

12.1 LICHENS, FUNGI AND LOWER PLANTS

Application (all guidelines)

The distribution of fungi, lichens and lower plants (mosses, liverworts, stoneworts and algae) in Derbyshire is less well known than that of flowering plants and ferns but continued recording since publication of the 2003 Selection Guidelines has increased knowledge and understanding of the distribution and status of many species. Evaluation of potential new sites or re-evaluation of existing sites should be made on up to date survey data which should be no more than 5 years old at the time of assessment and preferably this should be data collected within the past year.

Justification (all guidelines)

Although often inconspicuous and under-recorded the non-vascular flora of Britain is one of the richest in Europe. Derbyshire's industrial past had a significant and adverse affect on the diversity and distribution of non-vascular plants especially lichens, but atmospheric conditions are now significantly improved and some species are re-appearing with many epiphytic bryophytes making good population recoveries.

12.1.1 Lichen Selection Guidelines

Sites that meet one or more of the following guidelines will be eligible for designation as a Local Wildlife Site.

Li1 Any site which supports a population of lichen species listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as revised and amended) or with IUCN threat categories : critically endangered (CR); endangered (EN); vulnerable (VU); or which are nationally rare (NR). (Woods & Coppins, 2003) (under revision) (<http://www.jncc.gov.uk>)

Application

This guideline should be applied to any site with a population of one or more of these species. The JNCC maintain a spreadsheet listing the conservation designations of UK taxa. This spreadsheet is updated regularly and is downloadable from the JNCC website (<http://www.jncc.gov.uk>) making this an easily accessible and up to date list of conservation designations.

Justification

These lichen species are the rarest and/or most threatened with extinction in the British Isles and Britain has a national and international responsibility to conserve them throughout their distribution.

Li2 Any site which supports a significant population of a lichen species that is nationally scarce (NS) or near threatened (NT) in Britain (Woods & Coppins, 2003) (under revision), (<http://www.jncc.gov.uk>) & (Price, 2009 – and future revisions) where such populations contribute significantly to the distribution pattern or the total population size of that species in Derbyshire.

Application

All sites for lichens in the above categories are eligible.

The JNCC maintain a spreadsheet listing the conservation designations of UK taxa which includes those species which are Nationally Scarce or Near Threatened. This spreadsheet is updated regularly and is downloadable from the JNCC website (<http://www.jncc.gov.uk>) making this an easily accessible and up to date list of conservation designations. Consideration should be given to the relative size and extent of the population in relation to populations at other sites both within Derbyshire and nationally and to the contribution this makes to the geographical range of the species. This guideline should therefore only be applied following consultation with the County Lichen Recorder.

Justification

Britain is particularly rich in lichens because of its geographical position in the path of the North Atlantic Drift. However, species that occur in 16 – 100 10km squares (inclusive) in Britain are considered to be Nationally Scarce. There is a national responsibility for their conservation. Species threatened in Europe may be relatively widespread and abundant in Britain, but where a population contributes significantly to the distribution pattern or the total population size of that species in Derbyshire there is an international responsibility to conserve it.

The protection, maintenance and enhancement of the populations of these species in Derbyshire is vital for sustaining biological diversity throughout the British Isles.

Sites where the species concerned has been recently deliberately introduced, excluding species recovery programmes, should not normally be included.

Li3 Any site which supports a significant Derbyshire population of a lichen species that is a UK BAP Priority Species.

Application

All sites for lichens in the above category should be considered. The JNCC maintain a spreadsheet listing the conservation designations of UK taxa including those species which are UK BAP Priority Species. This spreadsheet is updated regularly and is downloadable from the JNCC website (<http://www.jncc.gov.uk>) making this an easily accessible and up to date list of conservation designations.

Justification

Species identified as UK BAP Priority Species are a priority for conservation and there is therefore a need to ensure that sites in Derbyshire which support them are identified and afforded protection.

Li4 Any site that supports a significant proportion of the Derbyshire population, or contributes significantly to the range in Derbyshire, of a lichen species that is recorded from more than 3 localities within the County (Price, 2009 and future revisions), but which could be at risk because of very small populations, recent rapid decline, or habitat loss or change.

Application

All sites for lichens in the above category which are not covered elsewhere may be considered where they significantly extend the range of the species in Derbyshire, or support a significant proportion of the Derbyshire population of that species. Assessment of the significance of species being considered under this guideline should only be made following consultation with the County Lichen Recorder.

Justification

Species included here whilst not immediately in danger of extinction in the County may, nevertheless, be at risk and could fall into the endangered category without adequate preventative measures.

Li5 Any site that supports an assemblage of lichen species that contributes significantly to the overall lichen flora of Derbyshire.

