

## CHECKLIST OF BRYOPHYTE SPECIES

### MOSSES (*Sphagnum*)

*Sphagnum papillosum* Lindb.

Common in the West Pennine Moors and Cliviger, occasional elsewhere. Mostly on peat.

*Sphagnum palustre* L.

Distribution similar to *S. papillosum* but more frequent on account of broader habitat requirement.

*Sphagnum magellanicum* Brid.

Rare. Found recently at Belmont and Red Moss.

*Sphagnum squarrosum* Crome

Frequent in the East, mostly in wet pasture and similar places.

*Sphagnum teres* (Schimp.) Ångstr.

Rare. Two localities.

*Sphagnum fimbriatum* Wilson

Common and widespread but becoming scarce in the west. A colonist and the commonest species.

*Sphagnum russowii* Warnst

Occasional among heather or bilberry in the hills

*Sphagnum quinquefarium* (Braithw.) Warnst.

Scarce. few records from the West Pennine Moors.

*Sphagnum capillifolium* (Ehrh.) Hedw.

Quite frequent in the mires of the West Pennine Moors. The two subspecies have not been individually recorded.

*Sphagnum subnitens* Russow & Warnst.

Common in suitable habitat.

*Sphagnum compactum* Lam. & DC.

Rare. Two recent records.

*Sphagnum inundatum* Russow

Rare, two recent records. Formerly rather more frequent, possibly under-recorded.

*Sphagnum denticulatum* Brid.

Robust variegated forms of this species occur occasionally on flushed rock faces in the Pennines.

Frequent elsewhere - as the green form - in ditches, wet moorland slopes etc.

*Sphagnum contortum* Schultz

Several old records from the Pennines, but dubious due to former confusion with *S. denticulatum*.

*Sphagnum tenellum* (Brid.) Pers. ex Brid.

Formerly in the lowland mosses but now rare with just two sites.

*Sphagnum cuspidatum* Ehrh. ex Hoffm.

Frequent in bog pools on the moors.

*Sphagnum balticum* (Russow) C.E.O.Jensen

Nationally scarce. Two old records from sites now destroyed.

*Sphagnum fallax* (H. Klinggr.) H. Klinggr.

Common and widespread except in the west. This and *S. fimbriatum* are much the commonest species.

*Sphagnum flexuosum* Dozy & Molk.

Occasional. Perhaps somewhat overlooked (for *S. fallax*).

*Sphagnum angustifolium* (C.E.O. Jensen ex Russow) C.E.O. Jensen

Rare, three recent records; none before the late 20<sup>th</sup> century. It may be under-recorded as it resembles the very common *S. fallax*.

*Sphagnum obtusum* Warnst.

Extinct. Wheldon's sites in Netherton and Aintree have probably been destroyed.

*Andreaea rupestris* var. *rupestris* Hedw.

Extinct. There are mid-19<sup>th</sup> century records from the Todmorden area.

***Atrichum crispum*** (James) Sull.

Common by streams etc. in the Pennines.

***Atrichum tenellum*** (Röhl.) Bruch & Schimp.

The sole record is from Watergrove. Easily overlooked for *A. crispum*.

***Atrichum undulatum*** (Hedw.) P. Beauv.

Very common in shaded places.

***Oligotrichum hercynicum*** (Hedw.) Lam. & DC.

Confined to the hills, but quite common there.

***Pogonatum nanum*** (Hedw.) P. Beauv.

Extinct. Old records from the South Pennines.

***Pogonatum aloides*** (Hedw.) P. Beauv.

Typically occurs on the bare soil or shale of stream banks, frequent except at low altitudes.

***Pogonatum urnigerum*** (Hedw.) P. Beauv.

Occasional at higher altitudes.

***Polytrichastrum alpinum*** (Hedw.) G.L. Sm.

Travis cites several localities in the N.E. but not seen recently.

***Polytrichastrum formosum*** (Hedw.) G.L. Sm.

Widespread and common.

***Polytrichastrum longisetum*** (Sw. ex Brid.) G.L. Sm.

Scarce on peat in the hills.

***Polytrichum commune*** Hedw.

Widespread and common; preferring wetter places and less common in the W. than *P. formosum*.

***Polytrichum piliferum*** Hedw.

Common, especially at higher altitudes.

***Polytrichum juniperinum*** Hedw.

Common. More tolerant of competition than *P. piliferum* and more frequent at low altitudes.

***Polytrichum strictum*** Menzies ex Brid.

Rare, in the southern remnant mires.

***Tetraphis pellucida*** Hedw.

Common on decaying wood and sandstone, in shade.

***Tetodontium brownianum*** (Dicks.) Schwägr.

Scarce; typically occurring on the roofs of gritstone overhangs.

***Buxbaumia aphylla*** Hedw.

Extinct. Recorded in the early 20<sup>th</sup> century from Medlock Vale.

***Encalypta streptocarpa*** Hedw.

Quite frequent. Almost always associated with wall-mortar, but also on limestone in Clitheroe.

***Encalypta vulgaris*** Hedw.

One record (Huncoat 1907) cited by Travis.

***Encalypta ciliata*** Hedw.

Recorded for Thievely Scout by Nowell in 1842. Very probably extinct.

***Funaria hygrometrica*** Hedw.

Common in the lowlands, especially on disturbed soil and the sites of fires. Less frequent at higher altitudes.

***Physcomitrium pyriforme*** (Hedw.) Bruch & Schimp.

Typically occurs in cow-trampled wet pasture; occasional or scarce, probably decreasing.

***Physcomitrium sphaericum*** (C.F.Ludw. ex Schkuhr) Brid.

A nationally scarce species: it occurs in abundance, in dry years, on the exposed mud of the Jumbles and Wayoh reservoirs.

***Aphanorrhagma patens*** (Hedw.) Lindb.

Rather rare. In small quantity in wet pasture, occasionally abundant on reservoir mud.

***Discelium nudum*** (Dicks.) Brid.

Occasional; apparently declining but perhaps under-recorded - it sometimes occurs in abundance but more often as scattered single plants easily missed.

***Schistidium apocarpum*** complex.

Records for this difficult and recently revised genus are probably quite incomplete. *S. crassipilum* is certainly common and widespread. *S. robustum*, *S. elegantulum* and *S. apocarpum* are present but scarcer. Pre-21st records of the last species should be discounted.

***Schistidium maritimum*** (Sm. ex R.Scott) Bruch & Schimp.

Formerly in the Mersey estuary but probably absent now on account of pollution.

***Schistidium rivulare*** (Brid.) Podp.

Very scarce in rocky streams and the concrete of reservoir outflows.

***Schistidium platyphyllum*** (Mitt.) H.Perss.

Quite frequent in the Clitheroe area, occasional on wet basic sandstone and concrete elsewhere.

***Grimmia donniana*** Sm.

Last recorded in 1978 but there is no obvious reason why this species should not still be found on the Millstone Grit.

