



Guidelines for the Selection of Biological SSSIs

Part 2: Detailed Guidelines for Habitats and Species Groups

Chapter 12 Bryophytes

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Cover note

This chapter updates and, along with Chapter 13 Lichens and Chapter 14 Non-lichenised fungi, replaces the previous Non-vascular plants SSSI Selection Guidelines chapter (Nature Conservancy Council 1992). It was prepared by Sam Bosanquet (Natural Resources Wales), Jonathan Cox (Natural England) and David Genney (Scottish Natural Heritage), and provides detailed guidance for use in selecting bryophyte sites throughout Great Britain to recommend for notification as SSSIs. It should be used in conjunction with Part 1 of the SSSI Selection Guidelines, as published in 2013 (Bainbridge *et al* 2013), which detail the overarching rationale, operational approach and criteria for selection of SSSIs.

The main changes from the previous version of the chapter are:

- only bryophytes (mosses, liverworts and hornworts) are considered;
- assemblage scoring is based on ecologically coherent assemblages;
- scores for Nationally Scarce species are constant across Britain;
- two Atlantic assemblages have scoring systems that include non-Scarce Hyperoceanic species;
- a criterion for selecting the largest population of Red List species in each of England, Scotland and Wales is included; and
- discontinuation of the Schedule 8 species selection criterion.

This chapter has been subjected to appropriate levels of evidence quality assurance. It is compliant with the JNCC Evidence Quality Assurance Policy 2014, and has been subjected to external peer review by Nick Hodgetts.

1 Introduction

- 1.1 The groups covered are mosses, liverworts and hornworts; collectively known as bryophytes. Nomenclature follows Hill *et al* (2008). Only species are considered; subspecies and varieties are not included because they have not been subject to recent assessments of national status or threat. Species that are not native to Great Britain do not contribute to SSSI selection.
 - 1.2 This document builds on Hodgetts (1992), and takes its general approaches from that work. It should be used in combination with *Guidelines for the Selection of Biological SSSIs Part 1* (JNCC 2013).
 - 1.3 Many sites important for bryophytes will have been selected based on habitat and vegetation types. Nevertheless, it is important that their bryophytes are correctly recognised as qualifying features and are protected accordingly. Some habitats are disproportionately important for the bryophytes compared with other taxa, notably Atlantic woodlands and oceanic-montane liverwort heath, in which case sites may be selected solely for their bryophyte interest.
 - 1.4 The British bryophyte flora is well studied and documented, allowing comparative assessment of site quality and importance.
 - 1.4.1 The data regarding the distribution of bryophytes in Britain is generally good, and few areas are now significantly under-recorded (Blockeel *et al* 2014).
 - 1.4.2 Distribution data are publicly available on the National Biodiversity Network Atlases (NBNA), and therefore open to analysis.
 - 1.4.3 Many sites in England, Scotland and Wales have been recorded in detail, including some with Site Dossiers documenting their bryophyte flora. Common Standards monitoring of bryophyte features is taking place.
 - 1.4.4 Status and threat evaluations are carried out periodically by the statutory conservation agencies in conjunction with the British Bryological Society.
- However, some of the constraints outlined in Hodgetts (1992) remain:
- 1.4.5 several bryophyte species are inconspicuous, requiring microscopic examination for identification, and so are under-recorded;
 - 1.4.6 some groups of bryophytes are taxonomically complex, with disagreement among international experts on species boundaries; and
 - 1.4.7 although there has been an encouraging increase in the number of skilled field bryologists in recent years, there are still fewer people able to record bryophytes than many other groups, such as vascular plants.
- 1.5 As is the case for vascular plants, particular attention in site selection has to be given to the rarer and more threatened species. The British bryophyte flora comprises about 1060 species on the current checklist (Hill *et al* 2008); this figure has risen to about 1075 in the recent Atlas (Blockeel *et al* 2014). Definitions of rarity and scarcity (see 3.2) are the same as for the vascular plant *Guidelines* (Chapter 11): Nationally Rare species occur in 15 or fewer 10km squares in Britain, and Nationally Scarce species occur in 16 to 100, 10km squares. This assessment is based on the British Bryological Society database held at the Centre for Ecology and Hydrology, Wallingford.

- 1.6 When drawing site boundaries for SSSIs being designated partly or wholly on account of their bryophyte interest, consideration should be given to generic guidance on boundary-setting provided in Section 8 of *Guidelines for the Selection of Biological SSSIs Part 1* (JNCC 2013). Bryophytes function on a different scale to vascular plants and in some cases it can be appropriate for a site to cover only a small area. Some species move between habitat patches across a landscape, *i.e.* in a metapopulation, and protected site networks may then be more appropriate than a boundary drawn around currently occupied patches. A geographically small site with many microniches (at a bryophyte scale) can sometimes support a richer and more important flora than a large site.
- 1.7 At a large scale, bryophytes perform important ecosystem services, for example carbon capture and storage in peatlands, flood prevention, and erosion reduction. However, if managed appropriately, these functions may be provided through habitat and wider countryside management, rather than designated site notification.

2 International responsibility

- 2.1 The British bryophyte flora is one of the richest in Europe, mainly because of Britain's geographical position in the path of the North Atlantic Drift, with relatively warm winters and cool summers, and with high rainfall. Britain is also placed so that its southern extremes contain elements of Mediterranean and Mediterranean-Atlantic floras, while in the north there are representatives of Arctic and Boreal floras (Hill and Preston 1998). There is also a great variety of topography and geology, leading to further diversity. While Britain's vascular flora consists of only about 18% of the total European vascular flora, the figure for bryophytes is about 60%.
- 2.2 Britain and Ireland are the best places in Europe for Hyperoceanic¹ bryophytes, including some near-endemic species and others with remarkable range disjunctions. Some of these species – rare or restricted in Europe as a whole – are relatively common in Britain (e.g. the liverworts *Saccogyna viticulosa* and *Plagiochila spinulosa* and the moss *Breutelia chrysocoma*); others are of conservation concern in Britain due to their national rarity and scarcity, and/or because they are considered threatened in Britain when assessed against IUCN Red List criteria. Hill and Preston (1998) revised the biogeography of British bryophytes and their Hyperoceanic and Oceanic categories are used here in place of the Atlantic statuses devised by Ratcliffe (1968). Particularly important elements of our bryophyte flora include:
- 2.2.1 Atlantic woodland bryophytes, many of which have Hyperoceanic distributions in Europe. The western Scottish semi-natural ravine woodlands, in particular, are without parallel elsewhere in Europe except for parts of Ireland. The most important woodlands for oceanic bryophytes are likely to have the following characteristics: 1) a long period of ecological continuity; 2) varied topography, often with shaded areas; 3) one or more wooded ravines with flowing water; 4) an abundance of large woody debris; 5) large boulders and sheltered crags.
- 2.2.2 Oceanic-montane liverwort-heath, also known as the 'North Atlantic hepatic mat', a community that has its global headquarters in western Scotland. The assemblage is best represented on rocky slopes, cliffs, in boulder-fields and sheltered corries (north-east to east facing), between 300 and 600 m altitude, but may grow at altitudes up to 1000 m where snow cover provides protection from winter frost. Tall

¹ Hyperoceanic species are defined by Hill and Preston (1998) as "species that are markedly western within the Oceanic zone"; they state that "Hyperoceanic species have western distributions in Britain and are rare on the European mainland".

Calluna vulgaris is a frequent component as it provides shelter and humidity to the liverworts. Elements of the assemblage can also be found on mountain cliffs, and less commonly in woodlands and grasslands (Flagmeier 2013).

- 2.2.3 Arctic-alpine communities, including snow-beds. These are often bryophyte- and lichen-dominated, and the Oceanic Boreal-montane element of Hill and Preston (1998) gives some British Arctic-alpine communities a particular distinctiveness.
- 2.2.4 Bog communities. Intact bogs often support a diverse bryophyte flora, particularly associated with hollows and hummock sides. The oceanic element in bog communities of the north and west of Britain is especially unusual.
- 2.2.5 Endemic species (see section 3.1.3).
- 2.2.6 Species with markedly disjunct distributions (e.g. Scottish Highlands – Himalayan, or Amphiatlantic disjunctions). Most species with notably disjunct distributions occur in either Atlantic woodland or Oceanic-montane Liverwort-heath.
- 2.2.7 Species declining in Europe as a whole through habitat loss and pollution, but still locally frequent in parts of Britain.