Application

Selection of sites under this guideline should be guided by local and national experts on Britain/Derbyshire's lichen flora and only be made following consultation with the County Lichen Recorder.

Justification

Assemblages of lichens may be representative of particular climatic gradients, habitat types or geology within Derbyshire and may either be highly representative or of restricted occurrence.

12.1.2 FUNGI

Application (all fungi guidelines)

The production of fruiting bodies, by means of which most fungi are identified, may be irregular and is influenced by many environmental factors. Moreover, the distribution of fungi in Derbyshire is imperfectly known in many cases, and species lists given below should be regarded as tentative. Whilst the general rule of post-1987 records only being eligible should be borne in mind, consideration may be given to sites where relevant records have been made between 1978 and 1986 where it appears that no gross habitat change has occurred which would have been likely to result in the loss of the species concerned.

Fungi Selection Guidelines

Sites that meet one or more of the following guidelines will be eligible for designation as a Local Wildlife Site.

FU1 Any site which supports a population of fungi species listed under any of the following categories:

- a) a species listed in schedules 5 of the Wildlife and Countryside Act 1981 (as revised and amended)
 - b) a species listed on the British Red Data Books of Britain and Ireland
 - c) a species considered to be 'nationally scarce'
 - d) a species for which Derbyshire is a stronghold within the region
 - e) a species which has three or fewer localities in the County
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Application

This guideline should be applied to any site with a population of these species. For clarification of a species inclusion in this guideline reference should be made to the Derbyshire Red Data Book (Elkington ed, 1996) and also the County Fungi recorder for updated information.

The following fungi species are currently identified: -

Camarophyllus atropunctus
Cortinarius violaceus
Entoloma bloxhamii
Graddonia coracina
Hygrocybe calyptraeformis
Marasmius hudsonii
Mycena rubromarginata
Pseudocraterellus sinuosus
Ripartites metrodii

Russula carminea
Strobilomyces strobilaceus

Provisional species
Hygrocybe spadicea

Justification

These fungi species are the rarest and or most threatened with extinction in the British Isles. Consequently, the protection, maintenance and enhancement of the populations of these species in Derbyshire are vital for sustaining biological diversity throughout the British Isles.

Fu2 Areas of grassland that support a significant fungal assemblage for Derbyshire based on a CHEG score of C8 H17 E15 G? or greater.

Application

Any grassland site found to support a fungi flora that meets or exceeds the above CHEG score could be included under this guideline.

Determining a CHEG score.

To assess whether a particular area of grassland is important in terms of the number of grassland fungi species it supports the CHEG profile developed by Rotheroe (Rotheroe *et al*, 1996) can be used. The evaluation of grassland sites with fungal conservation value is based on the following four fungi groups: -

1. Clavaroid fungi - The Fairy Clubs.
2. Hygrocybes* - The Waxcaps.
3. Entolomas (sensu Noordeloos)[#] - The Pink Gills.
4. Geoglossaceae -The Earth Tongues. Please note the score for this group is currently undetermined.

* - including *Porpoloma* and *Dermoloma*.

- including *Leptonia* etc.

Each species from one of these groups counts towards a numerical score for each grassland site. This scoring system is known as the CHEG profile and takes it's name from the initials of the 4 groups of fungi listed above. It enables one to compare grassland sites for their relative conservation value.

A significant CHEG profile in terms of Derbyshire and Peak District grassland sites would be: -

C8 H17 E15 G? (The numerical value for *Geoglossum species* is currently undetermined).

Fu3 Areas of grassland that support a significant fungal assemblage including at least 8 of the species listed below, but have an overall CHEG score of < C8 H17 E15 G?

Application

All sites that support a grassland fungi assemblage that meets the above guideline are eligible. The guideline should be implemented in consultation with recognised fungi experts. The current list of species is set out below and has been compiled by N. Barden (pers com October 2002).

Rare or endangered Species of Semi-natural Grassland:

Clavaroid fungi the Fairy Clubs

Clavaria zollingeri

Clavulinopsis umbrinella

Hygrocybes the Waxcaps

Hygrocybe aurantiosplendens

Hygrocybe calyptriformis

Hygrocybe citrinovirens

Hygrocybe colmanniana

Hygrocybe flavipes

Hygrocybe fornicata

Hygrocybe helobia

Hygrocybe ingrata

Hygrocybe irrigata

Hygrocybe intermedia

Hygrocybe lacmus

Hygrocybe nitrata

Hygrocybe ovina

Hygrocybe punicea

Hygrocybe quieta

Hygrocybe spadicea

Hygrocybe splendidissima

Hygrocybe vitellina

Porpoloma metapodium

Entolomas the Pinkgills

Entoloma bloxamii

Entoloma incanum

Entoloma prunuloides

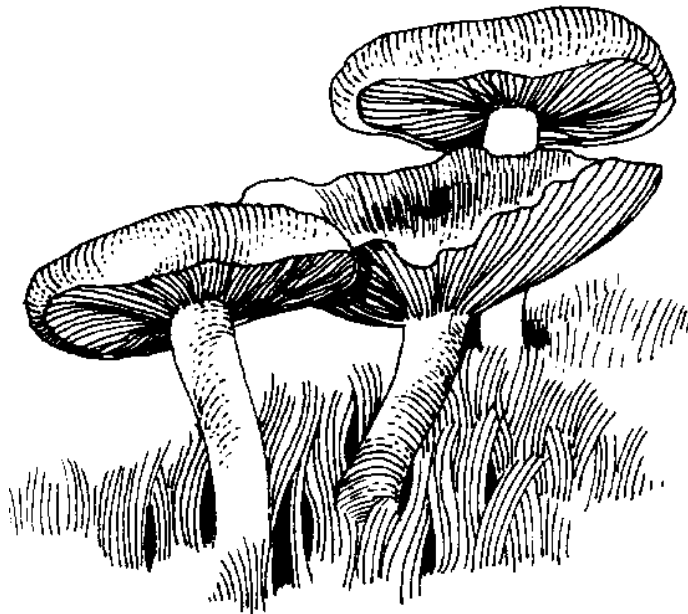
Geoglossaceae the Earth Clubs

All species except *Geoglossum fallax* (the most common).

Microglossum olivaceum

Justification

Grassland fungi are especially vulnerable to agricultural improvement and have declined dramatically in recent years. Although many grassland sites will be identified as Local Wildlife Sites because of their vascular plant interest steps should be taken to ensure sites important for fungi are also identified.



Clitocybe rivalosa

12.1.3 MOSSES AND LIVERWORTS

Application (all bryophyte guidelines)

When the 2003 version of these guidelines were published the most comprehensive and up to date list of bryophytes considered to be of conservation concern was provided by Blockeel in *Endangered Wildlife of Derbyshire* (Elkington *et al* 1996). Over a decade of bryophyte recording by the County Bryophyte Recorder T Blockeel (with contributions from a small number of other active bryologists) since the publication of *Endangered Wildlife of Derbyshire*, has rendered this publication and its lists out of date.

Therefore, potential sites should only be selected on the basis of up to date information provided by the County Bryophyte Recorder.

Justification

Until there is a revision of the *Endangered Wildlife of Derbyshire* or publication of a County Bryophyte Flora to provide sufficient up to date information, the sole source of accurate information regarding the status and distribution of bryophytes within Derbyshire which are considered to be of conservation concern is the County Bryophyte Recorder.

These species are those that are considered to be the most threatened or rarest in the County and their protection in Derbyshire is essential for sustaining biological diversity in the County and throughout the British Isles

Mosses and Liverworts Selection Guidelines

Sites that meet one or more of the following guidelines will be eligible for designation as a Local Wildlife Site.

Br1 Any site which supports a population of bryophyte species listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) or a species listed on the British Red Data Books of Britain and Ireland: Mosses and Liverworts (Church *et al* 2001) or any subsequent updates. (Preston, C.D. 2010)

Application

All sites for bryophytes in the above categories should be included, at present only two Schedule 8 species have been recorded in Derbyshire. Information on the presence of Red Data Book species has not yet been compiled.

Justification

The species in the above categories are either threatened or rare in Western Europe or Britain and for which there is either an international or national responsibility for their Conservation. Nationally rare species are generally those which are recorded from 15 or fewer 10km squares in Britain.

- Br2 Any site supporting a population of a bryophyte species that is,**
- a) nationally scarce**
 - b) threatened in Europe where such populations contribute significantly to the distribution pattern or the total population size of that species in Derbyshire.**
 - c) recorded from 6 or fewer localities in Derbyshire based on information available at the time of the assessment**
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Application

All sites for bryophytes in the above categories are eligible for selection. All 'nationally scarce' bryophyte species are listed by Preston (2006). In addition, lists are maintained and updated by JNCC which are available for downloading from the JNCC website along with species threatened in Europe. (<http://www.jncc.gov.uk>)

Justification

Britain is particularly rich in bryophytes because of its geographical position in the path of the North Atlantic Drift. However, species that occur in 16 – 100 10km squares (inclusive) in Britain are considered to be Nationally scarce. There is a national responsibility for their conservation. Species threatened in Europe may be relatively widespread and abundant in Britain, but where a population contributes significantly to the distribution pattern or the total population size of that species in Derbyshire there is an international responsibility to conserve it. It is also important to conserve species that are rare and/or declining in Derbyshire even if the species is more abundant elsewhere in Britain.