***Grimmia pulvinata*** (Hedw.) Sm.

Common everywhere especially on wall-tops. Remarkably, Travis designates it 'rare' except in the N.E.

***Grimmia orbicularis*** Bruch ex Wilson

Rare. Not easily distinguished from *G. pulvinata* and perhaps under-recorded.

***Grimmia trichophylla*** Grev.

Scarce or occasional, mostly on wall-tops.

***Racomitrium aciculare*** (Hedw.) Brid.

Common at higher altitudes, absent from the west. Typically occurs in rocky streams but it also occurs away from water.

***Racomitrium aquaticum*** (Brid. ex Schrad.) Brid.

Rare in the South Pennines generally, and probably absent from VC59, though there is a 19<sup>th</sup> century record from Thievely Scout.

***Racomitrium fasciculare*** (Hedw.) Brid.

Frequent in the hills on boulders and wall-tops. Scarce in similar places at low altitudes.

***Racomitrium sudeticum*** (Funk) Bruch & Schimp.

Rare, Two recent records, from the gritstone walls of reservoirs.

***Racomitrium affine*** (F.Weber & D.Mohr) Lindb.

Scarce, on rock at higher altitudes.

***Racomitrium heterostichum*** (Hedw.) Brid.

Similar distribution to *R. affine* and not easily distinguished from it. Mucous forms with obtuse leaf tips occur.

***Racomitrium ericoides*** (Brid.) Brid.

Scarce, always above 100m.

***Ptychomitrium polyphyllum*** (Dicks. ex Sw.) Bruch & Schimp.

Common in the Pennines, mostly on gritstone walls, especially by reservoirs.

***Campylostelium saxicola*** (F. Weber & D. Mohr) Bruch & Schimp.

One record, Ramsden Clough in 1842.

***Blindia acuta*** (Hedw.) Bruch & Schimp.

Occasional above 200m, on rock in streams.

***Brachydontium trichodes*** (F. Weber) Milde

Rare, on sandstone boulders. Three recent localities, formerly apparently somewhat more frequent.

***Seligeria recurvata*** (Hedw.) Bruch & Schimp.

Occasional on rock in the Pennines, rare elsewhere.

***Archidium alternifolium*** (Hedw.) Mitt.

Quite frequent on reservoir mud; scarce elsewhere on damp bare ground.

*Fissidens viridulus* (Sw. ex anon.) Wahlenb.

Scattered and occasional.

*Fissidens crispus* Mont.

The sole record is from Kirby, dated 1903.

*Fissidens pusillus* (Wilson) Milde

Quite frequent on rock in unpolluted fast streams and therefore mostly in upland localities.

*Fissidens incurvus* Starke ex Röhl.

Sparse, mostly near the Ribble.

*Fissidens bryoides* var. *bryoides* Hedw.

Very common on soil, especially clay, shale banks etc.

*Fissidens bryoides* var. *caespitans* Schimp.

Sparse, possibly under-recorded.

*Fissidens crassipes* Wilson ex Bruch & Schimp.

Occasional in aquatic habitats; on stone and timber near the water surface.

*Fissidens exilis* Hedw.

Last recorded in 1978 but this very small species is easily missed and should not be designated extinct.

*Fissidens osmundoides* Hedw.

Rare on flushed rock faces. Two extant localities.

*Fissidens taxifolius* Hedw.

Widespread and common on bare ground.

*Fissidens dubius* P.Beauv.

Frequent on the Pendle limestone; occasional elsewhere on mortar, concrete etc.

*Fissidens adianthoides* Hedw.

Quite frequent in the more base-rich mires and on wet basic rock.

*Fissidens fontanus* (Bach.Pyl.) Steud.

Frequent in the Manchester area submerged on the masonry of canals.

*Pleuridium acuminatum* Lindb.

Scattered and occasional on bare soil and riverbanks.

*Pleuridium subulatum* (Hedw.) Rabenh.

As for *P. acuminatum*, but scarcer.

*Pseudephemerum nitidum* (Hedw.) Loeske

Often abundant on reservoir mud; scattered in small quantity elsewhere.

*Trichodon cylindricus* (Hedw.) Schimp.

Frequent in stubble fields; elsewhere apparently rather scarce but possibly overlooked.

*Ditrichum gracile* (Mitt.) Kuntze

Very rare; one record from Skelmersdale.

*Ditrichum heteromallum* (Hedw.) E. Britton

Occasional in the hills, virtually absent elsewhere.

*Distichium capillaceum* (Hedw.) Bruch & Schimp.

Sparse, mostly in artificial habitats such as old colliery sites and lime waste.

*Distichium inclinatum* (Hedw.) Bruch & Schimp.

Recorded sporadically on the Sefton coast until 1983. Probably extinct due to habitat degradation.

*Ceratodon purpureus* (Hedw.) Brid.

Very common in a wide range of habitat but avoiding basic substrates.

*Amphidium mougeotii* (Schimp.) Schimp.

Invariably on wet rock faces, and so rare below c.150m.

***Dichodontium pellucidum*** (Hedw.) Schimp.

Quite frequent on gravel, silt and firm soil by streams, occasionally on silty boulders. Also on flushed shale in the coal measures.

***Dichodontium flavescens*** (Dicks.) Lindb.

Almost certainly absent or very rare. All fertile *Dichodontium* plants seen have been *D. pellucidum*. But there are one or two 19<sup>th</sup> century records from the Pennines.

***Dichodontium palustre*** (Dicks.) M. Stech

Characteristic of springs and flushes in the hills, and frequent in that habitat.

***Dicranoweisia cirrata*** (Hedw.) Lindb.

Common on bark and less often rock. Pollution tolerant but not common in cities.

***Schistostega pennata*** (Hedw.) F. Weber & D. Mohr

There are many 19<sup>th</sup> century records from such places as mine drifts which may no longer be extant. Not seen for many years but unlikely to be extinct, suitable habitat remains.

***Dicranella schreberiana*** (Hedw.) Dixon

Common in stubble fields, occasional on open ground elsewhere

***Dicranella crispa*** (Hedw.) Schimp.

A scarce species in the N. of England, and probably decreasing. Most records are from the 19<sup>th</sup> or early 20<sup>th</sup> centuries, but it was seen at Cheesden brook in 1984 and in Rossendale in 1991.

***Dicranella subulata*** (Hedw.) Schimp.

Not seen since 1900 but there seems no reason why this species should not still be present in its Cliviger sites.

***Dicranella varia*** (Hedw.) Schimp.

Common bare soil, especially clay with some base content.

***Dicranella staphylina*** H. Whitehouse

Ubiquitous in stubble fields; less common but probably overlooked in other habitats.

***Dicranella rufescens*** (Dicks.) Schimp.

Frequent on shaly banks, especially in the hills, on bare soil, shale, and silty ground by streams and reservoirs.