3 Site selection requirements

When evaluating and selecting sites for bryophytes, the principles outlined in Part 1 of the guidelines (JNCC 2013) should be followed. The main requirements for site selection are as follows:

3.1 International responsibility

Most species for which Great Britain has international responsibility will be selected under criteria 3.1.1 to 3.1.3. Many of them are also nationally rare or scarce and will be selected as components of assemblages under criteria 3.2.1 to 3.2.2, or are British Red List species and will be selected under criteria 3.3.1 to 3.3.5. The current European Bryophyte Red List (European Committee for the Conservation of Bryophytes, 1995) is under revision (Hodgetts 2015), and further European Red List species may need to be considered in the future.

- 3.1.1 Annex 2 of the Habitats and Species Directive lists species for which a network of sites should be notified to protect viable populations of international importance. Section 6.3 of Guidelines for the Selection of Biological SSSIs Part 1 (Bainbridge et al. 2013) recommends that all sites supporting Annex 2 species should be considered for notification as SSSI. The Annex 2 species recorded in Britain are: *Bruchia vogesiaca*, *Buxbaumia viridis*, *Hamatocaulis vernicosus*, *Marsupella profunda*, *Orthotrichum rogeri* and *Petalophyllum ralfsii*.
- 3.1.2 Great Britain clearly has responsibility for its endemic and near-endemic² species. Any site supporting a viable³ population of one of these species should be

² Near-endemic species have the majority of their global population in the British Isles, with just one or two known colonies in other countries: for example, *Campylopus setifolius* has been recorded only from Britain, Ireland and Spain, and was last seen in Spain in the 1930s, so its survival is dependent on Britain and Ireland. A number of other species are endemic to Britain and Ireland, and these are of no less importance than species that have only been recorded in Great Britain.

³ The term 'viable population' is discussed in Part 1 (5.7.4) of the *Guidelines*. This is not always straightforward to work out for bryophytes, but as a guide, a Minimum Viable Population (MVP) is one that is present in its characteristic abundance, *i.e.* the abundance in which it occurs at sites with a long history of presence, or has a long history of occurrence on the site (consult country bryophyte specialist for further guidance).

considered for notification. Species endemic to the British Isles, as understood at present, are listed in Appendix 2.

- 3.1.3 Britain has an international responsibility to protect oceanic assemblages of bryophytes that are well represented here but have highly restricted distributions elsewhere. The two primary oceanic assemblages are those associated with Atlantic woodland and with Oceanic-montane liverwort-heath. For both of these assemblages the criteria for site selection therefore differ from the criteria in 3.2 – where nationally rare species score six points and nationally scarce species score three points – by adopting a scoring system based on oceanic climate affinity, rarity/scarcity, and IUCN threat status; this difference reflects the international importance of these assemblages. This approach builds on a set of assessment criteria for oceanic wooded ravines, a sub-component of Atlantic woodland, which is in accepted use in Scotland (Averis *et al* 2012). That scoring system is primarily used to assess the importance of ravines for their assemblage of water-loving oceanic species and should only be used in preference to the wider Atlantic woodland criteria in such instances. Hyperoceanic and Nationally Rare and Scarce Oceanic species that are predominantly associated with woodland (Table 1) or Oceanic-montane liverwort-heath (Table 2) are scored according to the criteria in Table 3. A site score is obtained by combining the scores of all species recorded on the site within the last 50 years; species for which there are no recent records but which are considered potentially still extant should also be counted. All localities that equal or exceed a cumulative score of **12** should be considered for designation. Sites that do not attain 12 points but which are the highest scoring within an Area of Search should still be considered, particularly where this represents important populations of scoring species at the edge of their oceanic range. Where a site supports a population of a Vulnerable Red List species but does not attain the threshold, the criteria in Section 3.3 should be followed.

Table 1. Hyperoceanic and rare or scarce oceanic species that occur in British Atlantic woodland. The score is based on the criteria in **Error! Reference source not found.**

Species	Score	Hyper oceanic ^A	Oceanic ^A	NS ^B	NR ^B	CR ^C	EN ^C	VU ^C
<i>Cephaloziella turneri</i>	12		YES		YES		YES	
<i>Cyclodictyon laetevirens</i>	12	YES			YES	YES		
<i>Dumortiera hirsuta</i>	12		YES		YES	YES		
<i>Hageniella micans</i>	12		YES	YES			YES	
<i>Lejeunea eckloniana</i>	12	YES			YES	YES		
<i>Lejeunea mandonii</i>	12	YES			YES	YES		
<i>Orthodontium gracile</i>	12		YES		YES	YES		
<i>Radula holtii</i>	12	YES			YES		YES	
<i>Telaranea europaea</i>	12	YES			YES	YES		
<i>Acrobolbus wilsonii</i>	9	YES		YES				YES
<i>Campylopus subporodictyon</i>	9	YES			YES			YES
<i>Dendrocryphaea lamyana</i>	9		YES		YES			YES
<i>Metzgeria leptoneura</i>	9	YES						YES
<i>Radula carringtonii</i>	9	YES			YES			YES
<i>Sematophyllum demissum</i>	9		YES		YES			YES
<i>Daltonia splachnoides</i>	6	YES			YES			
<i>Andreaea megistospora</i>	3	YES		YES				
<i>Campylopus setifolius</i>	3	YES		YES				
<i>Fissidens polyphyllus</i>	3	YES		YES				
<i>Heterocladium wulfsbergii</i>	3		YES	YES				
<i>Paraleptodontium recurvifolium</i>	3		YES	YES				
<i>Plagiochila heterophylla</i>	3	YES		YES				

<i>Platyhypnidium lusitanicum</i>	3		YES	YES
<i>Porella pinnata</i>	3		YES	YES
<i>Radula voluta</i>	3	YES		YES
<i>Trichostomum hibernicum</i>	3	YES		YES
<i>Ulota calvescens</i>	3		YES	YES
<i>Adelanthus decipiens</i>	1	YES		
<i>Aphanolejeunea</i>				
<i>microscopica</i>	1	YES		
<i>Breutelia chrysocoma</i>	1	YES		
<i>Colura calyptrifolia</i>	1	YES		
<i>Dicranum scottianum</i>	1	YES		
<i>Drepanolejeunea</i>				
<i>hamatifolia</i>	1	YES		
<i>Frullania microphylla</i>	1	YES		
<i>Frullania teneriffae</i>	1	YES		
<i>Harpalejeunea molleri</i>	1	YES		
<i>Jubula hutchinsiae</i>	1	YES		
<i>Lejeunea lamacerina</i>	1	YES		
<i>Lejeunea patens</i>	1	YES		
<i>Lepidozia cupressina</i>	1	YES		
<i>Lepidozia pearsonii</i>	1	YES		
<i>Leptoscyphus cuneifolius</i>	1	YES		
<i>Plagiochila bifaria</i>	1	YES		
<i>Plagiochila exigua</i>	1	YES		
<i>Plagiochila punctata</i>	1	YES		
<i>Plagiochila spinulosa</i>	1	YES		
<i>Radula aquilegia</i>	1	YES		
<i>Scapania gracilis</i>	1	YES		

^AHill and Preston (1998); ^BPescott (2016); ^CCallaghan and Hodgetts (In prep.)