The protection, maintenance and enhancement of the populations of these species in Derbyshire is vital for sustaining biological diversity throughout the British Isles.

Sites where the species concerned has been recently deliberately introduced, excluding species recovery programmes should not normally be included.

For clarification regarding the inclusion of individual species in this guideline reference should be made to the JNCC downloadable lists and consultation should be undertaken with the County Bryophyte recorder for updated information.

Br3 Any site that supports a significant proportion of the Derbyshire population, or contributes significantly to the range in Derbyshire, of a bryophyte species that is recorded from more than 6 localities within the County, but which could be at risk because of very small populations, recent rapid decline, or habitat loss or change.

Application

All sites for bryophytes in the above category which are not covered elsewhere may be considered where they significantly extend the range of the species in Derbyshire, or support a significant proportion of the Derbyshire population of that species. Currently there is no published up to date listing of these species so this guideline should only be applied following consultation with the County Bryophyte Recorder.

Justification

Species included here whilst not immediately in danger of extinction in the County may, nevertheless, be at risk and could fall into the endangered category without adequate preventative measures.

Br4 Any site that supports a significant assemblage of bryophyte species in relation to the Natural Character Area in which the site is located. This significance being determined by a scoring system based on scarcity and habitat or the diversity of epiphytic species present. These species are listed in Table 7 below.

Application

This guideline may be applied to any site for which there is recent survey data. Continued recording within the County will be needed to determine appropriate thresholds and there will invariably be a need to amend Table 7 as more site specific survey data becomes available. Therefore this guideline should only be applied following consultation with the County Bryophyte Recorder.

Justification

Within sites bryophytes are able to occupy many niches provided by a range of sub-habitats that occur within the broad habitats that characterise a site. This can result in important bryophyte assemblages both at County and local level. Such assemblages can be of restricted occurrence and indicative of the high overall biodiversity value of individual sites.

Table 7. Bryophytes of importance within Derbyshire based on their scarceness, habitat and importance as epiphytes

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Acaulon muticum s.l.</i>	1	3		3
<i>Aloina aloides s.str.</i>	21	1		1
<i>Aloina ambigua</i>	3	3	1	4
<i>Amblystegium confervoides</i>	3	3	1	4
<i>Amphidium mougeotii</i>	21	1	1	2
<i>Andreaea rothii</i>	10	2	1	3
<i>Andreaea rupestris</i>	12	1	1	2
<i>Anoetangium aestivum</i>	2	3	1	4
<i>Anomobryum julaceum</i>	1	3	1	4
<i>Anthoceros agrestis</i>	1	3	1	4
<i>Aphanorrhegma patens</i>	16	1	1	2
<i>Archidium alternifolium</i>	12	1	1	2
<i>Atrichum crispum</i>	18	1		1
<i>Atrichum tenellum</i>	1	3	1	4
<i>Barbilophozia attenuata</i>	32		1	1
<i>Barbilophozia barbata</i>	3	3	1	4
<i>Bartramia ithyphylla</i>	1	3	1	4
<i>Bartramia pomiformis</i>	16	1	1	2
<i>Bazzania trilobata</i>	4	2	1	3
<i>Blasia pusilla</i>	1	3	1	4
<i>Blepharostoma trichophyllum</i>	1	3	1	4
<i>Blindia acuta</i>	33		1	1
<i>Brachydontium trichodes</i>	4	2	1	3
<i>Brachythecium glareosum</i>	6	2		2
<i>Brachythecium salebrosum</i>	2	3	1	4
<i>Breutelia chrysocoma</i>	4	2	1	3
<i>Bryoerythrophyllum ferruginascens</i>	13	1	1	2
<i>Bryum algovicum</i>	2	3	1	4
<i>Bryum alpinum</i>	1	3	1	4
<i>Bryum archangelicum</i>	13	1		1
<i>Bryum bornholmense</i>	1	3		3
<i>Bryum canariense</i>	4	2	1	3
<i>Bryum elegans</i>	1	3	1	4
<i>Bryum gemmiferum</i>	5	1		1
<i>Bryum moravicum</i>	23	1		1
<i>Bryum pallescens</i>	4	2		2
<i>Bryum radiculosum</i>	10	1		1
<i>Bryum ruderale</i>	20	1		1
<i>Bryum sauteri</i>	3	2		2
<i>Bryum violaceum</i>	24	1		1
<i>Calliergon cordifolium</i>	3	3	1	4
<i>Calliergonella lindbergii</i>	5	2	1	3
<i>Calypogeia azurea</i>	3	3		3