***Dicranella cerviculata*** (Hedw.) Schimp.

Infrequent, on peat. It appears to have decreased considerably, in part at least due to loss of habitat.

***Dicranella heteromalla*** (Hedw.) Schimp.

Common on peat, sandstone and woodland banks.

***Dicranum bonjeanii*** De Not.

Can be reliably found on the Sefton coast. Very rare inland.

***Dicranum scoparium*** Hedw.

Common on a wide range of substrates: tree branches, boulders, wall tops and soil. Abundant in old colliery sites, and with heather and bilberry on the moors.

***Dicranum undulatum*** Schrad. ex Brid.

Extinct. Old records from the southern mosslands.

***Dicranum fuscescens*** Sm.

Recorder in Cliviger in the 19<sup>th</sup> century.

***Dicranum tauricum*** Sappegin

A recent colonist, becoming frequent on tree bark.

***Dicranodontium denudatum*** (Brid.) E. Britton

Occasional on old logs in wet woodland, sometimes on soil immediately alongside them. Nearly always in the hills, above 100m.

***Campylopus fragilis*** (Brid.) Bruch & Schimp.

There are old records from basic areas, but none recently.

***Campylopus pyriformis*** (Schultz) Brid.

Frequent on peat in the hills, on path sides, peaty gullies etc., also on soil over boulders and on walls; colliery spoil and similar ex-industrial sites.

***Campylopus flexuosus*** (Hedw.) Brid.

Common on peat, rocks, stone walls and old logs.

***Campylopus introflexus*** (Hedw.) Brid.

Although an alien species this is the commonest of its genus. Similar places to other *Campylopus* species, an indicator of drying peat.

***Leucobryum glaucum*** (Hedw.) Ångstr.

Sparse, in woodland and on the Sefton dunes. Not adequately distinguished from *L. juniperoidium* and many records are probably referable to that species.

***Eucladium verticillatum*** (With.) Bruch & Schimp.

A calcicole, growing on limestone in the old quarries of Clitheroe, and elsewhere on shaded sandstone or occasionally soil in the more basic areas.

***Weissia controversa*** Hedw.

Scattered but quite frequent on bare ground: clay banks and among thin grass.

***Weissia rutilans*** (Hedw.) Lindb.

The sole record is from Parkside in 1859.

***Weissia brachycarpa*** (Nees & Hornsch.) Jur.

Very scarce, in basic habitats.

***Weissia squarrosa*** (Nees & Hornsch.) Müll.Hal.

Not recorded since 1900, probably extinct. It has declined significantly in the north of England generally.

***Tortella tortuosa*** (Hedw.) Limpr.

Frequent on limestone in Pendle. Many of the other records are from limestone rockeries or occasionally concrete.

***Tortella flavovirens*** (Bruch) Broth.

Coastal, on sandstone.

***Tortella inclinata*** (R.Hedw.) Limpr.

Only on the limestone of Worsaw Hill.

***Trichostomum brachydontium*** Bruch

On the Sefton coast and old quarries at Clitheroe.

***Trichostomum crispulum*** Bruch

On the Clitheroe limestone; elsewhere in lime-tips.

***Hymenostylium recurvirostrum*** (Hedw.) Dixon

No recent records. Formerly in Cliviger.

***Anoetangium aestivum*** (Hedw.) Mitt.

Last recorded for Mearley Clough in 1965. It could well be still present.

***Gyroweisia tenuis*** (Hedw.) Schimp.

On natural limestone in Pendle, elsewhere occasional on brickwork or masonry.

***Gymnostomum aeruginosum*** Sm.

Scarce. On flushed rock and shale in the hills, in the coal measures and on limestone in old Clitheroe quarries.

***Ephemerum minutissimum*** Lindb.

Occasional. Most records are from stubble fields. but it has also been found on bare soil in other places: churchyards, reservoir mud etc.

***Ephemerum serratum*** (Hedw.) Hampe

Rare, on reservoir mud.

***Pseudocrossidium hornschuchianum*** (Schultz) R.H.Zander

Largely ruderal; frequent at low altitudes on compacted soil, paths etc., scarce in the hills.

***Pseudocrossidium revolutum*** (Brid.) R.H.Zander

Frequent in Pendle and Trawden, but mainly on walls rather than natural limestone. Scattered elsewhere on mortared walls, also in the Sefton dunes.

***Bryoerythrophyllum recurvirostrum*** (Hedw.) P.C.Chen

Frequent, typically on the mortar of old walls less frequently on concrete and sometimes on hard soil in basic conditions, also on the coastal dunes.

***Bryoerythrophyllum ferruginascens*** (Stirt.) Giacom.

Rare. Found at Worsaw Hill in 2011 and on gravelly bare ground in Limestone Clough in 2012.

***Leptodontium flexifolium*** (Dicks.) Hampe

Sparse, on bare soil; on stony ground in peat areas, on paths and in among grass.

***Leodontium proliferum*** Herzog

An alien species, it appears sporadically on the margins of a bowling green in Haslingden.

***Barbula convoluta*** Hedw.

Very common on bare or disturbed soil, waste ground, gardens, arable fields etc., becoming sparse only on the higher hills and moorland.

***Barbula convoluta* var. *sardoa*** Schimp.

Mostly found on the mortar of walls, sometimes on bare ground where basic, eg among limestone chippings.

***Barbula unguiculata*** Hedw.

Very common. Shares the ruderal habitat of *B. convoluta*, and often grows with it.

***Didymodon acutus*** (Brid.) K.Saito

A calcicole, recorded from the Clitheroe limestone.

***Didymodon nicholsonii*** Culm.

On silt-covered stone in rivers, notably the Ribble, but most records are ruderal from car parks, churchyards and cemeteries, old tarmac, concrete etc.

***Didymodon umbrosus*** (Müll.Hal.) R.H.Zander

The only record is from Speke Hall, in 1988.

***Didymodon vinealis*** (Brid.) R.H.Zander

Probably scarce but hard to record because of similarity to small *D. insulanus*.

***Didymodon insulanus*** (De Not.) M.O.Hill

Common on a wide range of substrates and virtually ubiquitous in urban and man-made habitats.

***Didymodon luridus*** Hornsch.

Reported from stones and masonry alongside the river Ribble. Sporadic records elsewhere from ruderal habitats such as tarmac, canal towpaths, pavements etc.

***Didymodon sinuosus*** (Mitt.) Delogne

Frequent in the NE on natural limestone. Scattered and occasional elsewhere on artificial substrates in colliery tips, old rockeries etc.

***Didymodon tophaceus*** (Brid.) Lisa

Quite frequent in wet places on the limestone and in dune slacks and on shaly banks in the coal measures where there is basic seepage.

***Didymodon spadiceus*** (Mitt.) Limpr.

Occasional on the northern limestone, with an outlier in Borsdane Wood near Wigan.