Table 2. Hyperoceanic and rare or scarce oceanic liverworts⁴ that occur in British Oceanic-montane liverwort-heath. The score is based on the criteria in **Error! Reference source not found.**

Species	Score	Hyper				
		oceanic ^A	Oceanic ^A	NS ^B	NR ^B	VU ^C
<i>Adelanthus lindenbergianus</i>	9		YES		YES	YES
<i>Anastrophyllum joergensenii</i>	9		YES		YES	YES
<i>Herbertus borealis</i>	9		YES		YES	YES
<i>Herbertus norenius</i> ⁵	9		YES		YES	YES
<i>Anastrophyllum alpinum</i>	6		YES		YES	
<i>Anastrophyllum donnianum</i>	3		YES	YES		
<i>Bazzania pearsonii</i>	3		YES	YES		
<i>Campylopus setifolius</i>	3	YES		YES		
<i>Mastigophora woodsia</i>	3		YES	YES		
<i>Plagiochila carringtonii</i>	3		YES	YES		
<i>Scapania nimbosea</i>	3		YES	YES		
<i>Scapania ornithopodioides</i>	3		YES	YES		
<i>Colura calyptrifolia</i>	1	YES				
<i>Herbertus hutchinsiae</i>	1		YES			
<i>Plagiochila spinulosa</i>	1	YES				

⁴ 1 The scoring system is restricted to liverworts because they are the defining group of bryophytes in Oceanic-montane liverwort-heath. One exception is made with the inclusion of the moss *Campylopus setifolius*. This is because it has a significant number of its localities in liverwort heath, and is Hyperoceanic and Nationally Scarce (no other moss meets these criteria in this habitat).

⁵ The taxonomy and nomenclature of *Herbertus* adopted here depart from Hill *et al* (2008) because separation of *Herbertus norenius* from *H. borealis*, and separation of both these species from other members of the genus, is well demonstrated by Bell *et al* (2012) and has profound implications for the definition of our internationally important Oceanic-montane liverwort-heath.

<i>Pleurozia purpurea</i>	1	YES
<i>Scapania gracilis</i>	1	YES

^AHill and Preston (1998); ^BPescott (2016); ^CCallaghan and Hodgetts (in prep.)

Table 3. Species scoring system for Hyperoceanic and rare, scarce or European endemic Oceanic species that occur in Atlantic woodland (Table 1) and Oceanic-montane Liverwort-heath (Table 2).

Score	Description
1	Hyperoceanic, or Oceanic and endemic to western Europe, but neither Nationally Scarce nor Nationally Rare
3	Oceanic or Hyperoceanic and Nationally Scarce
6	Oceanic or Hyperoceanic and Nationally Rare
9	Vulnerable
12	Endangered

3.2 Assemblages of Nationally Rare and Scarce species

3.2.1 Many Nationally Rare and Scarce bryophytes (Pescott 2016) grow together in ecologically coherent and/or biogeographically coherent assemblages (JNCC 2013). A scoring system covers the majority of assemblages: Nationally Scarce species score three points and Nationally Rare species score six points (Red List species are considered separately, under 3.3). Only species that have been recorded within the last 50 years should be counted, unless there is good reason (for example site size and inaccessibility) to consider species recorded more than 50 years ago would still be present.

3.2.2 An ecologically coherent assemblage of Nationally Rare and Scarce species attains a score based on the cumulative total for that habitat assemblage. All sites that equal or exceed the threshold for one or more habitat assemblages (see table 4) should be considered for notification, even if there are many qualifying sites within an Area of Search. If many examples exist in an Area of Search, the most diverse examples or those in which certain species are particularly abundant should be selected. Thresholds were set using the combined expert opinion of the country agency specialists and reference to ranked sites scores for each habitat. Note that the association of some bryophytes with microniches that occur in one or more broad habitats means that a site might score for an assemblage that does not actually occur there, e.g. some flush sites will support species that would score towards a dune assemblage, and a sense-check is always needed when identifying assemblage features. Consult country specialists if in doubt.

3.2.3 Examples of assemblages that do not meet the threshold but which are considered important for another reason – e.g. representing the edge of the range of the assemblage, or holding a significant abundance of representative species – should be considered for notification, if not selected on habitat grounds.

Table 4. Ecologically coherent assemblages of Nationally Rare and Scarce bryophytes, notes on component habitats, and the thresholds for SSSI selection. See Appendix 1 for a list of nationally rare and scarce species and the assemblages in which they characteristically occur.

Assemblage ⁶	Notes	Threshold
Coastal habitats	Covers cliffs, coastal landslips, sea caves, coastal flushes etc.	12
Dunes, slacks, machair and saltmarsh	-	12

⁶ Assemblages may be nested within one another, so an open calcareous grassland site may include rock outcrops that support a lowland calcareous rock assemblage.

Reservoirs, lakes and ponds	Sites with a fluctuating water table where ephemeral species colonise exposed margins, and also rocky lake shores.	12
Riparian	Includes species that are periodically inundated in rocky streams and rivers, and also those in and by silty lowland rivers; for watercourses in western Britain, it may be more appropriate to assess as Oceanic Woodland under 3.1.3.	15
Arable	-	12
Mine and quarry	Includes metal-rich sites, colliery bings, chalk pits, gravel pits, china clay workings, <i>etc.</i>	12
Open calcareous grassland	Covers species growing in turf or on skeletal soils, rather than directly on rock (see below).	12
Lowland calcareous rocks	Includes limestone pavement, boulders, cliffs and limestone in woodland; this is primarily chalk and limestone and does not including basic igneous rock or serpentine. Old walls and limestone roof tiles are also included.	15
Lowland acid rocks	Covers open rock habitats, including sarsen stones, basic igneous rock, serpentine, and species growing on skeletal soils over these rock types. Old walls and sandstone roof tiles are also included.	12
Woodland	This assemblage may be assessed alongside the Oceanic Woodland Bryophyte assemblage covered in 3.1.3.	12
Epiphytes of open woodland	Includes parkland, wood pasture and wayside trees.	12
Lowland heathland	Includes tracks and seasonally-inundated hollows within heathland.	12
Flushes	Covers base-rich, neutral and acid flushes.	12
Fen and swamp	Includes reed-beds, fens, valley mires <i>etc.</i>	12
Bog	Covers both raised and blanket bog.	12
Basic montane cliffs	Includes species on ledges, boulders, skeletal soils and in the turf at the foot of cliffs, as well as those directly on rock and in crevices.	36
Acid montane cliffs	Includes species on ledges, boulders, skeletal soils and in the turf at the foot of cliffs, as well as those directly on rock and in crevices.	18
Scree	Both base-rich and base-poor scree, and the species growing on rock or in interstices.	12
Upland heathland	In north-western Britain, it may be more appropriate to assess as Oceanic Hepatic Heath under 3.1.3.	12
Snowbeds	-	12

3.3 Red List species

- 3.3.1 For site selection, 'Red List species' should be considered to include all species Red Listed (CR, EN or VU) on the JNCC status list (currently following Callaghan and Hodgetts, in prep). Previous synonymy with Nationally Rare species in the

1992 Guidelines is therefore superseded. All localities for Red List species should be considered, but assessment against the following criteria is advised. One Red List species qualifies a site for selection if it has:

- 3.3.1.1 the largest population of the species in either of England, Scotland or Wales so that no Red List species becomes regionally extinct with respect to each country's devolved biodiversity duties;
- 3.3.1.2 a viable population of the species in an Area of Search (AoS) supporting a substantial proportion of localities for the species. In this case, several sites may be selected to provide a site network that is robust, especially in the face of climate change;
- 3.3.1.3 a viable population on the edge of the species' geographical range, but excluding known increasing species (consult country bryophyte specialist for guidance); and
- 3.3.1.4 the only viable population of the species in the particular AoS.

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Appendix I.

Nationally Rare^A, Nationally Scarce^A and/or Red List bryophytes^B, and the assemblages in which they occur. This needs to be compared with the JNCC status list, to take future status updates into account; revised versions of Appendix I will be published on the SSSI Guidelines section of the JNCC website when appropriate. Consult the country agency bryophyte specialist for guidance on allocating additions to the relevant habitats.

