascaul, Dingle Peninsula, Q5693105972, JL Denyer JLD-B-11-044, conf. MO Hill; **H1**: bank beside track, 390 m alt., Breanlee, Macgillycuddy's Reeks, V7761085858, RL Hoddd, conf. MO Hill.

1.16. *Sphagnum skyense*. **102**: in *Calluna* heath with *Adelanthus lindbergianus*, 445 m alt., north-east side of Beinn Bheigier, NR43645605, GP Rothero 2011002, conf. MO Hill; **H7**: flushed grassland/heath on north-facing



△ *Sphagnum skyense* from Lough Curra, Galtee Mountains, Co. Tipperary (v.-c. H7). Jo Denyer

rocky slope, 580 m alt., Lough Curra, Galtee Mountains, R867238, JL Denyer JLD-B-11-036, conf. MO Hill; **H7**: humid, grassy slope, 540 m alt., corrie of L Muskry, Galtee Mts., R9238724372, RL Hoddd, conf. MO Hill; **H8**: edge of basic flush with *Pahustiella*, ca 500 m alt., north slopes of Carrignabinna, Galtee Mountains, R84442394, JL Denyer JLD-B-11-040, conf. MO Hill.

1.17. *Sphagnum molle*. **44**: one patch on wet heath, 280 m alt., north-east of bog dome, Pyllan Cochion, SN499267, SDS Bosanquet & K Birch; **H19**: intact raised bog, ca 100 m alt., south of Corkeragh, near Staplestown, N82833001, JL Denyer JLD-B-11-046 & DF Chamberlain, conf. MO Hill.

1.20. *Sphagnum subsecundum*. **H10**: boggy field, 285 m alt., Muingatunna Bridge, 5.5 km south-west of Templederry, R9065, TL Blockeel 40/038, conf. MO Hill.

1.21. *Sphagnum inundatum*. **7**: small quantity in disused pit in woodland, Savernake Forest, Marlborough, SU2315 6514, S Pilkington, conf. MO Hill; **H21**: flushed wet heath, 311 m alt., Two Rock Mountain, O173209, K Duff, conf. MO Hill (voucher deposited in DBN); **H31**: in shallow bog pools, ca 70 m alt., Drummulagh, J123178, M Eakin.

1.23. *Sphagnum contortum*. **41**: in disused quarry, Clydach Vale country park, SS9692, J Bingley, conf. MO Hill; **78**: in mildly basic flush, rocky north-facing corrie, ca 630 m alt., Polmood Craig, Broad Law, Tweedsmuir, NT15122452, DG Long 41326; **H7**: basic flush on hillside, 410 m alt., north-facing slope below Lough Muskry, Galtee Mountains, R92022530, JL Denyer JLD-B-11-041; **H21**: basic flush on hillside, 330 m alt., west of Glencullen, Two Rock Mountain, O17382105, JL Denyer JLD-B-11-049 & K Duff, conf. MO Hill; **H21**: seepage flush, Two Rock Mountain, O173210, K Duff (voucher deposited in DBN); **H31**: in fen meadow at base of slope, ca 70 m alt., Drummulagh, Omeath, J125176, M Eakin.

1.25. *Sphagnum tenellum*. **H10**: in cut-over bog, 75 m alt., Lough Nahinch, 8 km east of Borrisokane, R9993, TL Blockeel 40/007 & M Eakin.

1.26. *Sphagnum cuspidatum*. **H10**: in pool on raised bog, 70 m alt., Scohaboy Bog, near Borrisokane, R9691, TL Blockeel 40/013 & M Eakin.

1.29. *Sphagnum pulchrum*. **69**: in hollows with *S. magellanicum*, ca 5–10 m alt., White Moss, SD347795, W Nelson & DG Benham.

1.31. *Sphagnum flexuosum*. **16**: wet woodland flush on path edge, 135 m alt., Keston Common, TQ418641, DT Streeter; **67**: Burnt Tom crags and Dinmount Lairs, NY58W, 2010, J O'Reilly, conf. MO Hill; **100**: flushed ground among *Juncus* in wet pasture, ca 150 m alt., Monyquil, Garbh Allt, NR9335, NG Hodgetts 7940, conf. MO Hill; **H10**: boggy field, 285 m alt., Muingatunna Bridge, 5.5 km south-west of Templederry, R9065, TL Blockeel 40/039, det. MO Hill.

4.2. *Atrichum tenellum*. **63**: mixed with *A. crispum*, *Poblia bulbifera* and *Solenostoma gracillimum* on exposed margin of reservoir, 215 m alt., Dale Dike Reservoir, SK234907, TL Blockeel 40/512.

5.1. *Oligotrichum bercynicum*. **109**: disused gravel pit, west of Loch Mor, ND0688345028, EM Kungu.

6.2. *Pogonatum aloides*. **61**: sandy ditch bank by footpath, Houghton Moor, North Newbald, SE8837, C Wall; **H19**: on soil on upturned tree roots, ca 105 m alt., Mooreabbey Demesne, Monasterevin, N6309, TL Blockeel 40/514, JL Denyer *et al.*

7.1. *Polytrichastrum alpinum*. **40**: block sreece, Titterstone Clee Hill, SO598781, M Lawley.

7.2. *Polytrichastrum longisetum*. **65**: about boulders on clayey soil in weedy site with bracken, ca 440 m alt., south-east of Ringhill Scar, near West Burton, SE030852, O Moore & M Lawley; **H19**: heathland between wetland pools, ca 70 m alt., Lullbeg Wetlands, Bord na Mona site, Lullybeg, N691254, JL Denyer JLD-B-11-003 (voucher deposited in DBN).

7.3. *Polytrichastrum formosum*. **H19**: ca 100 m alt., New Bridge, North Cramersvalley, N870098, JL Denyer JLD-B-11-059, TL Blockeel *et al.* (voucher deposited in DBN).

8.1.b. *Polytrichum commune* var. *perigoniale*. **13**: abundant in gravel pit, Shellbridge Road, Slindon, SU973078, SDS Bosanquet; **27**: amongst *Sphagnum fallax* in sandy ride in forest, Horsford near Norwich, TG201187, RJ Fisk; **41**: forestry track, 245 m alt., Darren y Bannau south, SS867938, SDS Bosanquet; **48**: locally dominant in heavily grazed heathy grassland, Cors Goch Trawsfynydd north-west, SH70033438, SDS Bosanquet.

8.4. *Polytrichum strictum*. **H15**: on hummock of *Sphagnum papillosum*, 70 m alt., small remaining fragment of bog, much cut around edges, Gloves East, M55962863, JL Denyer & CD Preston.

12.1. *Diphyscium foliosum*. **H37**: on rock escarpment east of 'summit' car park, ca 400 m alt., Slieve Gullion, J018200, M Eakin.

14.1. *Encalypta streptocarpa*. **H18**: side of concrete canal wall, Rhode Bridge, Grand Canal, Rhode, N5349031640, 2010, GF Smith.

14.4. *Encalypta vulgaris*. **45 in 0**: the only confirmed record was made in 1958 (Bosanquet, 2010); **70**: on soil, abandoned limestone quarry, Croglin Fell, NY584482, M Lawley; **H7**: chink in low limestone rock outcrop in grassland, 140 m alt., west side of Church Hill, Laffans-bridge, S19234661, JL Denyer & CD Preston.

14.6. *Encalypta ciliata*. **H39**: basalt rock crevices in stream gully on north-east-facing cliff, with *Tortula subulata*, *Frullania fragilifolia*, etc., ca 200 m alt., Sallagh Braes, D34450486, NG Hodgetts 7980.

16.1. *Entosthodon muhlenbergii*. **65**: on soil on limestone rock ledge, 280 m alt., Park Scar, near Marsett, Raydale, SD911855, TL Blockeel 40/181.

16.2. *Entosthodon pulchellus*. **34**: stony slope, 'Gully', Durdham Downs, Bristol, ST563745, 1994, P Martin; **H7**: locally abundant on mortar, 90 m alt., Holycross Abbey, S09015511, SDS Bosanquet, new to Ireland.

16.5. *Entosthodon obtusus*. **86**: sheltered earthy bank, 195 m alt., below corrie of Balglass, above Overton Farm, NS593865, DF Chamberlain & EM Kungu (voucher deposited in E).

17.1. *Physcomitrium pyriforme*. **79**: on soil, disturbed ground by loch, ca 175 m alt., Haining Loch, Selkirk, NT47032800, DG Long 40610.

18A.1. *Ephemerella readeri*. **4**: on unshaded damp mud among sparse low grasses and *Juncus* in inundation zone beside stream and reservoir, ca 130 m alt., Roadford Reservoir, SX4393, 2004, DT Holyoak 04-461.

21.3. *Schistidium platyphyllum*. **42**: abundant on damp tarmac pad, by road by south end of Lower Neuadd Reservoir, SO031179, 2005, SDS Bosanquet; **92**: on rocks, by Callater Burn, Glen Callater, NO165855, 1966, HJB Birks (voucher deposited in E).

21.5. *Schistidium apocarpum*. **69**: rocks on bank at mouth of river, with *S. rivulare*, ca 100 m alt., Beckside farm lakeshore, Ullswater, NY42311999, 2004, NG Hodgetts 4543, det. SDS Bosanquet; **91**: on wall, 170 m alt., near quarry, Paldyfair, NO7281, DF Chamberlain; **91**: farm

buildings, 200 m alt., West Bradieston Farm, NO735683, EM Kungu & DF Chamberlain (voucher deposited in E); **109**: drystone wall, Geise, near Thurso, ND108648, M Lawley; **109**: on wooden support of bridge, 120 m alt., by Loch More, Flow Country, ND072462, MO Hill.

21.16. *Schistidium crassipilum*. **10**: on shaded tarmac, ca 25 m alt., Channel View Hotel, Shanklin, SZ586818, 2002, M Pool; **24**: on stone slab by church entrance, Bledlow church yard, SP778022, SV O'Leary; **30**: roof of farm building, Firstlodge farm, by Rowney Warren, TL1240, JJ Graham, conf. MO Hill; **109**: bridge over river, 35 m alt., Halkirk, ND1259, MO Hill; **H15**: bridge parapet, 18 m alt., south-east of Caherapheepa, M454184, CD Preston, JL Denyer & M Eakin; **H19**: on stone parapet of bridge over River Liffey, ca 100 m alt., east of Athgarvan, N8212, NG Hodgetts 8000, JL Denyer & RL Hodd.