***Didymodon fallax*** (Hedw.) R.H.Zander

Mildly basophile this species is recorded from the limestone and the coastal dune slacks as one might expect and it is also frequent in a wide range of ruderal habitats, for example old tarmac, on paths among chippings etc.

***Didymodon ferrugineus*** (Schimp. ex Besch.) M.O.Hill

Recorded from the limestone of Clitheroe and Downham, also by the river Don at Burnley.

***Aloina rigida*** (Hedw.) Limpr.

First recorded in 1863, near Burnley, and found again in the same area in 1873; there are no subsequent records.

***Aloina aloides*** (Koch ex Schultz) Kindb.

Rather scarce but widespread. This species favours base-rich ground and many records are from man-made environments.

***Aloina ambigua* (Bruch & Schimp.) Limpr.**

There are no records between 1877 and 2000 when it was found on bare soft sandstone by the river Irwell. It has not been found there in recent revisits.

***Tortula subulata* Hedw.**

Mainly in more basic areas, Pendle and Cliviger and the dunes of the Sefton coast. Elsewhere rare, on mortared walls.

***Tortula marginata* (Bruch & Schimp.) Spruce**

The only site is a sandstone wall at Speke.

***Tortula muralis* Hedw.**

Very common. It is most frequent in urban and suburban areas, on brick and stone walls.

***Tortula modica* R.H.Zander**

Scarce, on disturbed soil and in stubble fields and in the Hesketh marshes.

***Tortula truncata* (Hedw.) Mitt.**

Present in most stubble fields. Amongst flower beds in parks and gardens and bare places by paths, canal towpaths, churchyards etc., and on reservoir mud.

***Phascum cuspidatum* var. *cuspidatum* Hedw.**

Principally a southern and eastern species, rather sparse in our region. It is a moss of disturbed ground, being found in cattle-trampled pasture, churchyards, parks and stream banks.

***Microbryum davallianum* (Sm.) R.H. Zander**

Recent records from the Rixton Clay pits, and clay soil in a churchyard.

***Microbryum rectum* (With.) R.H. Zander**

Hunt recorded this species in 1867 'near Manchester'.

***Hennediella heimii* (Hedw.) R.H. Zander**

Occasional on the coast.

***Syntrichia ruralis* var. *ruralis* (Hedw.) F.Weber & D.Mohr**

On limestone in Pendle and on the Sefton dunes. Elsewhere it is mainly ruderal, favouring especially broken tarmac on drives and car parks.

***Syntrichia ruralis* var. *ruraliformis* (Besch.) Delogne**

Characteristic of sand dunes, where it is very frequent. It also occurs quite often slightly inland.

***Syntrichia montana* Nees**

Frequent on basic substrates including the Pendle limestone and on the Sefton dunes; elsewhere mostly ruderal.

***Syntrichia laevipila* Brid.**

An epiphyte on trunks and large branches, usually Willow, Elder or Poplar; mainly lowland.

***Syntrichia papillosa* (Wilson) Jur.**

An epiphyte, chiefly on ash, willow, and sycamore- sometimes on suburban street trees and in churchyards etc. Certainly increasing.

***Syntrichia latifolia* (Bruch ex Hartm.) Huebener**

Common on silted tree roots on the banks of the river Ribble, its classic habitat; Elsewhere it is not often seen in its river habitat but is occasional and probably increasing as an epiphyte and on concrete and old tarmac and occasionally on trees away from water.

***Cinclidotus fontinaloides* (Hedw.) P.Beauv.**

Frequent on the basic rocks of the river Ribble, especially around the Clitheroe area. Scarce elsewhere.

***Tetraplodon mnioides* (Hedw.) Bruch & Schimp.**

Exclusively on decaying animal matter in wet conditions. Formerly in the western moss-lands but almost certainly extinct.

***Splachnum sphaericum* Hedw.**

Rare. On cow and sheep dung on the moors in Haslingden and Belmont.

***Splachnum ampullaceum* Hedw.**

Formerly widespread, it has almost certainly gone from most or all the 19th century localities- lowland mosslands which are now drained.



***Meesia uliginosa*** Hedw.

Known from the Sefton coast since 1858, last seen there in 1988.

***Amblyodon dealbatus*** (Hedw.) P.Beauv.

No recent records. Formerly on the Sefton coast and basic areas of the Pennines.

***Leptobryum pyriforme*** (Hedw.) Wilson

Largely ruderal and thus virtually absent from the hills and moors. Well known as a weed of greenhouses, plant-pots and bare places in parks and gardens.

***Zygodon viridissimus*** (Dicks.) Brid.

Quite frequent as an epiphyte, rarely on stone; considerably less common than *Z. conoidius*.

***Zygodon conoideus*** (Dicks.) Hook. & Taylor

Formerly rare or absent, now common. One of the epiphytic species which has rapidly colonised our area in the 20th century.

***Orthotrichum lyellii*** Hook. & Taylor

Formerly absent (not in Travis' Flora). Now occasional and increasing.

***Orthotrichum stramineum*** Hornsch. ex Brid.

Like many epiphytes. becoming frequent.

***Orthotrichum striatum*** Hedw.

Occasional, perhaps frequent.

***Orthotrichum tenellum*** Bruch ex Brid.

Another of the epiphytes which have increased recently.

***Orthotrichum diaphanum*** Schrad. ex Brid.

Common as an epiphyte, notably on elder; rather less frequent on rock. It is less pollution sensitive than other members of the genus.

***Orthotrichum pulchellum*** Brunt.

Common on bark. Formerly absent.

***Ulota crispa*** agg

Common. The distribution of the species of the aggregate, recently revised, is not yet adequately known.

***Ulota phyllantha*** Brid.

A common epiphyte on the branches of various tree species, especially willow. Formerly rare or absent.

***Hedwigia stellata*** Hedenäs

Casual. Recorded on a boulder in a park at Oldham, and once on a wooden post, a most unusual substrate.

***Catoscopium nigratum*** (Hedw.) Brid.

A nationally scarce species, it was formerly frequent on the Sefton coast. The last record is dated 1888.

***Bartramia pomiformis*** Hedw.

Rare. Recently recorded in just two localities: from a sandstone cliff by Cheesden Brook and from shaly rock in Gorpley Clough.

***Bartramia ithyphylla*** Brid.

Rare. Ratten Clough and Gorpley Clough.

***Philonotis arnellii*** Husn.

Very rare. One locality, on reservoir mud.

***Philonotis caespitosa*** Jur.

Last recorded in 1977, on reservoir mud.

***Philonotis fontana*** (Hedw.) Brid.

Common in the hills, where is a characteristic component of the flora of springs and flushes. Scarce in the lowlands.

***Philonotis calcarea*** (Bruch & Schimp.) Schimp.

Recently recorded from Coldwell and Cant Clough Reservoirs and from a flush on the slopes of Winter Hill.

***Breutelia chrysocoma*** (Hedw.) Lindb.

Formerly in Cliviger, now absent.