Coastal habitats	NR/NS ^A	RDB ^B			
<i>Acaulon mediterraneum</i>	NR	DD	<i>Targionia hypophylla</i>	NS	EN
<i>Acaulon muticum</i> s.s.	NS	VU	<i>Timmia megapolitana</i>	NR	EN
<i>Acaulon triquetrum</i>	NR	EN	<i>Tortella limosella</i>	NR	EX
<i>Acrobolbus wilsonii</i>	NS	VU	<i>Tortula atrovirens</i>	NS	VU
<i>Campylopus pilifer</i>	NS	EN	<i>Tortula canescens</i>	NR	CR
<i>Cephaloziella baumgartneri</i>	NR	EN	<i>Tortula cuneifolia</i>	NR	CR
<i>Cephaloziella stellulifera</i>	NS	NT	<i>Tortula freibergii</i>	NS	
<i>Cephaloziella turneri</i>	NR	EN	<i>Tortula solmsii</i>	NR	EN
<i>Coscinodon cribrosus</i>	NS		<i>Tortula wilsonii</i>	NS	EN
<i>Crossidium squamiferum</i>	NR	CR	<i>Weissia multicapsularis</i>	NR	DD
<i>Cyclodictyon laetevirens</i>	NR	CR	<i>Weissia rutilans</i>	NS	
<i>Didymodon cordatus</i>	NR	CR			
<i>Ditrichum subulatum</i>	NR	EN			
<i>Fissidens curvatus</i>	NR	EN			
<i>Fissidens polyphyllus</i>	NS				
<i>Fissidens serrulatus</i>	NR	EN			
<i>Fossombronia angulosa</i>	NS	EN			
<i>Fossombronia caespitiformis</i> s.l.	NS	DD			
<i>Fossombronia maritima</i>	NR	EN			
<i>Geocalyx graveolens</i>	NR	VU			
<i>Gongylanthus ericetorum</i>	NR	CR			
<i>Grimmia laevigata</i>	NS	NT			
<i>Grimmia montana</i>	NS				
<i>Grimmia tergestina</i>	NS				
<i>Gymnostomum viridulum</i>	NS				
<i>Lejeunea eckloniana</i>	NR	CR			
<i>Lejeunea mandonii</i>	NR	CR			
<i>Microbryum starckeanum</i>	NS	VU			
<i>Myurium hochstetteri</i>	NS				
<i>Philonotis marchica</i>	NR	CR			
<i>Philonotis rigida</i>	NR	EN			
<i>Racomitrium canescens</i> s.s.	NS	NT			
<i>Riccia beyrichiana</i>	NS	VU			
<i>Riccia crozalsii</i>	NR	DD			
<i>Riccia nigrella</i>	NR	CR			
<i>Sanionia orthothecioides</i>	NS				
<i>Scapania lingulata</i>	NS				
<i>Schistidium flaccidum</i>	NR	EN			
<i>Southbya nigrella</i>	NR	CR			
<i>Southbya tophacea</i>	NR	CR			

Dunes, slacks, machair and saltmarsh	NR/NS ^A	RDB ^B			
<i>Abietinella abietina</i>	NS	VU			
<i>Aloina ambigua</i>	NS				
<i>Amblyodon dealbatus</i>	NS	VU			
<i>Anomobryum concinatum</i>	NS				
<i>Brachythecium erythrorrhizon</i>	NR	CR			
<i>Bryum calophyllum</i>	NR	EN			
<i>Bryum dyffrynense</i>	NR	EN			
<i>Bryum intermedium</i>	NS	VU			
<i>Bryum knowltonii</i>	NR	CR			
<i>Bryum marratii</i>	NR	VU			
<i>Bryum salinum</i>	NR	DD			
<i>Bryum warneum</i>	NS	NT			
<i>Campyliadelphus elodes</i>	NS	NT			
<i>Catoscopium nigrum</i>	NS	EN			
<i>Didymodon acutus</i>	NS	DD			
<i>Distichium inclinatum</i>	NS				
<i>Drepanocladus sendtneri</i>	NS	EN			
<i>Encalypta rhaptocarpa</i>	NS	NT			
<i>Gymnostomum viridulum</i>	NS				
<i>Meesia uliginosa</i>	NS				
<i>Moerckia flotoviana</i> s.s.	NS	VU			
<i>Petalophyllum ralfsii</i>	NS	VU			
<i>Pleurochaete squarrosa</i>	NS				
<i>Pseudocalliergon lycopodioides</i>	NS	EN			
<i>Racomitrium canescens</i> s.s.	NS	NT			

<i>Tortella fragilis</i>	NR	EN	<i>Bryum muehlenbeckii</i>	NR	EN
<i>Tortella inclinata</i>	NS	VU	<i>Bryum riparium</i>	NS	
<hr/>			<i>Bryum tenuisetum</i>	NS	
Reservoirs, lakes and ponds			<i>Campylopus subulatus</i>	NS	
<i>Atrichum tenellum</i>	NS		<i>Cinclidotus riparius</i>	NR	VU
<i>Bryum cyclophyllum</i>	NR	CR	<i>Dendrocryphaea lamyana</i>	NR	VU
<i>Bryum muehlenbeckii</i>	NR	EN	<i>Dialytrichia saxicola</i>	NR	DD
<i>Bryum riparium</i>	NS		<i>Discelium nudum</i>	NS	
<i>Bryum tenuisetum</i>	NS		<i>Dumortiera hirsuta</i>	NR	CR
<i>Campylopus subulatus</i>	NS		<i>Fissidens fontanus</i>	NS	
<i>Discelium nudum</i>	NS		<i>Fissidens monguillonii</i>	NR	NT
<i>Ephemerum cohaerens</i>	NR	EN	<i>Fissidens polyphyllus</i>	NS	
<i>Ephemerum hibernicum</i>	NR	DD	<i>Fissidens rivularis</i>	NS	
<i>Ephemerum sessile</i>	NS	DD	<i>Fissidens rufulus</i>	NS	
<i>Fossombronia fimbriata</i>	NR	EN	<i>Fissidens serrulatus</i>	NR	EN
<i>Fossombronia foveolata</i>	NS		<i>Fossombronia fimbriata</i>	NR	EN
<i>Grimmia anomala</i>	NR	VU	<i>Grimmia atrata</i>	NS	NT
<i>Grimmia muehlenbeckii</i>	NS		<i>Grimmia muehlenbeckii</i>	NS	
<i>Hedwigia ciliata</i> s.s. (incl. <i>H. striata</i> but not <i>H. stellata</i>)	NS	VU	<i>Grimmia unicolor</i>	NR	VU
<i>Hedwigia integrifolia</i>	NS		<i>Hedwigia integrifolia</i>	NS	
<i>Hygrohypnum polare</i>	NR	VU	<i>Heterocladium wulfsbergii</i>	NS	
<i>Micromitrium tenerum</i>	NR	CR	<i>Hygrohypnum duriusculum</i>	NS	NT
<i>Odontoschisma elongatum</i>	NS		<i>Hygrohypnum molle</i>	NR	VU
<i>Philonotis caespitosa</i>	NS		<i>Hygrohypnum smithii</i>	NR	VU
<i>Physcomitrium eurystomum</i>	NR	CR	<i>Myrinia pulvinata</i>	NS	EN
<i>Physcomitrium sphaericum</i>	NS	EN	<i>Nardia insecta</i>	NR	CR
<i>Platyhypnidium lusitanicum</i>	NS		<i>Paraleptodontium recurvifolium</i>	NS	NT
<i>Pseudoleskea patens</i>	NS	VU	<i>Philonotis caespitosa</i>	NS	
<i>Pseudoleskeella nervosa</i>	NR	CR	<i>Platyhypnidium lusitanicum</i>	NS	
<i>Pterigynandrum filiforme</i>	NS		<i>Pohlia flexuosa</i>	NS	
<i>Racomitrium macounii</i>	NS	NT	<i>Pohlia prolifera</i>	NR	VU
<i>Riccia beyrichiana</i>	NS	VU	<i>Pohlia scotica</i>	NR	DD
<i>Riccia canaliculata</i>	NR	EN	<i>Porella pinnata</i>	NS	
<i>Riccia huebeneriana</i>	NS	VU	<i>Racomitrium macounii</i>	NS	NT
<i>Ricciocarpos natans</i>	NS	VU	<i>Radula voluta</i>	NS	NT
<i>Schistidium trichodon</i>	NS		<i>Riccia huebeneriana</i>	NS	VU
<i>Weissia rostellata</i>	NS		<i>Scapania parvifolia</i>	NR	DD
<i>Weissia rutilans</i>	NS		<i>Scapania praetervisa</i>	NR	DD
<hr/>			<i>Schistidium agassizii</i>	NS	
Riparian			<i>Seligeria carniolica</i>	NR	CR
<i>Anomodon attenuatus</i>	NR	CR	<i>Solenostoma caespiticium</i>	NR	EN
<i>Bruchia vogesiaca</i>	NR	CR	<i>Solenostoma confertissimum</i>	NS	
<i>Bryum dixonii</i>	NS	NT	<i>Solenostoma subellipticum</i>	NS	
<i>Bryum gemmiparum</i>	NR	EN	<i>Thamnobryum angustifolium</i>	NR	DD
<i>Bryum mildeanum</i>	NR	DD	<i>Thamnobryum cataractarum</i>	NR	DD
			<i>Thamnobryum maderense</i>	NR	DD