21.17. *Schistidium elegantulum*. **48**: south side of dam wall, 195 m alt., Llyn Trawsfynydd south dam, SH70253486, SDS Bosanquet; **59**: on limestone boulder in open area of old quarry, Salthill Quarry, Clitheroe, SD7565242615, DA Callaghan; **H7**: calcareous wall, ca 120 m alt., south-west St Johnstown, S237412, JL Denyer JLD-B-10-84; **H10**: wall round church, Borrisoleigh Church, S02926670, DF Chamberlain & JL Denyer; **H15**: parapet of bridge, 15 m alt., Pollnacirca, M459224, CD Preston, JL Denyer & M Eakin; **H17**: wall top, 30 m alt., Lackagh Bridge, M4136, JL Denyer & CD Preston; **H19**: on concrete, 60 m alt., Clogheen Bridge, Monasterevin, N6209, TL Blockeel 40/523, JL Denyer & RL Hodd.

22.3. *Grimmia laevigata*. **88**: south-facing crags, Kirkton Hill, NO1040520514, DF Chamberlain.

22.4. *Grimmia tergestina*. **51**: 6 cushions on one limestone slab and one cushion on a limestone rock, Graig Fawr SSSI, SJ05928029, SDS Bosanquet.

22.8. *Grimmia donniana*. **42**: on siliceous boulder, Graig Fan Ddu, SO0119, 1999, SDS Bosanquet.

22.11. *Grimmia longirostris*. **44**: one loose tuft on Dolerite in quarry, Llangynog, SN336160, 2002, SDS Bosanquet, conf. RD Porley; **92**: on boulder, acid block scree, south-facing, ca 340 m alt., south slope of Creag a' Chlamhain, NO26779537, 2007, DG Long 37554 *et al.*, det. E Maier.

22.14. *Grimmia atrata*. **H1 in 0**: on boulder by lake, Caragh Lake, near Glenbeigh, V79, 1951, EC Wallace,

det. RD Porley (NMW.C96.14.3609), originally named *G. hartmannii*, rev. RD Porley.

**22.15. *Grimmia incurva*. 108:** crevice of rock, Beinn Stumanadh, NC642498, M Lawley, det. RD Porley.

**22.18. *Grimmia torquata*. H39:** vertical rock face on north-facing cliff, with *Isoetecium myosuroides* var. *brachybecioides*, *Racomitrium aciculare* and *Frullania tamarisci*, ca 350 m alt., Knock Dhu, D33890683, NG Hodgetts 7971.

**22.19. *Grimmia funalis*. 109:** dry rocks in shelter of overhang, 450 m alt., Maiden Pap, ND04802935, MO Hill.

**22.20. *Grimmia trichophylla*. 27:** on brick capping on churchyard wall, Billingford, TM168790, RJ Fisk.

**22.21. *Grimmia liseae*. 36 in (j):** flat top of very large sandstone rock near the Wye (but well above flood level), east side of Huntsham Hill, SO51, 1954, EW Jones & AE Wade, det. RD Porley (NMW C96.19.806), originally named *G. retracta*; **45:** on rock, Nine Wells, Solva, SM785243, 2001, SDS Bosanquet, conf. RD Porley (BBSUK); **46:** on coastal sandstone, Clyn-yr-yngys, Gwbart, SN1611 5076, 2004, SDS Bosanquet; **47:** on top of large boulder next small stream, 170 m alt., wooded valley, east side Breidden Hill, SJ3067414315, P Martin; **69:** top of boulders by lakeshore, ca 100 m alt., Beckside farm lakeshore, Ullswater, NY42051867, 2004, NG Hodgetts 4542.

**22.22. *Grimmia dissimulata*. 6:** on wall top surrounding Roman Baths, 25 m alt., Bath, ST7508264713, P Martin; **7:** old church wall – lime capping, St Peter's Church, Marlborough, SU18606880, S Pilkington; **34:** top of headstone, 120 m alt., Didmarton Church, ST8222787460, P Martin.

**22.24. *Grimmia hartmannii*. 65:** on a boulder at the foot of a rock fall, 470 m alt., Penhill Crag, SE0586, M Lüth 6825; **87:** on tops of boulders by burn in deep shaded ravine, ca 160 m alt., Stank Glen, Ben Ledi, NN578105, NG Hodgetts 7875.

**22.25. *Grimmia decipiens*. 35:** large, loose tuft on stonework, north end of Coed-dias Bridge, Grwyne Fawr, SO272243, 1999, SDS Bosanquet.

**23.4. *Racomitrium fasciculare*. 38:** in sweepings from church roof, ca 80 m alt., Birdingbury churchyard, south-west of Draycote Water, SP432687, AN Saunders.

**23.6. *Racomitrium sudeticum*. 66 in (j):** White Force, NY82, 1897, W Ingham (NMW), originally published by Blockeel (1991) but omitted in error from the NCR list for 1991 in *BBS Bulletin* 60.

**23.7. *Racomitrium affine*. 68:** Brough Law, Ingram, NU004162, J O'Reilly; **111:** on rock on disused slate quarry, Russadale, Orkney, HY334096, NG Hodgetts *et al.*

**23.8. *Racomitrium heterostichum*. 34:** rocks adjacent to the Buck Stone, 260 m alt., Forest of Dean, SO540120, RV Lansdown *et al.*; **65:** on a boulder at the foot of a rock fall, 470 m alt., Penhill Crag, SE0586, M Lüth 6826; **86:** on rocks at edge of field, 170 m alt., below corrie of Balglass, above Overton Farm, NS5950186946, EM Kungu; **109:** boulder at edge of track, 125 m alt., south of Loch Meadie, ND0907947119, EM Kungu.

**23.10. *Racomitrium lanuginosum*. H19:** on rocks in abandoned quarry, ca 130 m alt., Hill of Allen, N762209, M Eakin.

**23.11. *Racomitrium ericoides*. 90:** by a track, Glen Mark, NO430813, DF Chamberlain & EM Kungu; **109:** stone, Cairnfield Quarry, ND153647, M Lawley; **109:** gravelly ground by road, 125 m alt., near Cnoc a' Bhothain, Flow Country, ND090470, MO Hill.

**23.12. *Racomitrium elongatum*. 91:** acid sand dunes, 5 m alt., St Cyres NNR, NO7464, EM Kungu & DF Chamberlain (voucher deposited in E).

**25.1. *Campylostelium saxicola*. 86:** on sloping rock on wooded bank above burn, 50 m alt., Burn of Mar, Milton of Buchanan, NS44149091, GP Rothero 2011010.

**29.1. *Archidium alternifolium*. 58:** bare ground exposed by reservoir, 245 m alt., Fernilee Reservoir (west bank), Goyt Valley, SK0177, TL Blockeel 40/497 & AJ Hodgson.

**30.1. *Fissidens viridulus*. 58:** on soil bank in woodland, 50 m alt., Row's Wood, near Higher Walton, SJ5926383709, DA Callaghan 1357; **H10:** loamy bank by river under trees, 75 m alt., Ollatrim River, Rathurles, R9180, TL Blockeel & M Eakin.

**30.2. *Fissidens crispus*. 24:** on rock face, limestone rocks in shade, Waddesdon Manor, SP7311916637, SV O'Leary.

**30.3. *Fissidens pusillus*. 58:** on small boulder by stream at edge of woodland, 185 m alt., northern end of Park Wood, Goyt Valley, SK005795, TL Blockeel 40/549; **90:** on a rock, by River North Esk, Edzell, NO604697, M Lawley; **92:** rocks by stream, 40 m alt., Culter Burn, near Easter Anguston, NJ8201, DF Chamberlain (voucher deposited in E).

**30.4. *Fissidens gracilifolius*. 27:** base of gravestone in churchyard, Fersfield, TM065828, RJ Fisk; delete **68:** the



voucher (BBSUK: Heaton Mill, 1926, JB Duncan & WC Millar, *Transactions of the British Bryological Society* 6, 196) was revised as *F. pusillus* by M.F.V. Corley.

**30.6.a. *Fissidens bryoides* var. *bryoides*. H19:** soil on woodland bank, ca 105 m alt., Mooreabbey Demesne, Monasterevin, N6308, TL Blockeel 40/522, JL Denyer *et al.*

**30.6.b. *Fissidens bryoides* var. *caespitans*. 109:** on wet rocks at head of geo, 10 m alt., geo west of Loch Bushta, Dunnet Head, ND187728, GP Rothero 2011009.

**30.9. *Fissidens crassipes*. H15:** on stonework of bridge just above water level, 18 m alt., south of Caherapheepa, M454183, CD Preston, JL Denyer & M Eakin; **H7:** silty ash trunk by river, River Suir, west of Clonmel, S149212, SDS Bosanquet & CD Preston.

**30.10. *Fissidens rufulus*.** Delete **34:** the specimen (BBSUK: Court Wood, Wye Valley, M. Lawley, 2009) is *F. rivularis*.

**30.12. *Fissidens celticus*. 37:** soil bank of streamlet in oak woodland, Far Forest, Wyre, SO725754, M Lawley.

**30.17. *Fissidens adianthoides*. H21:** fen, 120 m alt., Kingston, Kilternan, O21532167, 2009, M Lyons.

**30.20. *Fissidens fontanus*. 47:** on submerged masonry along edge of canal, 75 m alt., Buttington Wharf, Welshpool, SJ241089, T Otley.

**31.1. *Pleuroidium acuminatum*. H10:** soil on ledge in quarry, Lough Derg, by lookout car park, Castleton, R735809, DF Chamberlain.

**32.1. *Pseudephemerum nitidum*. 111:** on wet bare earth, Happy Valley, Bigswell, Stenness, HY32701069, J Crossley, det. NG Hodgetts; **H19:** stubble field, ca 105 m alt., River Liffey, New Bridge, east of Kilcullen, N870098, TL Blockeel 40/534, JL Denyer *et al.*

**34.1. *Ditrichum pusillum*. 39:** in stubble field, Gorse Bank near Sherrifhales, SJ781118, 2003, M Lawley, record incorrectly assigned to v.-c. 40 in *Field Bryology* 83, 36; delete **40:** see v.-c. 39 for details.