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Calypogeia integristipula</i>	1	3	1	4
<i>Campyliadelphus chrysophyllus</i>	49		1	1
<i>Campylium protensum</i>	16	1	1	2
<i>Campylium stellatum s.str.</i>	22	1	1	2
<i>Campylophyllum calcareum</i>	2	3	1	4
<i>Campylopus fragilis</i>	6	2	1	3
<i>Campylostelium saxicola</i>	1	3	1	4
<i>Cephalozia connivens</i>	1	3	1	4
<i>Cephalozia lunulifolia</i>	7	2	1	3
<i>Cephaloziella hampeana</i>	9	1		1
<i>Cephaloziella stellulifera</i>	2	3	1	4
<i>Cirriphyllum piliferum</i>	68		1	1
<i>Cladopodiella fluitans</i>	3	3	1	4
<i>Climacium dendroides</i>	51		1	1
<i>Cololejeunea calcarea</i>	5	2	1	3
<i>Cololejeunea minutissima</i>	6	2		2
<i>Cololejeunea rossettiana</i>	9	2	1	3
<i>Colura calyptrifolia</i>	2	3		3
<i>Conardia compacta</i>	2	3	1	4
<i>Coscinodon cribrosus</i>	2	3	1	4
<i>Cynodontium bruntonii</i>	4	2	1	3
<i>Dialytrichia mucronata</i>	3	3	1	4
<i>Dichodontium flavescens</i>	3	2	1	3
<i>Dichodontium palustre</i>	63		1	1
<i>Dicranella cerviculata</i>	19	1	1	2
<i>Dicranella rufescens</i>	25	1	1	2
<i>Dicranella subulata</i>	2	3	1	4
<i>Dicranodontium denudatum</i>	1	3	1	4
<i>Dicranoweisia crispula</i>	1	3	1	4
<i>Dicranum bonjeanii</i>	6	2	1	3
<i>Dicranum fuscescens</i>	10	2	1	3
<i>Dicranum majus</i>	17	1	1	2
<i>Dicranum montanum</i>	2	3	1	4
<i>Didymodon ferrugineus</i>	8	2	1	3
<i>Didymodon spadiceus</i>	6	2	1	3
<i>Didymodon tomaculosus</i>	10	2	1	3
<i>Didymodon vinealis</i>	14	1		1
<i>Discelium nudum</i>	10	2	1	3
<i>Distichium capillaceum</i>	3	3	1	4
<i>Distichium inclinatum</i>	3	3	1	4
<i>Ditrichum flexicaule s.l.</i>	41		1	1
<i>Ditrichum heteromallum</i>	24	1	1	2
<i>Drepanocladus aduncus</i>	14	1	1	2
<i>Encalypta vulgaris</i>	45		1	1
<i>Entodon concinnus</i>	2	3	1	4
<i>Entosthodon fascicularis</i>	8	2	1	3

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Entosthodon muhlenbergii</i>	21	1	1	2
<i>Entosthodon obtusus</i>	1	3	1	4
<i>Ephemerum recurvifolium</i>	2	3	1	4
<i>Ephemerum serratum s.str.</i>	11	1	1	2
<i>Ephemerum sessile</i>	2	3	1	4
<i>Eucladium verticillatum</i>	24	1	1	2
<i>Eurhynchium striatum</i>	125		1	1
<i>Fissidens adianthoides</i>	31		1	1
<i>Fissidens bryoides var. caespitans</i>	4	2	1	3
<i>Fissidens celticus</i>	1	3	1	4
<i>Fissidens crassipes</i>	24	1		1
<i>Fissidens crispus</i>	1	3		3
<i>Fissidens exilis</i>	9	2	1	3
<i>Fissidens gracilifolius</i>	16	1	1	2
<i>Fissidens incurvus</i>	8	1		1
<i>Fissidens osmundoides</i>	17	1	1	2
<i>Fissidens rivularis</i>	2	3	1	4
<i>Fissidens viridulus</i>	25	1		1
<i>Fontinalis squamosa</i>	20	1	1	2
<i>Fossombronia fimbriata</i>	1	3	1	4
<i>Fossombronia incurva</i>	1	3	1	4
<i>Fossombronia pusilla</i>	18	1		1
<i>Fossombronia wondraczekii</i>	14	1	1	2
<i>Frullania tamarisci</i>	29		1	1
<i>Grimmia dissimulata</i>	7	2	1	3
<i>Grimmia donniana</i>	2	3	1	4
<i>Grimmia laevigata</i>	1	3	1	4
<i>Gymnostomum aeruginosum</i>	11	1	1	2
<i>Gymnostomum calcareum</i>	7	2	1	3
<i>Gyroweisia tenuis</i>	12	1		1
<i>Hedwigia ciliata var. ciliata</i>	1	3		3
<i>Heterocladium heteropterum</i>	46		1	1
<i>Hookeria lucens</i>	26		1	1
<i>Hygroamblystegium fluviatile</i>	17	1	1	2
<i>Hygroamblystegium humile</i>	1	3		3
<i>Hygroamblystegium tenax</i>	23	1		1
<i>Hygroamblystegium varium</i>	5	1		1
<i>Hygrobrella laxifolia</i>	5	2	1	3
<i>Hylocomium splendens</i>	80		1	1
<i>Hypnum cupressiforme var. resupinatum</i>	19	1		1
<i>Isopterygiopsis pulchella</i>	5	2	1	3
<i>Isothecium alopecuroides</i>	36		1	1
<i>Isothecium holtii</i>	1	3	1	4
<i>Isothecium myosuroides</i>	64		1	1
<i>Jungermannia atrovirens</i>	37		1	1
<i>Jungermannia exsertifolia</i>	10	2	1	3