***Plagiobryum zieri*** (Hedw.) Lindb.

Nowell recorded this species from Greens Clough in 1840. It has not been seen since.

***Anomobryum concinnatum*** (Spruce) Lindb.

The only record is for Pendle Hill, 1965.

***Bryum marratii*** Hook.f. & Wilson

Formerly in the dune slacks of the Sefton coast. Almost certainly extinct: the last reliable records are from the end of the 19th century.

***Bryum warneum*** (Röhl.) Brid.

Many extant localities in the coastal dune slacks of VC59, where it has been recorded since 1864. An old inland record is from the Ashton Gravel Pit, now destroyed.

***Bryum calophyllum*** R.Br.

Many records for the Sefton coast 1840-1945 but none recently. There is one record from Ashton-under-Lyme probably from the well-known gravel pit, now destroyed.

***Bryum uliginosum*** (Brid.) Bruch & Schimp.

Probably extinct; last recorded on the Sefton coast in 1918.

***Bryum pallens*** Sw. ex anon.

Occasional, mostly but not exclusively in the more basic areas and in colliery workings, lime-beds etc.

***Bryum turbinatum*** (Hedw.) Turner

Extinct. Formerly known from a gravel pit in Ashton-under-Lyme famous for its wide range of *Bryum* spp; it was last recorded in 1871 and the site is now destroyed. Somewhat later (1879) it was found at Clifton Junction.

***Bryum algovicum*** Sendtn. ex Müll.Hal.

Mainly a coastal species, with many records in the Southport/Ainsdale area from the mid-19th century onwards, where it grows on bare ground and in dune slacks. Scattered inland on various basic substrates, often anthropogenic (eg thin soil over concrete and brick rubble, paths, in old quarries).

***Bryum knowltonii*** Barnes

Recorded from the Sefton coast, frequently in the 19th century and less and less often in later years; last seen in 2011. Inland records from Ashton-under-Lyme (1866), Huyton Quarry (1860) and Pennington Flash (1977).

***Bryum archangelicum*** Bruch & Schimp.

Occasional and widespread but mostly on the coast and in the hills.

***Bryum intermedium*** (Brid.) Blandow

A basophile species found for example in dune slacks, colliery spoil, gravel workings and lime beds.

***Bryum donianum*** Grev.

Recorded in Winwick quarry by Wilson in 1855. Also formerly at Kirby (Wheldon's Flora).

***Bryum capillare*** Hedw.

Widespread and very common on rock, bark and sometimes soil.

***Bryum elegans*** Nees

On thin soil over limestone on Worsaw Hill. First found in 1973 and still present in 2010.

***Bryum moravicum*** Podp.

An epiphyte, apparently rare but easily overlooked and perhaps under-recorded.

***Bryum creberrimum*** Taylor

There are 19th century records from the Ashton-under-Lyme and Eccles areas; the only 20th century records are from Worsley (1977) and from a reservoir wall in Gorpley Clough (2003).

***Bryum pallescens*** Schleich. ex Schwägr.

Scattered and apparently scarce. It occurs in dune slacks, but most records have been from metalliferous sites e.g., under iron sheet; it is especially associated with zinc, growing under galvanised iron railings, pylons etc.

***Bryum pseudotriquetrum*** (Hedw.) P.Gaertn. et al.

A characteristic species of springs in the hills, along with *Philonotis fontana* and *Dichodontium palustre*; in flushes and dune slacks where it can form extensive patches. Elsewhere in various wet habitats, usually in smaller quantity and often as a few stems.

***Bryum caespitium*** Hedw.

Believed to be decreasing nationally but appears to be quite frequent in our region, especially in ruderal sites such as colliery workings, dismantled railways etc. Also in dune slacks.

***Bryum argenteum*** Hedw.

Common on concrete, old tarmac, and similar ruderal habitats, often with *B. dichotomum*. Not often seen in 'natural' habitats.

***Bryum gemmiferum*** R.Wilczek & Demaret

The prime locality is the Sefton dune slacks.

***Bryum dichotomum*** Hedw.

Very common in similar habitats to *B. argenteum*, and often found with it.

***Bryum dyffrynense*** Holyoak

This species was not distinguished from *B. dichotomum* until 2000. Many records from the dune slacks of the coast.

***Bryum radiculosum*** Brid.

A nondescript little moss most likely to be found in lime-rich places such as mortar. Probably under-recorded.

***Bryum ruderale*** Crundw. & Nyholm

Apparently rare but very likely under-recorded: there are many records in North Cheshire.

***Bryum violaceum*** Crundw. & Nyholm

Present in almost every stubble field. Occasionally found in other habitats including cattle-trampled pasture.

***Bryum klinggraeffii*** Schimp.

Frequent in arable fields, but less common than some other tuberous Bryums, it appears to prefer the peaty soils of the drained mosslands to clays elsewhere. Also found on reservoir mud.

***Bryum tenuisetum*** Limpr.

Probably scarce. All records are from reservoirs (1979-2006); not seen on arable land.

***Bryum subapiculatum*** Hampe

Occasional in stubble fields.

***Bryum rubens*** Mitt.

Common in stubble fields and occasional in disturbed soil, molehills etc elsewhere.

***Bryum alpinum*** Huds. ex With

Recorded once, on wet gritstone near Foulridge (Travis's Flora).

***Pohlia elongata*** Hedw.

The earliest record (1840) is from Thievely Scout; it was found in Ratten Clough in 1857 and re-found there on wet shale in 1988. Other recent records from Ogden Clough and Gorpley Clough.

***Pohlia cruda*** (Hedw.) Lindb.

First recorded for Ratten Clough (VC59) in 1844 and re-found there in 2004. Also (1965) Mearley Clough.

***Pohlia nutans*** (Hedw.) Lindb.

Common in the Pennines and West Pennine Moors, less frequent below 100m. In a wide range of habitat including moorland flushes, on thin soil on boulders, wall tops, logs in woodland and sometimes arable fields.

***Pohlia drummondii*** (Müll.Hal.) A.L. Andrews

On reservoir mud: Watergrove reservoir in 1988. Also recorded from Pendle Hill (1973).

***Pohlia bulbifera*** (Warnst.) Warnst.

On mud damp sandy ground, most records are from meres or reservoirs.

***Pohlia annotina*** (Hedw.) Lindb.

Frequent on wet shale banks in the coal measures, also on sandstone and bare stony soil. The commonest of the bulbiferous *Pohlia* species.

***Pohlia camptotrachela*** (Renauld & Cardot) Broth.

Most records are from exposed mud or bare sandy ground by reservoirs, but it also occurs in cattle-trampled wet pasture.

***Pohlia flexuosa*** Hook.

Recorded for Cliviger in 1981.

***Pohlia lutescens*** (Limpr.) H. Lindb.

An inconspicuous species probably under-recorded. It is found on sandy soils particularly on banks by streams and tracks.