**34.4. *Ditrichum plumbicola*. 64:** fine-textured lead mine waste, Hebden Beck, near Grassington, SE02646506, MO Hill.

**34.5. *Ditrichum heteromallum*. 109:** quarry floor, 126 m alt., quarry by track, by Loch More, ND069450, EM Kungu; **H15:** soil at edge of stream along forest road, 170 m alt., north of Gortnagleav, Slieve Aughty Mountains, M5506 1073, JL Denyer & CD Preston.

**34.6. *Ditrichum zonatum*. 43:** rare in cracks in rock outcrop, 340 m alt., Nant Clettwr, SN885688, SDS Bosanquet.

**34.8. *Ditrichum flexicaule*. 42:** limestone boulder by tramway, 345 m alt., Craig y Cilau, SO19741593, 2009, SDS Bosanquet; **51:** on limestone rib north of gully, Graig Fawr SSSI, SJ05928033, SDS Bosanquet; **H19:** on old tarmac road at canalside, ca 100 m alt., Hoare's Bridge, Grand Canal, south-west of Naas, N84721550, NG Hodgetts 8008, JL Denyer & RL Hodd.

**34.9. *Ditrichum gracile*. 13:** chalky soil in chalk grassland, Heyshott Down, South Harting near Chichester, SU795183, 1985, HW Matcham; **14:** chalk bank, south of Rathfinny Farm, Seaford, TQ499015, 1987, HW Matcham; **109:** compacted sand, on grazing, 10 m alt., Dunnet Bay, east of A836, ND217685, EM Kungu (voucher deposited in E); **111:** growing on Aeolianite, Gurness, Evie, HY37942631, 2010, R McCance, conf. NG Hodgetts; **H7:** calcareous wall, ca 110 m alt., west of Church Hill, Laffansbridge, S19134678, JL Denyer JLD-B-10-88; **H16:** on thin sandy soil, low rock outcrop by sea, ca 2 m alt., Inishbofin, East Beach, L55996526, DG Long 41060; **H17:** with abundant *Encalypta streptocarpa* on gravel, ca 90 m alt., Ballymacward Old Cemetery, M68023661, JL Denyer & CD Preston (voucher deposited in DBN); **H19:** calcareous boulder, ca 50 m alt., Leixlip Spa SAC, N99503679, JL Denyer JLD-B-11-053 (voucher deposited in DBN); **H23:** on bryophyte-rich, exposed gravel, ca 100 m alt., Newtownlow, Kilbeggan, N37923607, M Eakin.

**36.2. *Distichium inclinatum*. 104:** on limestone rock ledge, Isle of Rum, Monadh Dubh, by lochan to west of Loch Sgaorishal, NG34250225, 2004, TL Blockeel 33/374.

**43.6. *Cynodontium tenellum*. 108:** crevice of rocks on crags, 250 m alt., north of Meall Bad na Cuaiche, NC762478, MO Hill.

**45.2. *Dichodontium flavescens*. 42:** Sgwd Isaf Clun-gwyn, Mellte valley, SN9210, 1999, SDS Bosanquet; **48:** beside seepage on vertical rock face beside river in woodland, Afon Gwynant, SH68091678, DA Callaghan 1400; **65:** on limestone slab at edge of stream, 235 m alt., Oxnop Beck, near junction with River Swale, SD933976, TL Blockeel 40/458; **87:** on base-rich rocks in inundation zone of burn, 125 m alt., Ledard Burn, Trossachs, NN45890293, GP Rothero 2011004; **87:** among boulders by burn in deep shaded ravine, ca 160 m alt., Stank Glen, Ben Ledi,

- NN578105, NG Hodgetts 7874; **90**: on stones by river, wooded valley, ca 100 m alt., Melgam Water, above Bridge of Lundies, NO30335276, DG Long 40997; **90**: on sandstone rock, by River North Esk, Edzell, NO604697, M Lawley; **99**: edge of burn in wooded ravine, ca 160 m alt., Tullich Farm, Glen Douglas, NS3099, GP Rothero & C Rickerby; **99**: crevices in rock slab by burn, ca 200 m alt., Aldownick Glen, NS28S, NG Hodgetts 7954; **101**: among rocks by wooded burn, ca 150 m alt., Lephincorrach, NR73, NG Hodgetts 7937; **H28**: in crevices on outcrops of limestone, ca 300 m alt., Gleniff, G729346, N Lockhart 2011/07a & NG Hodgetts.
- 46.1. *Dicranoweisia cirrata*. 108**: abundant on a single old leaning fence post near stream, Allt a'Mhuillin, Strath Halladale, NC881554, CD Preston; **108**: on wall top, Loch Naver, NC6695137762, SV O'Leary.
- 47.1. *Arctoa fulvella*. 48**: rocks, below and to north of Cadair Idris summit shelter, SH7113, 2005, SDS Bosanquet & RD Porley.
- 48.2. *Kiaeria blyttii*. 86**: sheltered cliff face, 400 m alt., east of second waterfall, Corrie of Balglass, upper part, NS5902684878, DF Chamberlain & EM Kungu, conf. GP Rothero (voucher deposited in E).
- 49.1. *Glyphomitrium daviesii*. 49**: 20+ cushions on almost vertical rock face behind oak above path, 110 m alt., near Betws y Coed, SH75, SDS Bosanquet.
- 52.2. *Dicranella grevilleana*. 94**: damp calcareous clay slump with *Aneura*, *Moerckia*, etc., Ailnack, NJ1420914539, 2010, SDS Bosanquet.
- 52.4. *Dicranella subulata*. H10**: shale quarry, Foilycleary, R876560, SDS Bosanquet.
- 52.6. *Dicranella staphylina*. H15**: bare ground by path to river, with *Bryum klinggraeffii*, 18 m alt., bridge south of Caherapheepa, M454183, CD Preston, JL Denyer & M Eakin.
- 53.2. *Dicranum bonjeanii*. H10**: under *Calluna* on cut-over bog, 85 m alt., Lough Nahinch, 8 km east of Borrisokane, R9993, TL Blockeel 40/006 & M Eakin; **H19**: ca 80 m alt., Kingsbog or Common, N71540839, JL Denyer JLD-B-11-057 & DF Chamberlain (voucher deposited in DBN).
- 53.3. *Dicranum leioneuron*. 40**: amongst *Sphagnum* clumps in raised bog, Fenns and Whixall Moss, SJ48313560, J Denyer & MF Godfrey.
- 53.5. *Dicranum majus*. 61**: mixed woodland, Danes Hills, Skipwith, SE6640, C Wall.
- 53.6. *Dicranum spurium*. 95**: in grazed grassy wet heath, 280 m alt., Glenbeg, NJ0144428188, 2000, A Amphlett, still present 15 November 2009.
- 53.11. *Dicranum scottianum*. 34**: on large boulders along ridge at top of hill, in woodland, Buck Stone Wood, SO546125, 2004, RV Lansdown; **112**: on boulder by lake, Loch of Huxter, Whalsay, HU5578261958, 2008, M Lawley.
- 55.3. *Dicranodontium denudatum*. 79**: on rotten log, ravine in conifers, 370 m alt., Birnie Cleugh, Ettrick Valley, NT19330924, DG Long 40439.
- 56.2. *Campylopus subulatus*. 42**: forestry track, Coed Cilau, SN981555, SDS Bosanquet.
- 56.5. *Campylopus fragilis*. 91**: amongst crags, on peaty ground, 400 m alt., just above track, The Skairs, NJ689014, DF Chamberlain.
- 56.6. *Campylopus pyriformis*. H19**: on peaty bank close to track south-east of lake, ca 80 m alt., Ballynafagh, N809285, M Eakin.
- 56.8. *Campylopus setifolius*. 102**: in *Calluna* heath with *Adelanthus lindbergianus*, 445 m alt., north-east side of Beinn Bheigier, NR43645605, GP Rothero 2011003.
- 56.10.b. *Campylopus atrovirens* var. *falcatus*. 48**: seeping rock face with abundant var. *atrovirens*, 250 m alt., Moelfre, Rhinogs, SH62162559, SDS Bosanquet.
- 56.12. *Campylopus introflexus*. 109**: on peat beside ditch at edge of road, 115 m alt., track to Lochmore Cottage, north of Loch Beg, ND0902247028, EM Kungu.
- 56.13. *Campylopus brevipilus*. H19**: on dry peat in large raised bog, ca 90 m alt., Mouds Bog, N80521907, NG Hodgetts 8006, JL Denyer & RL Hodd.
- 59.1. *Eucladium verticillatum*. H17**: tufa on limestone wall in gully by river, 30 m alt., R Clare, Lackagh Bridge, M41793641, JL Denyer & CD Preston; **H19**: north-facing steep tufa bank, ca 50 m alt., Leixlip Spa SAC, N99513677, JL Denyer JLD-B-11-011 (voucher deposited in DBN).
- 60.1.b. *Weissia controversa* var. *crispata*. 33**: grassland on steep slopes, 200 m alt., Haresfield Beacon, SO820087, RV Lansdown, R. Laybown & S Conyers.
- 60.5.a. *Weissia brachycarpa* var. *brachycarpa*. 46**: Penlanlas strawberry field, Llanfarian, SN67, 2005, SDS Bosanquet.
- 60.5.b. *Weissia brachycarpa* var. *obliqua*. H27**: disturbed

ground by road, 20 m alt., Knockmore, G2308, MO Hill.  
**60.12.a. *Weissia longifolia* var. *longifolia*. 7:** margin of stubble field bounded on one side by the River Thames, 95 m alt., Top Farm, Clayfurlong, Kemble, ST992978, RV Lansdown, S Conyers & R Laybown.

**61.2. *Tortella bambergeri*. 64:** limestone rock in south-facing grassland, ca 400 m alt., Nethergill, Oughtershaw, SD8682, NG Hodgetts 7854; **69:** outcrop of Dent group limestone on fellside, ca 280 m alt., near Kentmere Hall, NY446042, W Nelson & H Marshall; **86:** boulder field, 220 m alt., Corrie of Balglass, lower part, NS590859, EM Kungu & DF Chamberlain.