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Kurzia trichoclados</i>	8	2	1	3
<i>Leiocolea badensis</i>	12	1		1
<i>Leiocolea collaris</i>	20	1	1	2
<i>Leiocolea turbinata</i>	7	2	1	3
<i>Lejeunea cavifolia</i>	13	1	1	2
<i>Lejeunea lamacerina</i>	11	1	1	2
<i>Lepidozia pearsonii</i>	2	3	1	4
<i>Lepidozia reptans</i>	152		1	1
<i>Leptobryum pyriforme</i>	15	1		1
<i>Leptodontium flexifolium</i>	38		1	1
<i>Leucobryum glaucum</i> s.l. (incl. <i>L. juniperoideum</i>)	5	2	1	3
<i>Leucodon sciuroides</i>	9	2	1	3
<i>Loeskeobryum brevirostre</i>	2	3	1	4
<i>Lophocolea fragrans</i>	1	3	1	4
<i>Lophozia bicrenata</i>	2	3	1	4
<i>Lophozia excisa</i>	14	1	1	2
<i>Lophozia incisa</i>	10	2	1	3
<i>Lophozia perssonii</i>	4	2	1	3
<i>Lophozia sudetica</i>	2	3	1	4
<i>Marchesinia mackaii</i>	4	2	1	3
<i>Marsupella emarginata</i> var. <i>aquatica</i>	2	3	1	4
<i>Marsupella emarginata</i> var. <i>emarginata</i>	31		1	1
<i>Metzgeria conjugata</i>	9	2	1	3
<i>Metzgeria consanguinea</i>	14	1		1
<i>Metzgeria pubescens</i>	24	1	1	2
<i>Microbryum curvillum</i>	1	3	1	4
<i>Microbryum davallianum</i>	11	1	1	2
<i>Microbryum floerkeanum</i>	1	3	1	4
<i>Microbryum rectum</i>	10	2	1	3
<i>Microbryum starckeanum</i>	1	3	1	4
<i>Microlejeunea ulicina</i>	4	2		2
<i>Mnium marginatum</i> var. <i>dioicum</i>	3	3	1	4
<i>Mnium marginatum</i> var. <i>marginatum</i>	3	3	1	4
<i>Mnium thomsonii</i>	4	2	1	3
<i>Mylia anomala</i>	1	3	1	4
<i>Mylia taylorii</i>	14	1	1	2
<i>Nardia geoscyphus</i>	4	2	1	3
<i>Nowellia curvifolia</i>	22	1	1	2
<i>Odontoschisma denudatum</i>	1	3	1	4
<i>Orthothecium intricatum</i>	13	1	1	2
<i>Orthotrichum acuminatum</i>	1	3		3
<i>Orthotrichum consimile</i>	1	3		3
<i>Orthotrichum sprucei</i>	10	2	1	3
<i>Orthotrichum striatum</i>	8	2		2
<i>Oxyrrhynchium pumilum</i>	47		1	1
<i>Oxyrrhynchium speciosum</i>	6	1		1