***Pohlia lescuriana*** (Sull.) Ochi

Uncommon but perhaps under-recorded; in arable fields on clay soils, in cattle-trampled pasture and on mud by reservoirs and ponds.

***Pohlia melanodon*** (Brid.) A.J. Shaw

Common on clay banks by streams and ditches, on bare stony ground such as paths and tracks and on loose shale in the coal measures.

***Pohlia wahlenbergii*** (F. Weber & D. Mohr) A.L. Andrews

Frequent in the hills, where it is typically found on wet rock (especially shales), often by waterfalls.

***Mnium hornum*** Hedw.

Very common in acid woodland, sometimes found elsewhere in shaded places- hedgerows, gardens, etc. On soil and decayed logs.

***Mnium marginatum*** (Dicks.) P.Beauv.

Recorded in Sheddon Clough between 1843 (MANCH, Nowell) and 1854, and recently (1999) near Clitheroe.

***Mnium stellare*** Hedw.

First found in Green's Clough in 1844 where it was re-found in 2003. A mild calcicole, it occurs in duneslacks, on rock in the coal measures and on sandstone.

***Rhizomnium punctatum*** (Hedw.) T.J.Kop.

Common in woodland and damp shaded places generally. On banks and woodland floor where tall vegetation is absent, often on old logs and very commonly on stone in and by streams.

***Rhizomnium pseudopunctatum*** (Bruch & Schimp.) T.J.Kop.

Scarce, in mires on the moors, often amongst *Juncus*.

***Plagiomnium cuspidatum*** (Hedw.) T.J. Kop.

Typically found in short turf, sometimes on old walls and logs, also in the dune slacks. Surprisingly scarce and missing from many of its old localities.

***Plagiomnium affine*** (Blandow ex Funck) T.J. Kop.

Fairly frequent in the less acid areas, avoiding moorland and most millstone grit localities. Typically occurs in grassland where the vegetation is sparse, on banks and path-sides.

***Plagiomnium elatum*** (Bruch & Schimp.) T.J. Kop.

Generally found in rather wet habitats, in flushes and among *Juncus* in pasture, avoiding the more acid areas.

***Plagiomnium ellipticum*** (Brid.) T.J. Kop.

Rather sparse. In similar habitats to *P.elatum*.

***Plagiomnium undulatum*** (Hedw.) T.J. Kop.

Common in woodland, in hedgerows, parks, and gardens, sometimes on old walls and logs, also dune-slacks.

***Plagiomnium rostratum*** (Schrad.) T.J. Kop.

Typically, a plant of riverbanks. It requires a substrate at least mildly basic and shows a distinct preference for sandy rather than clay soils, thus it is very common by the Ribble and some of its tributaries but rather sparse elsewhere.

***Aulacomnium palustre*** (Hedw.) Schwägr.

This species typically grows in mires on the moors, more often in the coal measures than the millstone grit. But it is also frequent at lower altitudes in the shaly areas of the coal measures, being particularly characteristic of old colliery workings.

***Aulacomnium androgynum*** (Hedw.) Schwägr.

Widespread and common on rotting logs and stumps and occasionally on elder branches and peat banks. Also frequent on the soft red sandstone in the west.

***Orthodontium lineare*** Schwägr.

Present but rare in VC59 at the time of Travis' Flora, it is now very common. Its favoured habitat is the base of acid-bark trees in woodland, but it is also frequent on damp sandstone and occasionally other rock.

***Hookeria lucens*** (Hedw.) Sm.

Found on banks and by streams in woodland but often obscure in clefts and crevices, sometimes only detected by a deliberate search.

***Fontinalis antipyretica*** Hedw.

Aquatic, frequent in suitable habitats including canals, reservoir outflows and other nutrient-rich sites; sometimes in rivers and large streams in the lowlands. Occasionally exceedingly abundant in canals.

***Fontinalis squamosa*** Hedw.

A rare aquatic species. Not recorded since 1898 (in Blackley).

***Climacium dendroides*** (Hedw.) F.Weber & D.Mohr

This species has a tendency towards basic substrates, and it is unsurprising that it is most frequent in Pendle and Cliviger. It also occurs in dune slacks and there are scattered records over most of the area where it grows in willow carr, by reservoirs, under walls in wet meadows and similar places.

***Palustriella commutata*** (Hedw.) Ochyra

Quite frequent in basic flushes in the Pennines and West Pennine Moors, mostly in the coal measures. It is particularly characteristic of seepages in loose shale.

***Palustriella falcata*** (Brid.) Hedenäs

There are reliable records from basic areas in the N.E., but some records might be referable to irregularly branched *P. commutata*.

***Cratoneuron filicinum*** (Hedw.) Spruce

Very common. It can be found on natural substrates in the coal measures, but it is at its best in the basic flushes of Cliviger where the shoots tend to be larger, regularly pinnate and erect.

***Campylium stellatum*** (Hedw.) Lange & C.E.O. Jensen

Quite plentiful in the basic regions in the NE, and on the coastal dunes; it occurs also in mildly basic flushes in the coal measures.

***Campylium protensum*** (Brid.) Kindb.

A calcicole, occasional in the limestone and basic flushes of the Clitheroe area. Also, old lime tips.

***Campyliadelphus chrysophyllus*** (Brid.) R.S. Chopra

A strong calcicole, found in its natural habitats on the Sefton dunes and the Clitheroe limestone. Elsewhere, on old alkali tips and lime beds.

***Campyliadelphus elodes*** (Lindb.) Kanda

A calcicole, recorded on the Sefton dunes since 1854. The only inland record is from Outwood, probably associated with alkali waste.

***Amblystegium serpens*** (Hedw.) Schimp.

Very common, almost ubiquitous, it occupies a variety of substrates in damp conditions favouring woodland over the more exposed situations. There are a few coastal records of var. *salinum*.

***Hygroamblystegium fluviatile*** (Hedw.) Loeske

On stones and timber structures in streams and rivers. There are no records before the late 20th century.

***Hygroamblystegium tenax*** (Hedw.) Jenn.

Rather sparse; typically found on rocks and boulders in streams and canals; occasionally in wet places elsewhere.

***Hygroamblystegium varium*** (Hedw.) Mönk.

In wet habitats, damp soil and rotten logs; by the river Mersey, and reservoirs.

***Hygroamblystegium humile*** (P.Beauv.) Vanderp. et al.

Rare. On bare wet soil and decaying vegetation.

***Leptodictyum riparium*** (Hedw.) Warnst.

Frequent on stones and masonry in rivers, canals and wet ditches. It tends to avoid fast-flowing water, so is less frequent in the hills. Sometimes on wood, stone, brick etc in mires and waste ground which is frequently inundated.

***Drepanocladus polygamus*** (Schimp.) Hedenäs

Recent records are from the Sefton Coast (2010) and Burnley (2004).