<i>Timmia megapolitana</i>	NR	EN	<i>Ditrichum pallidum</i>	NR	CR
<i>Tortula freibergii</i>	NS		<i>Ditrichum plumbicola</i>	NS	EN
<hr/>			<i>Ditrichum pusillum</i>	NS	
<hr/>			<i>Ephemerum sessile</i>	NS	DD
Arable	NR/NS^A	RDB^B	<i>Grimmia arenaria</i>	NR	DD
<i>Acaulon mediterraneum</i>	NR	DD	<i>Grimmia atrata</i>	NS	NT
<i>Acaulon muticum</i> s.s.	NS	VU	<i>Gymnostomum viridulum</i>	NS	
<i>Anthoceros agrestis</i>	NS	VU	<i>Lophozia capitata</i>	NR	VU
<i>Bryum gemmilucens</i>	NR	NT	<i>Marsupella profunda</i>	NR	EN
<i>Didymodon tomaculosus</i>	NS		<i>Marsupella sprucei</i>	NS	
<i>Ditrichum pusillum</i>	NS		<i>Microbryum starckeanum</i>	NS	VU
<i>Fossombronia caespitiformis</i> s.l.	NS	DD	<i>Mielichhoferia elongata</i>	NR	VU
<i>Phaeoceros carolinianus</i>	NS	VU	<i>Nardia geoscyphus</i>	NS	DD
<i>Sphaerocarpos michelii</i>	NS	VU	<i>Plasteurhynchium meridionale</i>	NR	CR
<i>Sphaerocarpos texanus</i>	NS	VU	<i>Pohlia andalusica</i>	NR	EN
<i>Weissia mittenii</i>	NR	DD	<i>Pohlia filum</i>	NS	EN
<i>Weissia multcapsularis</i>	NR	DD	<i>Pterygoneurum lamellatum</i>	NR	CR
<i>Weissia rostellata</i>	NS		<i>Pterygoneurum ovatum</i>	NS	EN
<i>Weissia squarrosa</i>	NS	NT	<i>Scapania curta</i>	NR	VU
<hr/>			<i>Scopelophila cataractae</i>	NS	EN
<hr/>			<i>Solenostoma caespiticium</i>	NR	EN
Mine and quarry	NR/NS^A	RDB^B	<i>Tortula cernua</i>	NR	EN
<i>Aloina ambigua</i>	NS		<i>Weissia rutilans</i>	NS	
<i>Aloina brevirostris</i>	NS	EN	<hr/>		
<i>Aloina rigida</i>	NS	EN	Open calcareous grassland	NR/NS^A	RDB^B
<i>Aongstroemia longipes</i>	NR	VU	<i>Abietinella abietina</i>	NS	VU
<i>Atrichum tenellum</i>	NS		<i>Acaulon triquetrum</i>	NR	EN
<i>Bryum creberrimum</i>	NR	DD	<i>Aloina ambigua</i>	NS	
<i>Bryum intermedium</i>	NS	VU	<i>Aloina brevirostris</i>	NS	EN
<i>Bryum knowltonii</i>	NR	CR	<i>Aloina rigida</i>	NS	EN
<i>Bryum tenuisetum</i>	NS		<i>Anomobryum concinnatum</i>	NS	
<i>Buxbaumia aphylla</i>	NR	EN	<i>Bryum canariense</i>	NS	
<i>Campylopus subulatus</i>	NS		<i>Bryum elegans</i>	NS	
<i>Cephaloziella calyculata</i>	NR	EN	<i>Bryum intermedium</i>	NS	VU
<i>Cephaloziella integerrima</i>	NR	EN	<i>Bryum kunzei</i>	NS	NT
<i>Cephaloziella massalongi</i>	NS	EN	<i>Bryum mildeanum</i>	NR	DD
<i>Cephaloziella nicholsonii</i>	NS	EN	<i>Bryum torquescens</i>	NS	
<i>Cephaloziella rubella</i>	NS	DD	<i>Cephaloziella baumgartneri</i>	NR	EN
<i>Cephaloziella stellulifera</i>	NS	NT	<i>Cephaloziella calyculata</i>	NR	EN
<i>Ceratodon conicus</i>	NR	DD	<i>Ceratodon conicus</i>	NR	DD
<i>Dicranella crispa</i>	NR	DD	<i>Cheilothela chloropus</i>	NR	EN
<i>Dicranum polysetum</i>	NS	VU	<i>Crossidium squamiferum</i>	NR	CR
<i>Didymodon acutus</i>	NS	DD	<i>Didymodon acutus</i>	NS	DD
<i>Didymodon glaucus</i>	NR	CR	<i>Distichium inclinatum</i>	NS	
<i>Discelium nudum</i>	NS		<i>Encalypta pilifera</i>	NR	DD
<i>Distichium inclinatum</i>	NS		<i>Entosthodon muhlenbergii</i>	NS	
<i>Ditrichum cornubicum</i>	NR	CR			
<i>Ditrichum lineare</i>	NS				

<i>Entosthodon pulchellus</i>	NS	NT	<i>Pedinophyllum interruptum</i>	NR	VU
<i>Fissidens crispus</i>	NS		<i>Plagiochila norvegica</i>	NR	DD
<i>Gymnostomum viridulum</i>	NS		<i>Plagiopus oederianus</i>	NS	
<i>Lophozia perssonii</i>	NS		<i>Plasteurhynchium meridionale</i>	NR	CR
<i>Microbryum starckeanum</i>	NS	VU	<i>Plasteurhynchium striatulum</i>	NS	
<i>Pleurochaete squarrosa</i>	NS		<i>Platydictya jungermannioides</i>	NS	
<i>Pottiopsis caespitosa</i>	NS	EN	<i>Pseudoleskeella catenulata</i>	NS	
<i>Pterygoneurum lamellatum</i>	NR	CR	<i>Pseudoleskeella rupestris</i>	NS	NT
<i>Pterygoneurum ovatum</i>	NS	EN	<i>Rhynchostegiella curviseta</i>	NS	
<i>Pterygoneurum papillosum</i>	NR	EN	<i>Rhytidium rugosum</i>	NS	
<i>Racomitrium canescens</i> s.s.	NS	NT	<i>Scapania cuspiduligera</i>	NS	
<i>Rhytidium rugosum</i>	NS		<i>Seligeria acutifolia</i>	NS	
<i>Scapania cuspiduligera</i>	NS		<i>Seligeria campylopoda</i>	NR	VU
<i>Southbya nigrella</i>	NR	CR	<i>Seligeria diversifolia</i>	NR	CR
<i>Southbya tophacea</i>	NR	CR	<i>Seligeria donniana</i>	NS	
<i>Tortella densa</i>	NS		<i>Seligeria oelandica</i>	NR	CR
<i>Tortella inclinata</i>	NS	VU	<i>Seligeria patula</i>	NS	DD
<i>Weissia condensata</i>	NS	EN	<i>Seligeria pusilla</i>	NS	
<i>Weissia levieri</i>	NR	DD	<i>Seligeria trifaria</i> s.s.	NR	DD
<i>Weissia sterilis</i>	NS	DD	<i>Southbya nigrella</i>	NR	CR