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Palustriella commutata s.str.</i>	42		1	1
<i>Palustriella falcata</i>	10	2	1	3
<i>Pedinophyllum interruptum</i>	1	3	1	4
<i>Philonotis arnellii</i>	2	3	1	4
<i>Philonotis calcarea</i>	1	3	1	4
<i>Philonotis fontana</i>	69		1	1
<i>Physcomitrium pyriforme</i>	4	2	1	3
<i>Physcomitrium sphaericum</i>	2	3	1	4
<i>Plagiobryum zieri</i>	3	3	1	4
<i>Plagiochila asplenioides</i>	33		1	1
<i>Plagiochila britannica</i>	2	3	1	4
<i>Plagiomnium elatum</i>	1	3	1	4
<i>Plagiomnium ellipticum</i>	6	2	1	3
<i>Plagiopus oederianus</i>	6	2	1	3
<i>Plagiothecium curvifolium</i>	14	1		1
<i>Plagiothecium laetum</i>	6	1		1
<i>Plagiothecium nemorale</i>	24	1		1
<i>Plagiothecium undulatum</i>	144		1	1
<i>Plasteurhynchium striatulum</i>	6	2	1	3
<i>Platydictya jungermannioides</i>	3	3	1	4
<i>Platyhypnidium lusitanicum</i>	12	1	1	2
<i>Pleuridium acuminatum</i>	13	1		1
<i>Pleuridium subulatum</i>	18	1		1
<i>Pleurochaete squarrosa</i>	3	3	1	4
<i>Pohlia bulbifera</i>	8	2	1	3
<i>Pohlia camptotrachela</i>	12	1	1	2
<i>Pohlia cruda</i>	31		1	1
<i>Pohlia drummondii</i>	3	3		3
<i>Pohlia flexuosa</i>	4	2	1	3
<i>Pohlia lescuriana</i>	3	3		3
<i>Pohlia lutescens</i>	10	2		2
<i>Polytrichastrum alpinum</i>	12	1	1	2
<i>Polytrichastrum longisetum</i>	6	2		2
<i>Polytrichum strictum</i>	3	3		3
<i>Porella arboris-vitae</i>	2	3	1	4
<i>Porella cordaeana</i>	26		1	1
<i>Preissia quadrata</i>	13	1	1	2
<i>Pterogonium gracile</i>	2	3	1	4
<i>Ptilidium ciliare</i>	34		1	1
<i>Ptilidium pulcherrimum</i>	7	2		2
<i>Ptilium crista-castrensis</i>	1	3	1	4
<i>Ptychomitrium polyphyllum</i>	13	1	1	2
<i>Racomitrium affine</i>	12	1		1
<i>Racomitrium aquaticum</i>	5	2	1	3
<i>Racomitrium elongatum</i>	1	3	1	4
<i>Racomitrium ericoides</i>	1	3	1	4

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Racomitrium lanuginosum</i>	46		1	1
<i>Racomitrium sudeticum</i>	1	3	1	4
<i>Reboulia hemisphaerica</i>	52		1	1
<i>Rhizomnium pseudopunctatum</i>	7	2	1	3
<i>Rhodobryum roseum</i>	6	2	1	3
<i>Rhynchostegiella teneriffae</i>	18	1	1	2
<i>Rhynchostegium megapolitanum</i>	1	3	1	4
<i>Rhytidiadelphus loreus</i>	14	1	1	2
<i>Rhytidiadelphus triquetrus</i>	53		1	1
<i>Rhytidium rugosum</i>	7	2	1	3
<i>Riccardia chamedryfolia</i>	39		1	1
<i>Riccardia multifida</i>	36		1	1
<i>Riccardia palmata</i>	2	3	1	4
<i>Riccia cavernosa</i>	4	2	1	3
<i>Riccia fluitans</i>	1	3	1	4
<i>Riccia glauca</i>	13	1	1	2
<i>Riccia subbifurca</i>	1	3	1	4
<i>Sanionia uncinata</i>	26		1	1
<i>Sarmentypnum exannulatum</i>	18	1	1	2
<i>Scapania aspera</i>	54		1	1
<i>Scapania compacta</i>	2	3	1	4
<i>Scapania curta</i>	1	3	1	4
<i>Scapania cuspiduligera</i>	1	3	1	4
<i>Scapania gracilis</i>	7	2	1	3
<i>Scapania irrigua</i>	8	2	1	3
<i>Scapania lingulata</i>	1	3	1	4
<i>Scapania nemorea</i>	20	1	1	2
<i>Scapania scandica</i>	14	1	1	2
<i>Scapania umbrosa</i>	7	2	1	3
<i>Schistidium elegantulum</i>	2	2		2
<i>Schistidium platyphyllum</i>	2	3		3
<i>Schistidium pruinatum</i>	2	3	1	4
<i>Schistidium rivulare s.str.</i>	2	3	1	4
<i>Schistidium robustum</i>	1	3	1	4
<i>Schistostega pennata</i>	6	2	1	3
<i>Scleropodium cespitosum</i>	23	1		1
<i>Scorpidium cossonii</i>	2	3	1	4
<i>Scorpidium revolvens</i>	6	2	1	3
<i>Seligeria acutifolia</i>	12	1	1	2
<i>Seligeria brevifolia</i>	2	3	1	4
<i>Seligeria donniana</i>	7	2	1	3
<i>Seligeria pusilla</i>	4	2	1	3
<i>Seligeria recurvata</i>	28		1	1
<i>Seligeria trifaria s.l.</i>	3	3	1	4
<i>Solenostoma caespiticium</i>	2	3		3
<i>Solenostoma hyalinum</i>	1	3	1	4