***Drepanocladus aduncus*** (Hedw.) Warnst.

Frequent in pools in the less acid areas, dune slacks, the coal measures and sandstones. Mainly lowland.

***Drepanocladus sendtneri*** (Schimp. ex H.Müll.) Warnst.

A nationally rare species known from the Sefton Coast since 1859 and last recorded there in 2006. Probably lost from some of its Sefton sites as a result of the falling water table.

***Sanionia uncinata*** (Hedw.) Loeske

Occasional, in a variety of habitats including grassy banks, sparsely vegetated gravelly soil, old logs, and the trunks and branches of various trees. It shows a marked preference for higher altitudes.

***Hygrohypnum ochraceum*** (Turner ex Wilson) Loeske

On stones in streams, often submerged. It favours the more acid rocks and higher altitudes.

***Hygrohypnum luridum*** (Hedw.) Jenn.

On stones in streams and occasionally away from water. Commonest on the more basic substrates in the north.

***Pseudocalliergon lycopodioides*** (Brid.) Hedenäs

In wet dune slacks on the Sefton coast (first recorded there in 1851). Almost certainly decreasing as a result of the falling water table but still present in 2010.

***Warnstorfia fluitans*** (Hedw.) Loeske

Quite frequent on the moors in peaty pools. Also, in lowland mires and in pools in old colliery workings and disused railways. Rarely on stone.

***Sarmentypnum exannulatum*** (Schimp.) Hedenäs

In flushes and mires in the more basic areas, particularly Cliviger.

***Straminergon stramineum*** (Dicks. ex Brid.) Hedenäs

Found typically in *Juncus* mires, and among tall herb in wet fields and by streams, occasionally in wet woodland.

***Scorpidium revolvens*** (Sw. ex anon.) Rubers

An old (1924) record, from Rainford.

***Scorpidium cossonii*** (Schimp.) Hedenäs

This species is base demanding and therefore it is not surprising that records are almost restricted to the Sefton dune slacks and flushes in the Trawden area.

***Calliergon cordifolium*** (Hedw.) Kindb.

Frequent in various wet habitats: by ponds, in mires etc.; often among *Juncus* or other tall herbs.

***Calliergon giganteum*** (Schimp.) Kindb.

In similar places to *C. cordifolium* but much scarcer, perhaps because of being more basophilic.

***Leskea polycarpa*** Hedw.

Frequent by the River Ribble, on tree roots and branches where silt has been deposited, sometimes on the silty masonry of bridges. Scattered and less frequent elsewhere, by reservoirs as well as rivers and streams.

***Thuidium tamariscinum*** (Hedw.) Schimp.

Quite frequent on woodland floor, especially in open birch carr; occasionally in short grassland; sometimes on old logs. Also on the Sefton dunes.

***Thuidium delicatulum*** (Hedw.) Schimp.

One record (2012) from flushed grassland in old colliery workings.

***Pseudoscleropodium purum*** (Hedw.) M.Fleisch.

Found typically in grassland where the soil is neither wet nor markedly acid, sometimes among bilberry or heather. Frequent in the Sefton dunes.

***Eurhynchium striatum*** (Hedw.) Schimp.

Frequent on the northern limestone, occasional to frequent in the coal measures and a feature of the more basic sandstone areas, also in lime beds, old colliery workings and dismantled railways.

***Platyhypnidium riparioides*** (Hedw.) Dixon

Very common in rocky streams in the hills. It is less frequent at lower altitudes but can occur there in various wet habitats such as ditches, culverts and reservoir inflow.

***Platyhypnidium lusitanicum*** (Schimp.) Ochyra & Bednarek-Ochyra

An aquatic species, resembling the common *P. riparioides* and probably thereby under-recorded. Recorded from Gorpley Clough (2013).

***Rhynchostegium murale*** (Hedw.) Schimp.

The Pendle records are likely to be from limestone substrates, but most records are from mortared walls or concrete.

***Rhynchostegium confertum*** (Dicks.) Schimp.

Very common. It occurs on the trunks and larger branches of various trees and on rocks, boulders and wall tops, particularly in parks and suburban gardens; occasionally on firm soil of shaded banks as on lane-sides.

***Rhynchostegium megapolitanum*** (Blandow ex F.Weber & D.Mohr) Schimp.

Formerly on the Sefton dunes but probably extinct.

***Rhynchostegiella tenella*** (Dicks.) Limpr.

Many records are from mortared walls, usually in some shade. On natural limestone in Clitheroe (Cross Hill Quarry).

***Rhynchostegiella teneriffae*** (Mont.) Dirkse & Bouman

Rare. Recorded at Salesbury Hall in 1981.

***Cirriphyllum piliferum*** (Hedw.) Grout

Occasional in the northern basic areas, rare elsewhere in lime-beds etc.

***Cirriphyllum crassinervium*** (Taylor) Loeske & M.Fleisch.

Sparse, probably dependent on local basic patches, either natural seepage or artificial, e.g. lime waste, limestone chippings. It occurs in its natural habitat in the northern limestone, and on soil around the masonry of Clitheroe Castle.

***Oxyrrhynchium pumilum*** (Wilson) Loeske

Woodland. Scarce.

***Oxyrrhynchium hians*** (Hedw.) Loeske

Frequent in a variety of habitats including unstable soil and shale by streams, arable fields and in thin grassland, often sparse.

***Kindbergia praelonga*** (Hedw.) Ochyra

Very common on a wide range of habitats and substrates. Often dominant on woodland floor.

***Sciuro-hypnum populeum*** (Hedw.) Ignatov & Huttunen

Frequent as an epiphyte on trees with less acid bark, particularly willow. Also on damp shaded sandstone, especially by water, and mortared walls.

***Sciuro-hypnum plumosum*** (Hedw.) Ignatov & Huttunen

Frequent on large boulders in streams. Fast-flowing water seems to be strongly preferred so it not often found in the lowlands.

***Brachythecium albicans*** (Hedw.) Schimp.

A characteristic moss of acidic places on the Sefton coast dunes. Away from the coast it is mostly ruderal on sandy waste ground, canal towpaths etc.

***Brachythecium glareosum*** (Bruch ex Spruce) Schimp.

Rare, perhaps extinct. There are records from the Sefton Coast (the latest in 1988), from Dean wood Rivington (1890) and from Kersal Moor.

***Brachythecium mildeanum*** (Schimp.) Schimp.

Apparently scarce but probably under-recorded. It grows on base rich ground, so apart from the dune slacks its sites are mostly anthropogenic: lime-tips, limestone chippings etc.

***Brachythecium rutabulum*** (Hedw.) Schimp.

Very common, and plentiful in a variety of habitats; probably at its best in woodland where it can be very luxuriant on old logs and stumps. Stands of nettles usually have an understory of this species.

***Brachythecium rivulare*** Schimp.

Frequent in mires, especially in woodland, and to a lesser extent by streams and ponds.