Lowland calcareous rocks	NR/NS ^A	RDB ^B
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<i>Amblystegium confervoides</i>	NS	
<i>Anomodon attenuatus</i>	NR	CR
<i>Anomodon longifolius</i>	NR	EN
<i>Bryum canariense</i>	NS	
<i>Bryum elegans</i>	NS	
<i>Bryum torquescens</i>	NS	
<i>Campylophyllum calcareum</i>	NS	
<i>Cephaloziella baumgartneri</i>	NR	EN
<i>Cololejeunea rossettiana</i>	NS	
<i>Conardia compacta</i>	NS	NT
<i>Didymodon glaucus</i>	NR	CR
<i>Encalypta pilifera</i>	NR	DD
<i>Entosthodon muhlenbergii</i>	NS	
<i>Entosthodon pulchellus</i>	NS	NT
<i>Fissidens crispus</i>	NS	
<i>Grimmia crinita</i>	NR	VU
<i>Grimmia orbicularis</i>	NS	NT
<i>Grimmia tergestina</i>	NS	
<i>Gymnostomum calcareum</i>	NS	
<i>Gymnostomum viridulum</i>	NS	
<i>Homomallium incurvatum</i>	NR	EN
<i>Lejeunea mandonii</i>	NR	CR
<i>Mnium thomsonii</i>	NS	
<i>Orthothecium rufescens</i>	NS	

Lowland acid rocks	NR/NS ^A	RDB ^B
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<i>Acaulon mediterraneum</i>	NR	DD
<i>Bartramia halleriana</i>	NS	
<i>Bartramia stricta</i>	NR	EN
<i>Brachydontium trichodes</i>	NS	
<i>Campylopus pilifer</i>	NS	EN
<i>Campylopus subulatus</i>	NS	
<i>Cephaloziella rubella</i>	NS	DD
<i>Cynodontium jenneri</i>	NS	
<i>Encalypta ciliata</i>	NS	
<i>Fissidens curvatus</i>	NR	EN
<i>Grimmia anodon</i>	NR	CR
<i>Grimmia arenaria</i>	NR	DD
<i>Grimmia atrata</i>	NS	NT
<i>Grimmia decipiens</i>	NS	
<i>Grimmia elatior</i>	NR	VU
<i>Grimmia laevigata</i>	NS	NT
<i>Grimmia longirostris</i>	NS	
<i>Grimmia montana</i>	NS	
<i>Grimmia muehlenbeckii</i>	NS	

<i>Grimmia ovalis</i>	NS	NT	<i>Pallavicinia lyellii</i>	NS	EN
<i>Hedwigia ciliata</i> s.s.	NS	VU	<i>Philonotis marchica</i>	NR	CR
<i>Hedwigia integrifolia</i>	NS		<i>Plagiopus oederianus</i>	NS	
<i>Philonotis rigida</i>	NR	EN	<i>Pohlia flexuosa</i>	NS	
<i>Riccia beyrichiana</i>	NS	VU	<i>Rhynchostegiella litorea</i>	NS	
<i>Riccia crozalsii</i>	NR	DD	<i>Rhytidiadelphus subpinnatus</i>	NS	VU
<i>Riccia nigrella</i>	NR	CR	<i>Scapania curta</i>	NR	VU
<i>Schistidium confertum</i>	NR	DD	<i>Scapania lingulata</i>	NS	
<i>Schistidium flaccidum</i>	NR	EN	<i>Sematophyllum substrumosum</i>	NS	
<i>Schistidium helveticum</i>	NR	DD	<i>Sphenolobopsis pearsonii</i>	NS	
<i>Schistidium pruinosum</i>	NS		<i>Tetrodontium repandum</i>	NR	CR
<i>Targionia hypophylla</i>	NS	EN	<i>Tortula schimperi</i>	NS	
<i>Tortula canescens</i>	NR	CR	<i>Tortula vahliana</i>	NR	EN
			<i>Tritomaria exsecta</i>	NS	
Woodland	NR/NS^A	RDB^B			
<i>Anastrophyllum hellerianum</i>	NS				
<i>Andreaea megistospora</i>	NS				
<i>Aneura mirabilis</i>	NS		Epiphytes of open woodland	NR/NS^A	RDB^B
<i>Atrichum angustatum</i>	NR	CR	<i>Brachythecium salebrosum</i>	NS	
<i>Bartramia halleriana</i>	NS		<i>Habrodon perpusillus</i>	NR	EN
<i>Brachydontium trichodes</i>	NS		<i>Orthotrichum acuminatum</i>	NR	VU
<i>Brachythecium salebrosum</i>	NS		<i>Orthotrichum cambrense</i>	NR	DD
<i>Buxbaumia aphylla</i>	NR	EN	<i>Orthotrichum consimile</i>	NR	NT
<i>Buxbaumia viridis</i>	NS	VU	<i>Orthotrichum gymnostomum</i>	NR	VU
<i>Calypogeia integristipula</i>	NS	VU	<i>Orthotrichum obtusifolium</i>	NS	NT
<i>Calypogeia suecica</i>	NS		<i>Orthotrichum pallens</i>	NR	NT
<i>Campylopus setifolius</i>	NS		<i>Orthotrichum pumilum</i>	NR	VU
<i>Campylopus subporodictyon</i>	NR	VU	<i>Orthotrichum rogeri</i>	NR	VU
<i>Campylostelium saxicola</i>	NS	NT	<i>Orthotrichum scanicum</i>	NR	VU
<i>Cephaloziella rubella</i>	NS	DD	<i>Orthotrichum schimperi</i>	NR	VU
<i>Cephaloziella turneri</i>	NR	EN	<i>Orthotrichum speciosum</i>	NS	
<i>Cynodontium jeneri</i>	NS		<i>Pterigynandrum filiforme</i>	NS	
<i>Dicranum flagellare</i>	NS	VU	<i>Pylaisia polyantha</i>	NS	
<i>Dicranum polysetum</i>	NS	VU	<i>Rhynchostegiella litorea</i>	NS	
<i>Ditrichum subulatum</i>	NR	EN	<i>Rhynchostegium rotundifolium</i>	NR	CR
<i>Eremonotus myriocarpus</i>	NS		<i>Ulota calvescens</i>	NS	
<i>Fossombronina mittenii</i>	NR	CR	<i>Ulota coarctata</i>	NS	
<i>Grimmia atrata</i>	NS	NT	<i>Zygodon forsteri</i>	NR	EN
<i>Herbertus hutchinsiae</i>	NS				
<i>Herzogiella seligeri</i>	NS				
<i>Jamesoniella autumnalis</i>	NS				
<i>Leiocolea heterocolpos</i>	NS		Lowland heathland	NR/NS^A	RDB^B
<i>Liochlaena lanceolata</i>	NR	CR	<i>Acaulon muticum</i> s.s.	NS	VU
<i>Lophozia longidens</i>	NS		<i>Atrichum tenellum</i>	NS	
<i>Lophozia longiflora</i>	NR	CR	<i>Bruchia vogesiaca</i>	NR	CR
<i>Nardia insecta</i>	NR	CR	<i>Buxbaumia aphylla</i>	NR	EN
<i>Orthodontium gracile</i>	NR	CR	<i>Campylopus schimperi</i>	NS	EN