**61.7. *Tortella inclinata*. 45 in 0:** the only confirmed record dates from 1882 (Bosanquet, 2010).

**62.2. *Trichostomum crispulum*. H14:** edge of calcareous flush, ca 340 m alt., Capard, Slieve Bloom Mountains, N3624006776, 2010, JL Denyer JLD-B-11-025 (voucher deposited in DBN).

**65.1.a. *Hymenostylium recurvirostrum* var. *recurvirostrum*. 45 in 0:** wet cliff, St David's, SM72, 1902, E Armitage (NMW: C95.9.1002), see also Bosanquet (2010).

**70.1. *Leptobarbula berica*. 27:** in crack between wall and floor in corner of large greenhouse in walled garden, ca 40 m alt., Gawdy Hall, Redenhall with Harleston CP, TM24978538, M Ghullam, det. R Fisk.

**72.2. *Ephemerum sessile*. H7:** trampled verge of road, Marl field Lake, S17012227, SDS Bosanquet & CD Preston.

**74.1. *Dialytrichia mucronata*. 31:** on concrete on north and south sides of stream immediately east of ford, 20 m alt., south of Little Paxton Wood, Little Paxton, TL1720 6312, MO Hill & CD Preston; **H9:** limestone wall, periodically flooded, by river, ca 5 m alt., River Shannon, Limerick, R55, 1994, NG Hodgetts 2939, RD Porley & HLK Whitehouse; **H10:** on surface of tarmac road, 35 m alt., approaching North Quay car park, Lough Derg, R8295, TL Blockeel 40/027. New to Ireland.

**74.2. *Dialytrichia saxicola*. 24:** on vertical face of concrete embankment, approx. 0.5 m above water level, north bank of River Thames, Medmenham, SU8055283683, SV O'Leary.

**75.1. *Pseudocrossidium hornschurchianum*. 111:** edge of tarmac, Hatston, Kirkwall, Orkney, HY43901197, NG Hodgetts *et al.*; **H10:** gravelly ground by road, 45 m alt., Carrigahorig Bridge, 7 km north of Borrisokane, M9001, TL Blockeel 40/031.

**75.2. *Pseudocrossidium revolutum*. 86:** boundary wall, 100 m alt., Killearn church, NS5233086087, DF Chamberlain.

**76.1. *Bryoerythrophyllum recurvirostrum*. H15:** limestone boulder at upper edge of turlough, 15 m alt., Pollnacirca, M456226, CD Preston, JL Denyer & M Eakin.

**76.2. *Bryoerythrophyllum ferruginascens*. 59:** on thin calcareous soil beside track across limestone grassland, 170 m alt., Worsaw Hill, SD7804843212, DA Callaghan; **86:** concrete, over ciltert, just below Ballagan SWT Reserve, NS5733879741, DF Chamberlain; **H14:** gravel track, ca 340 m alt., Capard, Slieve Bloom Mountains, N36531 06197, 2010, JL Denyer JLD-B-11-024 (voucher deposited in DBN).

**77.1. *Leptodontium flexifolium*. 34:** bare soil under scrubby *Betula pendula* and *Quercus petraea*, 245 m alt., Hymens Meend, Forest of Dean, SO545125, RV Lansdown.

**77.3. *Leptodontium proliferum*. 59:** on dead grass matter within inside edge of bowling green, Victoria Park, Haslingden, SD7869822287, DA Callaghan 1309.

**78.1.b. *Barbula convoluta* var. *sardoa*. 51:** on mortar of wall in woodland, Hawarden Park, SJ3157565359, DA Callaghan; **86:** sandy bank by stream, in ravine, Machar Burn, near Killearn, NS5485, EM Kungu & DF Chamberlain (voucher deposited in E); **H15:** limestone wall, 18 m alt., south of Caherapheepa, M454182, CD Preston, JL Denyer & M Eakin; **H19:** on limestone wall, 60 m alt., near the Gerard Manley Hopkins monument, Monasterevin, N625104, TL Blockeel 40/541, JL Denyer *et al.*; **H22:** on western, inside bridge wall, 85 m alt., Parsonstown Demesne, ca 0.6 km south of McEntagarts Cross, N903818, M Eakin.

**79.1. *Didymodon acutus*. 33:** broken ground on floor of abandoned quarry, 300 m alt., near fourth hole, Cleeve Common, Cleeve Hill, SO988266, RV Lansdown & E Phillips; **70:** on gravelly track, ca 10 m alt., near Low Eskholme, Muncaster, SD116975, TL Blockeel 40/486.

**79.4. *Didymodon nicholsonii*. 41:** sloping rock by pool, Clydach Vale, just west of the country park, SS9618592703, DF Chamberlain; **50:** side of asphalt pavement, Kinmel Bay, SH9980, MO Hill; **51:** on damp tarmac of footpath, Hawarden, SJ3155065685, DA Callaghan; **H15:** ca 20 m alt., Athenry Castle, Priory and Clarin River, M5027, JL Denyer & CD Preston (voucher deposited in DBN); **H17:** edge of tarmac road, ca 60 m alt., Monivea Demesne and

road north of Monivea Bog, M54333565, JL Denyer, CD Preston & A Pielach (voucher deposited in DBN); **H19**: on tarmac, 80 m alt., cemetery, Mooreabbey, Monasterevin, N635096, TL Blockeel 40/513 & JL Denyer.

**79.7. *Didymodon vinealis*. 42:** wall by car park, Brecon Promenade, SO042286, SDS Bosanquet; **H19**: on wall by bridge, ca 105 m alt., River Liffey, Kilcullen Bridge, N841097, TL Blockeel 40/529, JL Denyer *et al.*

**79.9. *Didymodon luridus*. 111:** Aeolianite, Aikerness, Evie, Orkney, HY379262, NG Hodgetts *et al.*; **H10**: concrete at base of crucifix at entrance to churchyard, 120 m alt., Emlay, R761346, GF Smith & CD Preston; **H19**: on tarmac, 60 m alt., Market Square, Monasterevin, N626101, TL Blockeel 40/539, JL Denyer *et al.*

**79.11. *Didymodon sinuosus*. 109:** concrete base under trees, Castletown, ND198682, M Lawley; **H15**: on boulder by road, ca 70 m alt., Kilcreest church, M563143, CD Preston & JL Denyer (voucher deposited in DBN); **H18**: limestone rock in pasture, Rahan Churches, Rahan, N22862544, GF Smith; **H19**: on low wall by path in riverside park, ca 105 m alt., River Liffey, Kilcullen, N8409, TL Blockeel 40/528, JL Denyer *et al.*

**79.12. *Didymodon tophaceus*. H7:** damp wall of ruin, Marfield Lake, S170221, SDS Bosanquet & CD Preston.

**79.14. *Didymodon fallax*. H17:** soil at edge of limestone quarry, 40 m alt., Grange East, M443323, JL Denyer & CD Preston.

**79.16. *Didymodon ferrugineus*. 90:** on soil, cliff, The Dounalt, Glen Doll, NO2376, M Lawley; **H10**: on stony calcareous ground on forest road, 70 m alt., Gortmungo, 4 km south-west of Ballinderry, R8293, TL Blockeel 40/025.

**83.2. *Tortula schimperi*. 19:** stream bank, Matching, TL51, 1978, CD Preston; **25**: sandy bank, below wooded escarpment, South Homersfield, TM286844, 1991, RJ Fisk; **29**: chalky soil below trees on stream bank, 100 m alt., small valley south of Over Wood, TL631480, 2002, CD Preston; **31**: edge of horse chestnut root on stream bank, 10 m alt., north side of Alconbury Brook, Hinchingsbrooke Country Park, TL22127143, CD Preston.

**83.13. *Tortula amplexa*. 19:** on chalky boulder clay in 4x4-rutted clearing in remnant of ancient wood, ca 90 m alt., Park Wood, Wethersfield Airfield, TL72303380, T Pyner & KJ Adams; **33**: bare, probably neutral or acidic clays on

the edge of an off-road track, 100 m alt., Cud Hill, south-west of Gloucester, SO853135, RV Lansdown.

**83.17. *Tortula modica*. 48:** rare on winter-damp thin soil overlying rock, Dinas Oleu, Barmouth, SH615157, SDS Bosanquet; **92**: gravel path, ca 55 m alt., Inverurie graveyard, NJ781205, C Rickerby & DF Chamberlain; **H19**: bare soil under new fence, 70 m alt., Rathangan, N6719, TL Blockeel 40/545, JL Denyer *et al.*

**84.1.a. *Phascum cuspidatum* var. *cuspidatum*. 79:** on soil, disturbed ground by loch, ca 175 m alt., Haining Loch, Selkirk, NT47032800, DG Long 40607.

**84.1.d. *Phascum cuspidatum* var. *papillosum*. 28:** light sandy soil of ant hill, Derby Fen, Pott Row, TF70521 20860, CR Stevenson.

**85.2.a. *Microbryum davallianum* var. *davallianum*. 39:** calcareous soil at base of bank by track, ca 190 m alt., west side of Wetton Hill, Manifold Valley, SK098558, TL Blockeel 40/047; **H10**: in arable field, 80 m alt., near Lough Nahinch, 8 km east of Borrisokane, R9893, TL Blockeel 40/012 & M Eakin.

**86.1. *Henediella stanfordensis*. 31:** under hawthorn on hedgebank on south side of lane, 10 m alt., Cow Lane Gravel Pits, Godmanchester, TL26027179, CD Preston; **38**: on compacted soil on bank in riverside park, 35 m alt., Stratford-upon-Avon, SP201544, TL Blockeel 40/173.

**86.2. *Henediella macrophylla*. 31:** luxuriant patches on soil around rabbit holes in plantation, 18 m alt., south edge of Bobs Wood, Hinchingsbrooke Country Park, TL2197 7178, CD Preston; **92**: compacted bare earth on track, 65 m alt., east bank of River Urie at Inverurie, downstream from bridge, NJ783203, DF Chamberlain.