***Scleropodium cespitans*** (Wilson ex Müll.Hal.) L.F.Koch

Rare; but it is quite frequent in N. Cheshire, indicating that it is probably under-recorded in VC59.

***Brachytheciastrum velutinum*** (Hedw.) Ignatov & Huttunen

Occasional. Mostly on trees but also sometimes on rock and stone walls.

***Homalothecium sericeum*** (Hedw.) Schimp.

Common on mortared walls and concrete, rather less often on bark.

***Homalothecium lutescens*** (Hedw.) H.Rob.

Known from the Sefton Coast since 1859 and recently from the old limestone quarries of Clitheroe.

***Calliergonella cuspidata*** (Hedw.) Loeske

Very common everywhere except on the moors and highly acid localities. It is frequently dominant, the only bryophyte over a considerable area- particularly so in basic seepages in the coal measures and in old colliery workings.

***Calliergonella lindbergii*** (Mitt.) Hedenäs

Rare, often in small quantity.

***Taxiphyllum wissgrillii*** (Garov.) Wijk & Margad.

A calcicole which one might expect to find on the Clitheroe limestone. There is just one record for that area, in Travis' Flora, (Twiston 1944). Travis also cites Fazakerley.

***Pylaisia polyantha*** (Hedw.) Schimp.

Rare, but data from other regions suggest it may be increasing.

***Hypnum cupressiforme* var. *cupressiforme*** Hedw.

Ubiquitous. Very common on tree trunks and branches, on boulders and wall tops, less often on soil.

***Hypnum cupressiforme* var. *resupinatum*** (Taylor) Schimp.

Status and distribution uncertain.

***Hypnum cupressiforme* var. *lacunosum*** Brid.

Occasional to frequent. In dune slacks, on limestone in old quarries; the principal habitat in our region is wall tops where mortar is present.

***Hypnum andoi*** A.J.E.Sm.

Quite frequent on the trunks of trees in woodland, much less often on stone.

***Hypnum jutlandicum*** Holmen & E.Warncke

Abundant under heather and bilberry on the moors. It is found in smaller quantity in a variety of lowland habitats, particular on old logs in woodland.

***Hypnum imponens*** Hedw.

Travis' Flora gives a locality near Ashworth, undated. The sole record.



***Ctenidium molluscum*** (Hedw.) Mitt.

Frequent on the northern limestone. Other sites include localised patches of basic seepage, and man-made basic waste in colliery tips, old alkali processing sites and rockeries and urban parks.

***Hyocomium armoricum*** (Brid.) Wijk & Margad.

Frequent in and by streams in the hills; absent from the lowlands.

***Heterocladium heteropterum*** Schimp.

Frequent by rocky streams, almost exclusively above 100m.

***Pleurozium schreberi*** (Willd. ex Brid.) Mitt.

Fairly common on the moors among bilberry and sometimes heather. Elsewhere it sometimes occurs in grassland, in open broadleaf woodland and old colliery and industrial sites among clinker and fly-ash.

***Rhytidiadelphus triquetrus*** (Hedw.) Warnst.

Recorded from soil in natural conditions in woodland and in the Sefton dune slacks. But most records are from sites made basic by human activity, especially old railways with limestone ballast.

***Rhytidiadelphus squarrosus*** (Hedw.) Warnst.

Very common. It typically grows in grassland, very frequently in garden lawns. On the moors it can be found among bilberry and sometimes heather.

***Rhytidiadelphus loreus*** (Hedw.) Warnst.

Fairly frequent on the ground, logs, and old walls in broadleaf woodland.

***Hylocomium splendens*** (Hedw.) Schimp.

Occasional on the ground in open woodland, especially birch, and among heather and bilberry on the moors. Also in dune slacks, old industrial sites and colliery workings.

***Platydictya jungermannioides*** (Brid.) H.A.Crum

There are 19th century records from Cliviger (VC59) - Green's Clough, Shedden Clough, and Todmorden.

***Orthothecium intricatum*** (Hartm.) Schimp.

There are 19th century records from Greens Clough, and an undocumented record for Pendle.

***Plagiothecium latebricola*** Schimp.

The only records are from Warrington and Todmorden in the mid-19th century.

***Plagiothecium denticulatum*** (Hedw.) Schimp.

Frequent. The commonest species of the genus after *P. succulentum*. Found in woodland, on shaded banks, logs and stumps.

***Plagiothecium curvifolium*** Schlieph. ex Limpr.

Apparently rare but perhaps overlooked.

***Plagiothecium succulentum*** (Wilson) Lindb.

Common in woodland, typically on soil banks, also on logs and the base of trees.

***Plagiothecium nemorale*** (Mitt.) A.Jaeger

Sparse, on tree stumps and earth banks in woodland.

***Plagiothecium undulatum*** (Hedw.) Schimp.

A characteristic species of acid woodland, often abundant on earth banks.

***Isopterygiopsis pulchella*** (Hedw.) Z. Iwats.

First recorded from Gorpley Clough in 1842; there are several other Cliviger records in the 19th century, the last for Ratten Clough in 1880, where it was re-found in 2011.

***Pseudotaxiphyllum elegans*** (Brid.) Z.Iwats.

A characteristic species of banks and bare places on woodland floor. Less luxuriantly on bare ground on the moors and bare soil elsewhere.

***Cryphaea heteromalla*** (Hedw.) D.Mohr

Epiphytic, formerly rare (not mentioned by Travis), but the last 20 years have seen a dramatic increase.

***Leucodon sciuroides*** (Hedw.) Schwägr.

Last seen in Clitheroe, in 1898; there is a very early record (1818) 'near Manchester'.

***Neckera crispera*** Hedw.

Sparse on the northern limestone in similar areas and habitats to *N. complanata* but much less common and not recorded before 1973; designated 'rare' by Travis.

***Neckera pumila*** Hedw.

Rare. A pollution sensitive epiphyte with a few early records.

***Neckera complanata*** (Hedw.) Huebener

Frequent on natural limestone and limestone walls around Pendle and Clitheroe (first recorded there in 1907). Most other records are from the limestone of old rockeries.

***Homalia trichomanoides*** (Hedw.) Brid.

Rare, except in Pendle, where it has been recorded since 1866.

***Thamnobryum alopecurum*** (Hedw.) Gangulee

Frequent on soil, shale, and rock in damp shaded places, especially stream and river sides in woodland. It often spreads to drier places where it grows much less luxuriantly.

***Isothecium myosuroides*** Brid.

Frequent on tree trunks, much less often on rock. Quite often rather poor-grown with its dendritic habit not strongly expressed.

***Isothecium alopecuroides*** (Lam. ex Dubois) Isov.

Rather scarce, with a preference for basic areas.

***Anomodon viticulosus*** (Hedw.) Hook. & Taylor

Casual. The sole record is from rockery stones at Upholland in 2004.