<i>Campylopus subulatus</i>	NS		<i>Hamatocaulis vernicosus</i>	NS	NT
<i>Cephaloziella dentata</i>	NR	CR	<i>Harpanthus flotovianus</i>	NS	
<i>Cephaloziella elachista</i>	NR	DD	<i>Hygrohypnum molle</i>	NR	VU
<i>Cephaloziella integerrima</i>	NR	EN	<i>Hylocomiastrum pyrenaicum</i>	NR	VU
<i>Cephaloziella rubella</i>	NS	DD	<i>Jamesoniella undulifolia</i>	NR	EN
<i>Cephaloziella spinigera</i>	NS	DD	<i>Leiocolea gillmanii</i>	NS	NT
<i>Cephaloziella stellulifera</i>	NS	NT	<i>Leiocolea rutheana</i>	NR	CR
<i>Cladopodiella francisci</i>	NS	VU	<i>Liochlaena lanceolata</i>	NR	CR
<i>Dicranella crispa</i>	NR	DD	<i>Meesia uliginosa</i>	NS	
<i>Dicranum flexicaule</i>	NS		<i>Moerckia blyttii</i>	NS	EN
<i>Dicranum polysetum</i>	NS	DD	<i>Moerckia flotoviana s.s.</i>	NS	VU
<i>Dicranum spurium</i>	NS	VU	<i>Moerckia hibernica s.s.</i>	NR	VU
<i>Ditrichum lineare</i>	NS		<i>Oncophorus virens</i>	NS	EN
<i>Ditrichum pusillum</i>	NS		<i>Oncophorus wahlenbergii</i>	NR	EN
<i>Ephemerum sessile</i>	NS	DD	<i>Oxystegus hibernicus</i>	NS	
<i>Fossombronia fimbriata</i>	NR	EN	<i>Palustriella decipiens</i>	NR	NT
<i>Fossombronia foveolata</i>	NS		<i>Philonotis seriata</i>	NS	NT
<i>Fossombronia mittenii</i>	NR	CR	<i>Plagiomnium medium</i>	NR	VU
<i>Gongylanthus ericetorum</i>	NR	CR	<i>Pohlia ludwigii</i>	NS	
<i>Herbertus norenius</i>	NR	VU	<i>Pseudobryum cinclidioides</i>	NS	EN
<i>Hypnum imponens</i>	NS		<i>Pseudocalliergon trifarium</i>	NS	
<i>Lophozia capitata</i>	NR	VU	<i>Pseudocalliergon turgescens</i>	NR	EN
<i>Lophozia herzogiana</i>	NR	CR	<i>Rhizomnium magnifolium</i>	NS	
<i>Marsupella sprucei</i>	NS		<i>Scapania degenii</i>	NS	
<i>Nardia geoscyphus</i>	NS	DD	<i>Scapania paludicola</i>	NS	DD
<i>Philonotis caespitosa</i>	NS		<i>Scapania paludosa</i>	NS	
<i>Pohlia filum</i>	NS	EN	<i>Sphagnum affine</i>	NS	
<i>Riccia beyrichiana</i>	NS	VU	<i>Sphagnum platyphyllum</i>	NS	
<i>Riccia bifurca</i>	NR	EN	<i>Sphagnum subsecundum s.s.</i>	NS	
<i>Riccia nigrella</i>	NR	CR	<i>Splachnum vasculosum</i>	NS	EN
<i>Scapania curta</i>	NR	VU	<i>Tayloria lingulata</i>	NR	VU
<i>Sphagnum strictum</i>	NS		<i>Tetraplodon angustatus</i>	NS	NT
<i>Weissia rutilans</i>	NS		<i>Tomentypnum nitens</i>	NS	EN
			<i>Tritomaria polita</i>	NS	

Flushes	NR/NS ^A	RDB ^B
<i>Amblyodon dealbatus</i>	NS	VU
<i>Aplodon wormskioeldii</i>	NR	CR
<i>Barbilophozia kunzeana</i>	NS	NT
<i>Barbilophozia quadriloba</i>	NR	NT
<i>Bryoerythrophyllum caledonicum</i>	NR	VU
<i>Bryum schleicheri</i>	NR	CR
<i>Bryum weigellii</i>	NS	
<i>Campylopus shawii</i>	NS	
<i>Catoscopium nigratum</i>	NS	EN
<i>Cephalozia pleniceps</i>	NS	
<i>Cinclidium stygium</i>	NS	EN
<i>Dicranella grevilleana</i>	NR	NT

Fen and swamp	NR/NS ^A	RDB ^B
<i>Amblystegium radicale</i>	NS	
<i>Campyliadelphus elodes</i>	NS	NT
<i>Cinclidium stygium</i>	NS	EN
<i>Drepanocladus sendtneri</i>	NS	EN
<i>Hamatocaulis vernicosus</i>	NS	NT
<i>Hygroamblystegium humile</i>	NS	
<i>Jamesoniella undulifolia</i>	NR	EN
<i>Leiocolea gillmanii</i>	NS	NT
<i>Leiocolea rutheana</i>	NR	CR
<i>Pseudobryum cinclidioides</i>	NS	EN

<i>Pseudocalliergon lycopodioides</i>	NS	EN	<i>Bryum dixonii</i>	NS	NT
<i>Pseudocalliergon turgescens</i>	NR	EN	<i>Bryum elegans</i>	NS	
<i>Scapania paludicola</i>	NS		<i>Bryum mildeanum</i>	NR	DD
<i>Sphagnum affine</i>	NS		<i>Campylophyllum halleri</i>	NR	CR
<i>Sphagnum platyphyllum</i>	NS		<i>Cephalozia pleniceps</i>	NS	
<i>Sphagnum subsecundum</i> s.s.	NS		<i>Ctenidium procerrimum</i>	NR	EN
<i>Tomentypnum nitens</i>	NS	EN	<i>Dicranella grevilleana</i>	NR	NT
			<i>Dicranum spadiceum</i>	NR	VU
			<i>Dicranodontium uncinatum</i>	NS	
			<i>Didymodon icmadophilus</i>	NR	DD
			<i>Diplophyllum taxifolium</i>	NS	
			<i>Encalypta alpina</i>	NS	
			<i>Encalypta ciliata</i>	NS	
			<i>Encalypta rhaptocarpa</i>	NS	NT
			<i>Entosthodon muhlenbergii</i>	NS	
			<i>Eremonotus myriocarpus</i>	NS	
			<i>Eurhynchiastrum pulchellum</i>	NR	EN
			<i>Gymnomitrium coralloides</i>	NR	VU
			<i>Heterocladium dimorphum</i>	NR	VU
			<i>Hygrohypnum smithii</i>	NR	VU
			<i>Hygrohypnum styriacum</i>	NR	CR
			<i>Hylocomiastrum pyrenaicum</i>	NR	VU
			<i>Hypnum bambergeri</i>	NR	VU
			<i>Hypnum hamulosum</i>	NS	NT
			<i>Hypnum revolutum</i>	NR	EN
			<i>Hypnum vaucheri</i>	NR	EN
			<i>Isopterygiopsis muelleriana</i>	NS	
			<i>Jungermannia borealis</i>	NS	
			<i>Jungermannia polaris</i>	NR	VU
			<i>Leiocolea fitzgeraldiae</i>	NS	VU
			<i>Leiocolea heterocolpos</i>	NS	
			<i>Lophozia obtusa</i>	NS	
			<i>Mnium lycopodioides</i>	NR	VU
			<i>Mnium spinosum</i>	NR	VU
			<i>Mnium thomsonii</i>	NS	
			<i>Myurella julacea</i>	NS	
			<i>Myurella tenerrima</i>	NR	EN
			<i>Nardia geoscyphus</i>	NS	DD
			<i>Odontoschisma macounii</i>	NR	VU
			<i>Orthothecium rufescens</i>	NS	
			<i>Paraleptodontium recurvifolium</i>	NS	NT
			<i>Pedinophyllum interruptum</i>	NR	VU
			<i>Philonotis seriata</i>	NS	NT
			<i>Philonotis tomentella</i>	NS	NT
			<i>Plagiobryum demissum</i>	NR	CR
			<i>Plagiomnium medium</i>	NR	VU
			<i>Plagiopus oederianus</i>	NS	

Bog	NR/NS^A	RDB^B
<i>Campylopus shawii</i>	NS	
<i>Cephalozia loitlesbergeri</i>	NS	
<i>Cephalozia macrostachya</i>	NS	
<i>Cephaloziella elachista</i>	NR	DD
<i>Cephaloziella spinigera</i>	NS	DD
<i>Dicranum leioneuron</i>	NR	DD
<i>Dicranum undulatum</i>	NS	EN
<i>Jamesoniella undulifolia</i>	NR	EN
<i>Lophozia herzogiana</i>	NR	CR
<i>Pallavicinia lyellii</i>	NS	EN
<i>Sphagnum balticum</i>	NR	EN
<i>Sphagnum lindbergii</i>	NS	
<i>Sphagnum majus</i>	NS	NT
<i>Sphagnum pulchrum</i>	NS	
<i>Sphagnum riparium</i>	NS	
<i>Sphagnum strictum</i>	NS	
<i>Tayloria tenuis</i>	NR	CR
<i>Tetraplodon angustatus</i>	NS	NT