**86.3. *Henediella beimii*. 59:** young dune ridge near shore, Birkdale Green Beech, SD3159916133, DA Callaghan 1258.

**87.1. *Acaulon muticum*. 20:** bare sandy clay soil, shady set-aside, 150 m alt., North of Long Wood, Stags End, Great Gaddesden, TL062123, 2010, CTW Tipper.

**87.2. *Acaulon mediterraneum*. 3 in 0:** bare places in a field on the headland, with *Ephemerum serratum*, Budleigh Salterton, SY08, 1956, J Appleyard, det. DT Holyoak (NMW); **5 in 0**: fallow field, near Taunton, ST22, 1935, W. Watson, det. MO Hill (E). See also Holyoak (2003).

**89.1.a. *Syntrichia ruralis* var. *ruralis*. H19:** open turf on steep bank of gravel pit, ca 130 m alt., Usk, south-east of



Calverstown, N8302, TL Blockeel 40/536, JL Denyer *et al.*  
**89.1.b. *Syntrichia ruralis* var. *ruraliformis*. H31:** abundant throughout dunes, 10 m alt., Baltray sand dunes, O152775, M Eakin.

**89.3.a. *Syntrichia montana* var. *calva*. 33:** limestone wall top, 160 m alt., Colesbourne, SP005134, 2009, P Martin.

**89.3.b. *Syntrichia montana* var. *montana*. H10:** limestone wall, Templemore Copse, S1072, DF Chamberlain & JL Denyer; **H19:** on limestone wall, 60 m alt., near the Gerard Manley Hopkins monument, Monasterevin, N625104, TL Blockeel 40/542, JL Denyer *et al.*

**89.5. *Syntrichia virescens*. 34:** porch roof, 150 m alt., Rodmarton Church, near Tetbury, ST9426198092, P Martin; **43:** on flat gravestone, Boughrood churchyard, SO128393, RR Martin; **58:** on elder in scrub beside estuary, 5 m alt., Stanlow Point, SJ4271777533, DA Callaghan.

**89.7. *Syntrichia papillosa*. 59:** on bark, National Wildflower Centre, Liverpool, SJ4289, B Deed & J Lowell.

**89.8. *Syntrichia latifolia*. 86:** road, in tarmac, 100 m alt., near Ibert, Killearn, NS5287785918, DF Chamberlain; **H19:** sparsely near water level on bridge buttress, 105 m alt., River Liffey, Kilcullen Bridge, N841097, RL Hoddd *et al.*; **H31:** on the bases of alders, ca 15 m alt., north bank of Mattock River at Littlegrange, O033755, M Eakin.

**92.2. *Tetraplodon mnioides*. H8:** 595 m alt., col between Temple Hill and Knockaterriff Beg, Galtee Mountains, R83812209, RL Hoddd.

**94.1. *Splachnum sphaericum*. H19:** 90 m alt., Moud's Bog SAC, Newbridge, N80521907, RL Hoddd, JL Denyer & NG Hodgetts.

**94.2. *Splachnum ampullaceum*. H10:** cow dung on cut-over bog, 280 m alt., Foilycleary, R878559, SDS Bosanquet; **H17:** on dung on cut-over raised bog, ca 60 m alt., Monivea Bog SAC, M54913542, JL Denyer & CD Preston (voucher deposited in DBN).

**94.3. *Splachnum vasculosum*. 97:** flush on south-facing mountain slopes, ca 950 m alt., The Saddle, NG938129, NG Hodgetts 7935.

**98.1. *Leptobryum pyriforme*. H21:** north-facing coastal cliffs of glacial till with seepage, 10 m alt., Loughshinny, O27065677, 2010, M Lyons; **H30:** on peaty ground on birch woodland floor, ca 160 m alt., Corleck, Bailieboro, H662027, M Eakin.



△ Rory Hoddd collecting *Syntrichia latifolia* among *Cinclidotus fontinaloides* at Kilcullen Bridge, Co. Kildare (v.-c. H19). Jo Denyer

**99.2. *Zygodon rupestris*. H39:** basalt rocks on north-facing cliff, with *Schistidium pruinosum* and *Frullania tamarisci*, ca 300 m alt., Knock Dhu, D33860682, NG Hodgetts 7959.

**99.3.a. *Zygodon conoideus* var. *conoideus*. H7:** branches of hazel in streamside woodland, 170 m alt., immediately south of minor road, north side of Slievenamuck, R855314, CD Preston & GF Smith; **H7:** epiphytic at edge of woodland, 160 m alt., south-west side of Waterloo Hill. Ballinunty, S2349, JL Denyer & CD Preston; **H17:** on *Salix cinerea* by roadside ditch, 60 m alt., road north of Monivea Bog, M543356, CD Preston, JL Denyer & A Pielach; **H19:** on willow in fen carr, with *Frullania dilatata*, ca 90 m alt., Pollardstown Fen, N7715, NG Hodgetts 7996, JL Denyer & RL Hoddd *et al.*

**100.1. *Orthotrichum byellii*. 58:** on trunk of ash in woodland, 50 m alt., The Dingle, Appleton, SJ6272184408, DA Callaghan 1356; **58:** on *Salix* by reservoir, ca 175 m alt., Bosley Reservoir, SJ927656, TL Blockeel 40/504; **109:** on mature sycamore, near phone box, Breamore Lodge, ND072304, CD Preston; **H2:** on bark of *Corylus colurna*

in young, open woodland, 95 m alt., Coolies, Muckross, V99958645, RL Hodd.

**100.2. *Orthotrichum striatum*. 31:** on *Acer campestre* in ancient wood, 30 m alt., Little Paxton Wood, Little Paxton, TL16476374, CD Preston; **58:** on trunk of sycamore at edge of woodland, 47 m alt., Bird's Wood, SJ5700978725, DA Callaghan 1366; **64:** epiphytic on branch of rowan tree in small grove by forestry track, 395 m alt., High Greenfield, Langstrothdale, SD824785, NG Hodgetts 7858.

**100.8. *Orthotrichum obtusifolium*. 31:** one clump amid *O. affine* and *Radula complanata*, leaning ash trunk, Warboys Wood, TL2989181913, JG Duckett; **33:** slanting trunk of a medium-sized ash tree, 0 m alt., along the top of the River Severn bank, Over, Gloucester, SO824193, RV Lansdown.

**100.10. *Orthotrichum cupulatum*. 109:** lump of concrete near road, 80 m alt., Dunnet Head, ND202762, MO Hill; **110:** basalt rock outcrop in churchyard, ca 30 m alt., Rodel, St Clement's church, NG048832, NG Hodgetts 7943.

**100.12. *Orthotrichum sprucei*. H38:** on silt-encrusted base of *Salix* (possibly *Alnus*), in flood zone of River Lagan, Drum Bridge, J304671, 2002, R Weyl, conf. DT Holyoak (BBSUK), record originally published in *BBS Bulletin* 81, but omitted in error from *Census Catalogue* because of confusion about the vice-county attribution.

**100.13. *Orthotrichum stramineum*. 54:** on elder, back of saltmarsh foreshore, Rimac, Saltfleetby-Theddlethorpe NNR, TF46949197, C Rieser; **55:** on willow with *O. affine* & *O. diaphanum*, by stream side, Aylestone Meadows, Leicester, SK56640098, U. Hamzaoui.

**100.14. *Orthotrichum tenellum*. 51:** on trunk of semi-mature ash at woodland edge, 55 m alt., south of Coed y Garth, SJ1331481316, DA Callaghan 1369; **58:** on main limb of willow at edge of pond, 5 m alt., Bidston Moss, SJ2846790935, DA Callaghan 1367; **58:** on *Salix* by reservoir, ca 175 m alt., Bosley Reservoir, SJ927656, TL Blockeel 40/503; **H16:** on ash, 10 m alt., Galway Campus, National University of Ireland, M29002650, CD Preston.

**100.15. *Orthotrichum pallens*. 35:** a few small tufts on narrow branch of scraggy hedgerow field maple, 65 m alt., West Lodge Lane, Dingestow Court, SO446096, SDS Bosanquet.

**100.16. *Orthotrichum pumilum*. 35:** 15+ tiny tufts on trunk of 25 cm, leaning ash, 40 m alt., by ford across Afon Gavenny, Castle Meadows, Abergavenny, SO300136, SDS Bosanquet.

**100.18. *Orthotrichum pulchellum*. 44:** *Corylus* and *Quercus* branches, Parc Victoria, Brechfa, SN524303, SDS Bosanquet; **H19:** scrub at edge of fen, ca 50 m alt., Leixlip Spa SAC, N99493669, JL Denyer JLD-B-11-051 (voucher deposited in DBN).

**101.1. *Ulota coarctata*. 25:** branch of oak tree, Purdis Heath, near Ipswich, TM212429, RJ Fisk.

**101.2. *Ulota drummondii*. 42:** on outer branches of sessile oak in woodland, 250 m alt., Allt Ddu, SN9363565107, DA Callaghan 1318.

**101.3. *Ulota crispata*. 51:** on trunk of semi-mature ash at woodland edge, 55 m alt., south of Coed y Garth, SJ1331481316, DA Callaghan 1370.

**101.4. *Ulota bruchii*. H31:** abundant on willows in scrub, ca 40 m alt., Glebe Bog, Plaster, Kilcurly, H995078, M Eakin.

**101.5. *Ulota calvescens*. H10:** *Salix* in ditch, 210 m alt., Coonmore Wood entrance, R874584, SDS Bosanquet; **H10:** on *Salix* in ravine, ca 220 m alt., Nenagh Gorge, near Templederry, R9067, TL Blockeel 40/036.

**101.6. *Ulota hutchinsiae*. 44 in 0:** the only confirmed record was made in 1907 (Bosanquet *et al.*, 2004).

**101.7. *Ulota phyllanthia*. 31:** on ash trunk in woodland, Hinchingsbrooke Country Park, TL2271, TG Charman & MO Hill.

**102.1.a. *Hedwigia ciliata* var. *ciliata*. 47:** on rocky outcrop, 300 m alt., on top of Breidden Hill, SJ2961614315, P Martin; **80:** on south-facing rocks, basalt crags with calcareous grassland, 190 m alt., Near Smailholm Tower, Sandyknowe Craigs, Smailholm, NT63843467, DG Long 40465.

**102.2. *Hedwigia stellata*. 52:** acidic rock outcrop, above west side of Llyn Traffwl, SH321771, TH Blackstock.

**105.2. *Bartramia pomiformis*. H10:** in recess on rocky bank in ravine, ca 230 m alt., Nenagh Gorge, near Templederry, R9067, TL Blockeel 40/032.

**107.4. *Philonotis caespitosa*. 57:** on mud in marshy ground in pasture, 210 m alt., near Hagglee Ford, WoodlandsValley, SK1688, 2002, TL Blockeel 31/384; **86:** shaded soily bank by stream, 250 m alt., Corrie of Balgass, NS589855, DF Chamberlain & EM Kungu.

107.8. *Philonotis calcarea*. **H10**: in rich fen system developed on cut-over bog, 80 m alt., Clooneen, south-west of CloghJordan, R9286, TL Blockeel 40/018 & M Eakin.

110.2. *Anomobryum concinnatum*. **99**: schisty rock at side of burn, ca 100 m alt., Aldownick Glen, NS28S, NG Hodgetts 7950.

111.11. *Bryum algovicum*. **86**: on mortar, boundary wall, Mugdock Country Park, NS555766, DF Chamberlain; **92**: cemetery wall, cemetery near bridge over River Urie at Inverurie, NJ782205, DF Chamberlain; **H19**: disturbed soil, old cemetery south of Kilmearge Little, N762233, DF Chamberlain (voucher deposited in E).

111.16. *Bryum donianum*. **H19**: on shaded earth bank at roadside, ca 100 m alt., east of Athgarvan, N8212, NG Hodgetts 8003, JL Denyer & RL Hodd.

111.22. *Bryum creberrimum*. **59**: wall of Gorpley Reservoir, SD92B, 2003, J Lowell, conf. DT Holyoak; **H15**: disturbed soil on limestone boulder, 37 m alt., Castletaylor Woods, M454150, CD Preston, JL Denyer & M Eakin, det. DT Holyoak.

111.23. *Bryum pallescens*. **23 in 0**: flue-dust heaps, Sonning Eye Gravel pit, SU77, 1953, EV Watson, det. DT Holyoak (E); **90**: under metal pipe of aqueduct, wooded river gorge, ca 144 m alt., north bank of River Isla below Reekie Linn, near Cairnhill, NO27125345, DG Long 40978, GP Rothero & D Bell; **110**: beneath corrugated metal roof, ca 20 m alt., Borrisdale, NG0383, NG Hodgetts 7942; **H7**: on ground under over-hanging corrugated iron roof of large shed in churchyard, 100 m alt., St Michael's R.C. church, Tipperary, R89263605, CD Preston & GF Smith.

111.24.a. *Bryum pseudotriquetrum* var. *pseudotriquetrum*. **90**: mire, 290 m alt., north-east bank of Water of Mark, near Gilfumman, NO4381, EM Kungu & DF Chamberlain; **91**: rich flush in mire, 220 m alt., West Bradieston SSSI, NO726683, EM Kungu & DF Chamberlain; **107**: old quarry by road, 170 m alt., near Ben Griam Mor, NC787371, EM Kungu; **H7**: on sandy bank of stream, in glen between Roche's Hill and Sugarloaf Mountain, in Knockmealdown Mountains., S01, 1962, ALK King, det. DT Holyoak (E: ex Herb. EV Watson); **H37 in 0**: marshy shore of Lough Neagh, Carter's Bay, J06, 1886, CH Waddell, det. DT Holyoak (NMW), originally named *B. neodamense*.

111.24.b. *Bryum pseudotriquetrum* var. *bimum*. **107**: on edge of old quarry by road, ca 170 m alt., Ben Griam Mòr, lower south-west slopes, Fèith Gur, NC787374, EM Kungu; **H10**: on side of bridge by road through conifer plantation, 210 m alt., Kilmore East, R901495, SDS Bosanquet & CD Preston.

111.25. *Bryum caespiticium*. The Irish distribution has been revised by D.T. Holyoak. The species is so rare and so over-recorded in Ireland that only vice-counties for which vouchers have been checked can be accepted. Delete **H1**, **H4**, **H8**, **H27** and **H36**, no vouchers traced. Delete **H25**, voucher in BBSUK is *B. radiculosum*, det. Holyoak.

111.27. *Bryum argenteum*. **H15**: tarmac by road, ca 18 m alt., bridge south of Caherapheepa, M454184, JL Denyer, CD Preston & M Eakin (voucher deposited in DBN).

111.29. *Bryum gemmiferum*. **H7**: wall by river, 7 m alt., Carrick on Suir west, S395218, SDS Bosanquet & CD Preston.

111.33. *Bryum radiculosum*. **65**: on foot of parish church wall, facing west, 170 m alt., Leyburn, SE113904, M Pool; **H10**: side of bridge, 105 m alt., north-east of Ballycurrane, R751363, CD Preston & GF Smith, conf. DT Holyoak; **H19**: on limestone wall, 60 m alt., near the Gerard Manley Hopkins monument, Monasterevin, N625104, TL Blockeel 40/540, JL Denyer *et al.*

111.34. *Bryum ruderale*. **61**: thin soil overlying chalk, chalk pit, Thixendale, SE8360, C Wall.

111.35. *Bryum violaceum*. **H15**: bare ground by path to river, 18 m alt., bridge south of Caherapheepa, M454184, CD Preston, JL Denyer & M Eakin.

111.37. *Bryum sauteri*. **41**: with *Pseudephemerum nitidum* and *Ditrichum cylindricum* on gritty soil on bank by track, ca 260 m alt., Penpych Woodland Park, Blaenrhondda, SS921991, TL Blockeel 40/470; **85**: ditches, ca 300 yds. north of tower (lighthouse), Isle of May, NT6599, 1972, EV Watson, det. DT Holyoak (E); **92**: stubble field, 70 m alt., Cothall, immediately south of the B977, NJ869157, EM Kungu (voucher deposited in E); **H7**: soil on lane bank, track on south-east side of Slievenamon, S3128, SDS Bosanquet & CD Preston.

111.39. *Bryum tenuisetum*. **42**: heathland, moorland north of Beili-Griffith, Lower Chapel, SO0338, 1980, GW Garlick 3457, conf. DT Holyoak (NMW).

114.6. *Pohlia drummondii*. **27**: bottom of gravel pit, 5 m

alt., Crostwight Heath, TG3429, 2004, A Bull, comm. Stevenson; **107**: on bare soil in old gravel pit cum car-park, 160 m alt., south-south-east of Garvault Hotel, NC78713757, O Moore, EM Kungu & M Pool.

**114.13. *Pohlia camptotrachela*. 17**: in old deep wheel rut at side of track, ca 50 m alt., Bagmoor Common, SU923423, HW Wallis, conf. NG Hodgetts; **72**: track into forestry plantation, Farquhar Moss, Birkshaw Wood, south-west of Lockerbie, NY124783, EM Kungu (voucher deposited in E); **80**: on damp soil in marsh by loch, basalt crags with calcareous grassland, 180 m alt., near Smailholm Tower, Sandyknowe Craigs, Smailholm, NT63883469, DG Long 40458.

**114.14. *Pohlia flexuosa*. 1**: on metal-rich sludge dredged recently from river, 5 m alt., Lower Carnon Valley, SW7868240064, DA Callaghan 1404.

**114.16. *Pohlia lutescens*. 89**: edge of track into wood, east bank of River Tay, to south-west of Cambusmichael, NO109314, DF Chamberlain & EM Kungu (voucher deposited in E).

**114.18. *Pohlia melanodon*. H17**: calcareous ditch bank, with *Pellia endiviifolia*, 70 m alt., Monivea Demesne, M54373574, CD Preston, JL Denyer & A Pielach.

**114.19.c. *Pohlia wahlenbergii* var. *calcareo*. H39**: shaded earthy bank on limestone crag on north-facing hillside, ca 280 m alt., Knock Dhu, D335071, NG Hodgetts 7985.

**115.1. *Epipterygium tozeri*. 43**: on soil, riverbank, River Wye, Glasbury, SO179396, M Lawley.

**116.3. *Mnium thomsonii*. 44**: abundant cushions on north-facing limestone quarry face, 330 m alt., Banc Wernwgan, SN68441852, SDS Bosanquet.

**118.3. *Rhizomnium pseudopunctatum*. 41**: occasional in fen, Gors Llwyn Onllwyn, SN856109, SDS Bosanquet; **107**: in hillside flush, ca 265 m alt., Allt Innse-chomhraig, Ben Griam Mor, NC795385, M Pool; **109**: in bog, Backlass Moss, ND1961753873, SV O'Leary.

**119.1. *Plagiomnium cuspidatum*. H39**: sheep-grazed turf below limestone crags on north-facing cliff, ca 300 m alt., Knock Dhu, D335070, NG Hodgetts 7974.

**119.2. *Plagiomnium affine*. 77**: rocky quarry floor, quarry south of Elvanfoot, NS949135, EM Kungu & DF Chamberlain (voucher deposited in E); **104**: steep earthy riverbank, with *Rhodobryum roseum*, ca 25 m alt.,

near Hinnisdal Bridge, NG39195718, NG Hodgetts 7835; **H10**: calcareous wall by road, ca 150 m alt., near Rathcarden, Clodiagh River, S01166393, JL Denyer JLD-B-10-89.

**119.4. *Plagiomnium elatum*. H21**: petrifying spring in woodland clearing, 180 m alt., Glenasmole, east side of lower reservoir, O091228, D Kelly & M Lyons.

**119.5. *Plagiomnium ellipticum*. 107**: small hillside flush, south-west of Ben Griam Mor, NC7936137059, EM Kungu.

**119.7. *Plagiomnium rostratum*. 111**: on bank by burn, Vinden, Redland, Orkney, HY366160, NG Hodgetts *et al.*; **H18**: petrifying spring, 170 m alt., banks of Silver River, Slieve Bloom Mountains, N23470798, 2009, M Lyons; **H19**: On shaded earth bank at roadside, ca 100 m alt., E. of Athgarvan, N8212, NG Hodgetts 8004, JL Denyer & RL Hodd.