Basic montane cliffs	NR/NS^A	RDB^B
<i>Abietinella abietina</i>	NS	VU
<i>Aloina rigida</i>	NS	EN
<i>Amphidium lapponicum</i>	NS	
<i>Anomobryum concinatum</i>	NS	
<i>Anthelia juratzkana</i>	NS	
<i>Arctoa fulvella</i>	NS	
<i>Athalamia hyalina</i>	NR	CR
<i>Barbilophozia lycopodioides</i>	NS	NT
<i>Bartramia halleriana</i>	NS	
<i>Blindia caespiticia</i>	NR	EN
<i>Brachyodontium trichodes</i>	NS	
<i>Brachytheciastrum trachypodium</i>	NR	EN
<i>Brachythecium cirrosum</i>	NR	EN
<i>Bryoerythrophyllum caledonicum</i>	NR	VU
<i>Bryum arcticum</i>	NR	VU

<i>Plagiothecium cavifolium</i>	NS		<i>Andreaea megistospora</i>	NS	
<i>Platydictya</i>	NS		<i>Andreaea mutabilis</i>	NS	
<i>jungermannioides</i>			<i>Arctoa anderssonii</i>	NR	CR
<i>Pohlia obtusifolia</i>	NR	DD	<i>Bartramia halleriana</i>	NS	
<i>Pohlia prolifera</i>	NR	VU	<i>Bazzania pearsonii</i>	NS	
<i>Pseudoleskea incurvata</i>	NR	VU	<i>Brachydontium trichodes</i>	NS	
<i>Pseudoleskea patens</i>	NS	VU	<i>Campylopus gracilis</i>	NS	
<i>Pseudoleskeella catenulata</i>	NS		<i>Campylopus setifolius</i>	NS	
<i>Pseudoleskeella rupestris</i>	NS	NT	<i>Conostomum tetragonum</i>	NS	NT
<i>Pterigynandrum filiforme</i>	NS		<i>Coscinodon cribrosus</i>	NS	
<i>Pterygoneurum ovatum</i>	NS	EN	<i>Cynodontium jenneri</i>	NS	
<i>Ptychodium plicatum</i>	NR	VU	<i>Cynodontium polycarpon</i>	NR	EN
<i>Racomitrium canescens</i> s.s.	NS	NT	<i>Cynodontium strumiferum</i>	NS	VU
<i>Racomitrium himalayanum</i>	NR	VU	<i>Cynodontium tenellum</i>	NR	EN
<i>Rhytidium rugosum</i>	NS		<i>Dicranodontium uncinatum</i>	NS	
<i>Saelania glaucescens</i>	NR	EN	<i>Dicranoweisia crispula</i>	NS	
<i>Scapania calcicola</i>	NS	VU	<i>Dicranum flexicaule</i>	NS	DD
<i>Scapania cuspiduligera</i>	NS		<i>Ditrichum zonatum</i>	NS	
<i>Scapania gymnostomophila</i>	NR	VU	<i>Grimmia alpestris</i>	NR	DD
<i>Scapania lingulata</i>	NS		<i>Grimmia atrata</i>	NS	NT
<i>Scapania praetervissa</i>	NR	DD	<i>Grimmia elongata</i>	NR	
<i>Schistidium atrofusum</i>	NR	VU	<i>Grimmia incurva</i>	NS	
<i>Schistidium dupretii</i>	NR	DD	<i>Grimmia longirostris</i>	NS	
<i>Schistidium flaccidum</i>	NR	EN	<i>Grimmia ovalis</i>	NS	NT
<i>Schistidium flexipile</i>	NR	DD	<i>Grimmia sessitana</i>	NR	CR
<i>Schistidium helveticum</i>	NR	DD	<i>Harpanthus flotovianus</i>	NS	
<i>Schistidium papillosum</i>	NS	DD	<i>Herbertus hutchinsiae</i>	NS	
<i>Schistidium pruinatum</i>	NS		<i>Hygrohypnum duriusculum</i>	NS	NT
<i>Schistidium robustum</i>	NS		<i>Hylocomiastrum</i> <i>pyrenaicum</i>	NR	VU
<i>Schistidium trichodon</i>	NS		<i>Isopterygiopsis muelleriana</i>	NS	
<i>Seligeria brevifolia</i>	NR	EN	<i>Lophozia opacifolia</i>	NS	
<i>Solenostoma</i> <i>confertissimum</i>	NS		<i>Lophozia wenzelii</i>	NR	DD
<i>Solenostoma subellipticum</i>	NS		<i>Marsupella adusta</i>	NS	
<i>Stegonia latifolia</i>	NR	VU	<i>Marsupella alpina</i>	NS	NT
<i>Syntrichia norvegica</i>	NR	CR	<i>Marsupella sphacelata</i>	NS	NT
<i>Syntrichia princeps</i>	NR	EN	<i>Marsupella sprucei</i>	NS	
<i>Tayloria lingulata</i>	NR	VU	<i>Marsupella stableri</i>	NS	NT
<i>Timmia austriaca</i>	NR	EN	<i>Mastigophora woodsii</i>	NS	
<i>Timmia norvegica</i>	NR	NT	<i>Mielichhoferia elongata</i>	NR	VU
<i>Tortella densa</i>	NS		<i>Moerckia hibernica</i> s.s.	NR	VU
<i>Tortella fragilis</i>	NR	EN	<i>Oedipodium griffithianum</i>	NS	EN
<i>Tortula inermis</i>	NR	CR	<i>Paraleucobryum longifolium</i>	NR	VU
<i>Tortula leucostoma</i>	NR	CR	<i>Plagiochila carringtonii</i>	NS	
<i>Zygodon gracilis</i>	NR	VU	<i>Plagiothecium cavifolium</i>	NS	
			<i>Plagiothecium platyphyllum</i>	NS	
			<i>Pohlia andalusica</i>	NR	EN
			<i>Pohlia crudoides</i>	NR	CR
			<i>Pohlia flexuosa</i>	NS	
Acid montane cliffs	NR/NS^A	RDB^B			
<i>Andreaea alpestris</i>	NR	DD			

Snowbeds	NR/NS^A	RDB^B			
<i>Andreaea blyttii</i>	NR	VU	<i>Marsupella boeckii</i>	NR	EN
<i>Andreaea frigida</i>	NR	NT	<i>Marsupella brevissima</i>	NS	
<i>Andreaea nivalis</i>	NR	EN	<i>Marsupella condensata</i>	NR	VU
<i>Andreaea sinuosa</i>	NR	VU	<i>Marsupella sparsifolia</i>	NR	VU
<i>Cephalozia ambigua</i>	NR	DD	<i>Marsupella stableri</i>	NS	NT
<i>Conostomum tetragonum</i>	NS	NT	<i>Moerckia blyttii</i>	NS	
<i>Gymnomitrium apiculatum</i>	NR	VU	<i>Nardia breidleri</i>	NS	NT
<i>Hygrohypnum molle</i>	NR	VU	<i>Pleurocladula albescens</i>	NS	NT
<i>Kiaeria falcata</i>	NS		<i>Pohlia ludwigii</i>	NS	
<i>Kiaeria glacialis</i>	NS	NT	<i>Pohlia obtusifolia</i>	NR	DD
<i>Kiaeria starkei</i>	NS		<i>Polytrichastrum</i>	NS	
<i>Lophozia opacifolia</i>	NS		<i>sexangulare</i>	NS	
<i>Marsupella arctica</i>	NR	EN	<i>Scapania paludosa</i>	NS	
			<i>Sciuro-hypnum glaciale</i>	NR	DD
			<i>Sciuro-hypnum starkei</i>	NR	DD

^APescott (2016)

^BCallaghan and Hodgetts (in prep.)

Appendix 2.

Bryophyte species that are endemic to Britain and Ireland (the British Isles) or have only been recorded at one or two localities away from Britain and Ireland, according to current knowledge (Blockeel *et al* 2014).

Endemic and near-endemic bryophytes

Bryoerythrophyllum caledonicum
Campylopus setifolius
Cephaloziella nicholsonii
Ditrichum cornubicum
Ditrichum plumbicola
Leiocolea fitzgeraldiae
Herbertus borealis
Herbertus norenius
Orthotrichum cambrense
Pohlia scotica
Sphagnum skyense
Thamnobryum angustifolium
Thamnobryum cataractarum
Trichostomum hibernicum
Weissia multicapsularis
Weissia sterilis