**122.1. *Orthodontium lineare*. 109**: bank in *Pinus contorta* plantation, 130 m alt., Flow Country near Loch More, ND081468, MO Hill; **H19**: on tree stump, ca 105 m alt., Mooreabbey Demesne, Monasterevin, N6309, TL Blockeel 40/517, JL Denyer *et al.*

**127.1. *Daltonia splachnoides*. 41**: on one side trunk of *Salix* by stream through spruce plantation, 260 m alt., St Gwynno Forest, ST036963, SDS Bosanquet.

**128.1. *Hookeria lucens*. H17**: peat bank of ditch at edge of raised bog, 80 m alt., south-west of Lough Nahinch, M62933793, JL Denyer & CD Preston.

**130.1.b. *Fontinalis antipyretica* var. *gracilis*. 109**: on low bank of river, ca 125 m alt., River Thurso, north bank, upstream of Loch More, ND0577843269, EM Kungu, R Chance & N Abah; **H27**: stream flowing from Corryloughaphuill Lough, 225 m alt., Nephin Beg range, F8905, MO Hill.

**131.1. *Climacium dendroides*. H21**: flushed pasture, 390 m alt., Glenasmole Valley, O09892168, 2009, M Lyons.

**132.1. *Palustriella commutata*. H1**: in flush, 225 m alt., Arraglen, Brandon, Q4815015218, RL Hodd.

**132.2. *Palustriella falcata*. H1**: in flush, 220 m alt., Arraglen, Brandon, Q4816015226, RL Hodd.

**134.2. *Campylium protensum*. H7**: calcareous boulder, ca 150 m alt., Church Hill, Laffansbridge, S19264662, CD Preston & JL Denyer JLD-B-10-86; **H10**: in moist thin grassland over limestone, 55 m alt., Scarragh Lough,



7 km west of Borriskane, R8493, TL Blockeel 40/028; **H15:** limestone turf, 37 m alt., near turlough, Castletaylor, M453152, CD Preston, JL Denyer & M Eakin; **H31:** on sparsely vegetated turf ca 30 m west of water body, ca 15 m alt., Boycetown, Togher, O132893, M Eakin.

**135.2. *Campyliadelphus elodes*. 47:** in a mire, with *Mnium hornum*, *Scapania undulata*, *Riccardia chamedryfolia* and *Plagiobothrium denticulatum*, Mynydd Waun Fawr, West Llanerfyl, SJ022062, M Lawley; **90:** in wet calcareous hollow, extensive moorland and mire system, ca 120 m alt., near Loch Lemann, Rossie Moor, south-west of Montrose, NO65315407, DG Long 41054.

**136.1.b. *Amblystegium serpens* var. *salinum*. 75:** on soil at upper edge of saltmarsh, north of Porterncross, NS1761249362, DA Callaghan 1350; **94:** on rock outcrop, on coastal slope, 5 m alt., west of Portsoy, NJ58396639, 2010, AG Amphlett.

**137.1. *Hygroamblystegium fluviatile*. H19:** in stream on weir platform under arch, ca 80 m alt., Carragh Bridge, N854207, M Eakin.

**137.3. *Hygroamblystegium varium*. 33:** marshy grassland in an area scraped to create pools, 0 m alt., Alney Island, west of Gloucester, SO818194, RV Lansdown & J Doe; **52:** on shady lake shore under willows, Llyn Coron, SH376702, TH Blackstock.

**137.4. *Hygroamblystegium humile*. 41:** S25 reed fen, Oxwich Marsh, SS499870, SDS Bosanquet.

**138.1. *Leptodictyum riparium*. H7:** wall by river, 7 m alt., Carrick on Suir west, S395218, SDS Bosanquet & CD Preston.

**140.2. *Drepanocladus aduncus*. H10:** on concrete bridge over River Clodiagh beside road, 135 m alt., Rathcardan, Borrissleigh, S00736405, RL Hodd *et al.*

**140.3. *Drepanocladus sendtneri*. H27:** flushed ground at edge of coastal lough, 3 m alt., Cross Lough, Mullet Peninsula, F651299, MO Hill.

**143.3. *Hygrohypnum luridum*. 7:** small population on stone in deep, shaded gutter at base of church wall, St Mary's church, Chilton Foliat, SU319705, S Pilkington & T Kaye; **H7:** reservoir bank, Raheen south, S013245, SDS Bosanquet & CD Preston; **H31:** on stone on south bank, ca 45 m alt., Piedmount, Carlingford, ca 100m upstream from 'Upper Bridge' on Castletown River, J163075, M Eakin.

**145.1. *Warnstorfia fluitans*. H31:** cut-over bog, on wet peat with *Sphagnum cuspidatum*, ca 40 m alt., Red Bog, H906036, M Eakin.

**146.1. *Sarmentypnum exannulatum*. H10:** boggy field, 285 m alt., Muingatunna Bridge, 5.5 km south-west of Templeberry, R9065, TL Blockeel 40/040.

**146.2. *Sarmentypnum sarmentosum*. 67:** base-rich flush with *Scorpidium revolvens* and *Sphagnum contortum*, ca 260 m alt., Glendue Burn, NY666564, J O'Reilly.

**147.1. *Stramineogon stramineum*. 16:** on *Sphagnum* in bog, 135 m alt., Keston Common, TQ416640, J Hendey; **30:** wet peaty sedge meadow, former peat cutting, 60 m alt., Flitwick Moor, TL047353, CTW Tipper.

**148.1. *Hamatocaulis vernicosus*. 41:** runnel with *Juncus acutiflorus*, Gors Llwyn Onllwyn, SN85481062, SDS Bosanquet; **99:** small fen in hollow at base of slope, ca 150 m alt., north-west of Aldownick Glen, NS27038537, NG Hodgetts 7951; **H39:** small fen in basin mire at base of north-facing basalt cliffs, ca 180 m alt., Sallagh Braes, D347049, NG Hodgetts 7977.

**149.1. *Scorpidium revolvens*. 86:** cliffs below waterfall, waterfall at head of corrie, Corrie of Balglass, NS590848, EM Kungu (voucher deposited in E); **H1:** in brown-moss flush, 243 m alt., Lisleibane, Macgillycuddy's Reeks, V8264287084, RL Hodd; **H14:** basic flush, ca 340 m alt., Capard, Slieve Bloom Mountains, N3594605790, 2010, JL Denyer JLD-B-11-018 (voucher deposited in DBN); **H21:** seepage flush, Two Rock Mountain, O173210, K Duff (voucher deposited in DBN); **H30:** in hollow, amongst *Sphagnum* beds, ca 200 m alt., Artonagh, H544074, M Eakin.

**149.2. *Scorpidium cossonii*. 91:** base-rich flush in mire community, with *Tomentypnum nitens*, 220 m alt., West Beadieston, NO728683, EM Kungu & DF Chamberlain.

**149.3. *Scorpidium scorpioides*. H10:** in rich fen system developed on cut-over bog, 80 m alt., Clooneen, south-west of CloghJordan, R9286, TL Blockeel 40/017 & M Eakin; **H21:** seepage flush, Two Rock Mountain, O173210, K Duff (voucher deposited in DBN).

**150.1. *Calliargon cordifolium*. H31:** western side of marsh, close to large, new drain, 15 m alt., Red Bog, Whiterath, Dromiskin, O044980, M Eakin.

**150.2. *Calliargon giganteum*. H10:** in rich fen system developed on cut-over bog, 80 m alt., Clooneen, south-west

of CloghJordan, R9286, TL Blockeel 40/019 & M Eakin.

151.1. *Leskea polycarpa*. **52**: on trunk of lakeside willow, Llyn Coron, SH376702, TH Blackstock; **H19**: on alder by river, ca 105 m alt., River Liffey, New Bridge, east of Kilcullen, N870098, TL Blockeel 40/531, JL Denyer *et al.*

156.1.a. *Abietinella abietina* var. *abietina*. **94 in (j)**: ledge on limestone crags, Creag Builg, Glen Avon, Inchrory, NJ10, 1958, EC Wallace (NMW).

157.4. *Thuidium recognitum*. **104**: limestone grassland on small hillock, with Dryas etc., ca 25 m alt., Strath Suardal, Loch Cill Chriod, NG601200, NG Hodgetts 7867.

161.2. *Plasteurhynchium striatulum*. **H15**: calcareous wall by forest car park, ca 37 m alt., Castletaylor, M45421519, JL Denyer, CD Preston & M Eakin (voucher deposited in DBN).

164.1. *Rhynchostegium murale*. **H10**: boulder under trees, by river bridge just outside Nenagh, R867812, DF Chamberlain & JL Denyer.

164.2. *Rhynchostegium confertum*. **92**: on rock, by a trickle, 65 m alt., below bridge, west bank of River Urie at Inverurie, NJ783204, DF Chamberlain (voucher deposited in E); **H19**: on tree trunk, ca 105 m alt., Mooreabbey Demesne, Monasterevin, N6309, TL Blockeel 40/516, JL Denyer *et al.*

164.3. *Rhynchostegium megapolitanum*. **50**: among grass on dunes, Kinmel Bay, SH989807, MO Hill; **53**: rough grass, by St James's Drain, Great Postland, TF262116, MO Hill.

165.1. *Rhynchostegiella tenella*. **110**: base of basalt rock outcrop in churchyard, ca 30 m alt., Rodel, St Clement's church, NG048832, NG Hodgetts 7944.

165.2. *Rhynchostegiella litorea*. **13**: on roots on ash tree by path along edge of wood, 110 m alt., Heyshott Down, SU898170, T Ortle.

165.3. *Rhynchostegiella curviseta*. **6**: plentiful on limestone rocks in a deeply incised stream, Withial Combe, near Shepton Mallet, ST569376, S Pilkington; **24**: on vertical brickwork by small roadside pond, Nether Winchendon, SP734122, SV O'Leary.

166.1. *Cirriphyllum piliferum*. **H17**: at base of ash tree at edge of conifer plantation, 40 m alt., south-east part of plantation, Toberroe, M453265, CD Preston, JL Denyer & M Eakin.

166.2. *Cirriphyllum crassinervium*. **97**: on sloping basic

rocks at base of tree by burn, 50 m alt., Allt a'Ghoirtein-eorna, south side of Kentra Bay, Acharacle, NM62696751, GP Rothero 2011007; **H19**: on shaded earth bank at roadside, ca 100 m alt., east of Athgarvan, N8212, NG Hodgetts 8002, JL Denyer & RL Hodd.

167.1. *Oxyrrhynchium pumilum*. **H19**: on shaded earth bank at roadside, ca 100 m alt., east of Athgarvan, N8212, NG Hodgetts 8001, JL Denyer & RL Hodd.

169.4. *Sciuro-hypnum populeum*. **H7**: rock in stream valley, 80 m alt., north of Gurtnapisha, S293344, SDS Bosanquet.

170.3. *Brachythecium glareosum*. **H7**: grassland near limestone rock outcrop, 140 m alt., west side of Church Hill, Laffansbridge, S19254662, JL Denyer & CD Preston.

170.4. *Brachythecium salebrosum*. **13**: *Salix* branch, Shellbridge Road gravel pit, SU974078, SDS Bosanquet; **63**: near base of *Salix* in wet carr woodland, south-east edge of Thorne Moors, SE7414, 1988, TL Blockeel 17/318 *et al.*

170.5. *Brachythecium mildeanum*. **15**: on low, flat coal tip, 1 km north-west from Stodmarsh Village, TR2161, 2002, MC Watling; **64**: car park of caravan site, Threshfield, SD9764, MO Hill; **65**: on rotting log in marsh, 250 m alt., Semer Water, SD918866, TL Blockeel 40/180; **H7**: gravelly waste ground in disused railway station, 130 m alt., Laffansbridge, S19134674, JL Denyer & CD Preston; **H10**: calcareous soil, Lough Derg, Dromineer, R81078580, DF Chamberlain; **H19**: rich fen, ca 50 m alt., Leixlip Spa SAC, N99493672, JL Denyer JLD-B-11-014 (voucher deposited in DBN).

171.1. *Scleropodium cespitans*. **31**: on shaded horizontal trunk in old gravel pits, right bank of River Ouse, Huntingdon, TL2672, MO Hill.

171.2. *Scleropodium touretii*. **24**: on bank under *Fagus*, steep slope with outcropping chalk, above western end of Victoria Drive, north of Keeper's Cottage, Burnham Beeches, SU94518467, FJ Rumsey & RV Lansdown.

174.2. *Homalothecium lutescens*. **H15**: concrete ground with chippings at foot of wall of bridge by road, 18 m alt., south of Caherapheepa, M454184, CD Preston, JL Denyer & M Eakin.

175.1. *Myrinia pulvinata*. **13**: on ash tree by canal, 10 m alt., Wey and Arun canal, near Billingshurst, TQ068261, T Ortle; **14 in (j)**: alders by the river, Barcombe Mills, TQ41, 1926, WE Nicholson (CGE); **33**: low spar on gate, 10 m alt., at western end of Coombe Hill Canal NR, near

Wainlode, north of Gloucester, SO850265, RV Lansdown.  
**178.1. *Taxiphyllum wissgrillii*. H7:** two patches on bank in calcareous woodland, River Suir, west of Clonmel, S149212, SDS Bosanquet & CD Preston.

**179.1. *Pylaisia polyantha*. 32:** on willow, horizontal branch over water, 40 m alt., Irthlingborough gravel pits, SP947693, RH Carter; **41:** frequent on 10+ *Salix* in valley, 40 m alt., Barland, Kittle, SS577896, SDS Bosanquet; **56:** on bole of ash tree on embankment of disused railway, 170 m alt., north-west of Huthwaite, near Sutton in Ashfield, SK460601, TL Blockeel 40/500.

**181.4. *Hypnum andoi*. H10:** on spruce tree in plantation, 260 m alt., Glenough Upper, near Hollyford, R9554, TL Blockeel 40/022 & F O'Neill; **H15:** dead log in small area of hazel woodland in middle of raised bog, 80 m alt., Raford River Bog, M65102843, F O'Neill.

**184.1. *Hycomium armoricum*. H15:** on streamside rock, above small waterfall, 140 m alt., north of Gortnagleav, Slieve Aughty Mountains, M544108, JL Denyer & CD Preston; **H37:** in stream at side of forest road, ca 310 m alt., Slieve Gullion, J020196, M Eakin.

**186.1.b. *Heterocladium heteropterum* var. *flaccidum*. 105:** shaded boulders under hazel, Carnoch Woodland, Applecross, NG7144, EM Kungu & DF Chamberlain (voucher deposited in E).

**186.2. *Heterocladium wulfsbergii*. 69:** at base of rock wall just above water level in ravine, ca 300 m alt., Dungeon Ghyll, Langdale, NY2806, TL Blockeel 40/476; **70:** just above normal water level on mossy boulder in river, 154 m alt., oakwood in valley of Glenderaterra Beck, NY29692510, JW Bates 4505; **H27:** grotto in rocks by stream, 240 m alt., near Corryloughaphuill Lough, Nephin Beg range, F89490471, MO Hill.

**189.4. *Rhytidiadelphus loreus*. 18:** on moss-covered fallow log, patch ca 30 cm long, ca 110 m alt., Jacks Hill Bog South, Epping Forest, TQ43279942, S Gadsdon, det. T Pyner & KJ Adams; **H19:** in conifer understorey close to access track, ca 80 m alt., Hortland, N808367, M Eakin.

**190.1. *Loeskeobryum brevirostre*. 7:** woodland floor, Savernake Forest, SU2038567552, S Pilkington; **H19:** creeping among rushes and sedges in fen, ca 90 m alt., Pollardstown Fen, N7715, NG Hodgetts 7998, JL Denyer & RL Hodd *et al.*

**197.1. *Plagiothecium latebricola*. 40:** on a rotten stump,

open woodland by R Rea, Mawley, near Cleobury Mortimer, SO689746, M Lawley.

**197.3.a. *Plagiothecium denticulatum* var. *denticulatum*. H17:** ca 60 m alt., Monivea Bog SAC, M5435, JL Denyer, CD Preston & A Pielach (voucher deposited in DBN); **H19:** on tree stump, ca 105 m alt., Mooreabbey Demesne, Monasterevin, N6309, TL Blockeel 40/520, JL Denyer *et al.*; **H30:** in woodland, ca 150 m alt., on eastern side of steep-sided Laragh river valley, Cormeen, H533033, M Eakin.

**197.4. *Plagiothecium laetum*. 86:** shaded bank under trees, 125 m alt., Machar Glen, near Killearn, NS5485, EM Kungu & DF Chamberlain (voucher deposited in E).

**197.8. *Plagiothecium succulentum*. H30:** on flushed rock face within hazel scrub, ca 150 m alt., Carricknaveagh, Bailieboro, N627940, M Eakin.

**197.9. *Plagiothecium nemorale*. 58:** earth bank of stream in woodland, 37 m alt., Bird's Wood, SJ5740578471, DA Callaghan 1361; **H15:** hazel wood on bog, ca 80 m alt., Raford River Bog NHA, west of Cloonbenes, M65132845, JL Denyer *et al.* (voucher deposited in DBN); **H19:** ca 180 m alt., Hill of Allen, N761208, JL Denyer JLD-B-11-055, DF Chamberlain & M Eakin.

**198.2. *Isopterygiopsis pulchella*. 59:** creeping through *Amphidium mougeotii* on grit/shale outcrop, ca 270 m alt., Ratten Clough, near Todmorden, SD890268, TL Blockeel 40/488; **112:** on ledge of small outcrop, half-way up lower tier of rocks, north ridge of Sneug, Foula, HT950397, AG Payne.

**200.2. *Herzogiella seligeri*. 36:** on rotting stump in deciduous woodland, Paradise Wood, Brockhampton, near Bromyard, SO675564, M Lawley.

**201.1. *Entodon concinnus*. H7:** with *Homalothecium lutescens* at edge of disused railway platform, 130 m alt., Laffansbridge, S19134679, JL Denyer & CD Preston.

**203.1. *Hageniella micans*. H3:** humid rock in hollow just south of first waterfall, west side of Pass of Keimanagh, W103641, 2009, SDS Bosanquet.

**204.2. *Sematophyllum substrumulosum*. 35:** decorticated conifer log with abundant *Lophocolea heterophylla*, 50 m alt., Caewern, Dingestow, SO445090, SDS Bosanquet.

**205.1. *Cryphaea heteromalla*. 85:** on elder branch, Kinglassie, NT24179797, J O'Reilly.

**207.1.a. *Leucodon sciuroides* var. *sciuroides*. 58:** epiphytic on young oak tree in ancient woodland, 30 m alt., The

Dingle, Appleton, SJ6269585016, DA Callaghan 1353; **H7**: silty ash trunk by river, River Suir, west of Clonmel, S149212, SDS Bosanquet & CD Preston; **H19**: old demesne woodland, ca 175 m alt., Donadea Demesne, N83683311, JL Denyer JLD-B-11-056.

**210.3. *Neckera pumila*. 59:** epiphytic at 2 m height on young oak in ancient woodland, 40 m alt., Glass House Close Wood, SJ5322697316, DA Callaghan 1359.

**210.4. *Neckera complanata*. 111:** on rock, Syradale, Harry, HY352159, 1995, R McCance.

**211.1. *Homalia trichomanoides*. H10:** ash base near weir in stream valley, 210 m alt., Kilmore east, Cappagh White, R901496, SDS Bosanquet & CD Preston; **H19**: on tree base by river, ca 105 m alt., River Liffey, New Bridge, east of Kilcullen, N870098, TL Blockeel 40/533.

**214.1.a. *Isoetecium myosuroides* var. *myosuroides*. H19:** on tree stump, ca 105 m alt., Mooreabbey Demesne, Monasterevin, N6309, TL Blockeel 40/519, JL Denyer *et al.*

**214.2. *Isoetecium alopecuroides*. H19:** on trunk of sycamore, ca 105 m alt., Mooreabbey Demesne, Monasterevin, N6309, TL Blockeel 40/515, JL Denyer *et al.*



△ *Leucodon sciuroides* from Donadea Demesne, Co. Kildare (v.-c. H19). Jo Denyer

**216.3. *Anomodon viticulosus*. H31:** at base of mortared boundary wall, 17 m alt., Dromgoolstown Bridge, Dromin, O03059095, M Eakin.

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