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Solenostoma obovatum</i>	15	1	1	2
<i>Solenostoma paroicum</i>	7	2	1	3
<i>Solenostoma sphaerocarpum</i>	37		1	1
<i>Sphagnum capillifolium</i>	9	2	1	3
<i>Sphagnum cuspidatum</i>	9	2	1	3
<i>Sphagnum flexuosum</i>	14	1	1	2
<i>Sphagnum girgensohnii</i>	7	2	1	3
<i>Sphagnum inundatum</i>	6	1	1	2
<i>Sphagnum magellanicum</i>	1	3	1	4
<i>Sphagnum papillosum</i>	23	1	1	2
<i>Sphagnum quinquefarium</i>	7	2	1	3
<i>Sphagnum russowii</i>	28		1	1
<i>Sphagnum squarrosum</i>	45		1	1
<i>Sphagnum subnitens</i>	70		1	1
<i>Sphagnum teres</i>	4	2	1	3
<i>Sphagnum warnstorffii</i>	1	3	1	4
<i>Splachnum ampullaceum</i>	2	3	1	4
<i>Splachnum sphaericum</i>	8	2	1	3
<i>Straminergon stramineum</i>	46		1	1
<i>Syntrichia laevipila</i>	6	2		2
<i>Syntrichia papillosa</i>	2	3		3
<i>Syntrichia princeps</i>	1	3	1	4
<i>Syntrichia virescens</i>	13	1		1
<i>Targionia hypophylla</i>	9	2	1	3
<i>Taxiphyllum wissgrillii</i>	16	1	1	2
<i>Tetraplodon mnioides</i>	3	3	1	4
<i>Tetrodontium brownianum</i>	13	1	1	2
<i>Thamnobryum angustifolium</i>	1	3	1	4
<i>Thuidium assimile</i>	11	1	1	2
<i>Thuidium recognitum</i>	2	3	1	4
<i>Thuidium tamariscinum</i>	132		1	1
<i>Tortella bambergeri</i>	3	3	1	4
<i>Tortella nitida</i>	2	3	1	4
<i>Tortula cernua</i>	1	3	1	4
<i>Tortula lanceola</i>	9	2	1	3
<i>Tortula marginata</i>	14	1		1
<i>Tortula modica</i>	17	1	1	2
<i>Tortula protobryoides</i>	8	2	1	3
<i>Trichocolea tomentella</i>	4	2	1	3
<i>Trichostomum crispulum</i>	38		1	1
<i>Trichostomum tenuirostre</i>	13	1	1	2
<i>Tritomaria exsectiformis</i>	9	2	1	3
<i>Tritomaria quinquedentata</i>	16	1	1	2
<i>Warnstorfia fluitans</i>	25	1	1	2
<i>Weissia brachycarpa</i> var. <i>brachycarpa</i>	7	2		2
<i>Weissia longifolia</i> s.l.	7	2	1	3

Name	Tetrad Count	Scarcity Score	Habitat Score	Total Score
<i>Weissia rostellata</i>	6	2	1	3
<i>Zygodon conoideus</i>	21	1		1
<i>Zygodon viridissimus</i> var. <i>stirtonii</i>	20	1		1

Scarcity Score:

Recorded in 1-3 tetrads Score 3

Recorded in 4-10 tetrads Score 2

Recorded in 11-25 tetrads Score 1

Habitat Score

Score of 1 for each species that is normally associated with good quality habitat

Epiphyte Score

Site with 9+ epiphytes Score 3

Site with 6-8 epiphytes Score 2

Site with 3-5 epiphytes Score 1

Total score for a site = cumulative total score (scarcity score + habitat score) + epiphyte score



Sphagnum sp.

11.1.4 STONEWORTS AND OTHER ALGAE

Application (all algae guidelines)

The following guidelines apply only to stoneworts (charophytes), flowerless aquatic plants of uncertain taxonomic affinities probably distantly related to green algae. Only sites from which relevant species records have been made since 1987 should be considered.

Justification

Although generally little known and under-recorded stoneworts are conspicuous aquatic plants, characteristic of a range of relatively unpolluted lowland waters, especially large ponds, pools and canals. The current level of knowledge on this group of organisms is very poor. It is currently estimated that around 5 species occur in Derbyshire. Further work on the status of species in Derbyshire is in preparation. Insufficient data is presently available on the distribution of other algae (most of which are microscopic) to include guidelines based upon them.

Stoneworts and other algae Selection Guidelines

Sites that meet one or more of the following guidelines will be eligible for designation as a Local Wildlife Site.

St1 Any site which supports a population of stonewort species that is,

- a) listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) or
 - b) a Red Data listed species or
 - c) a species considered to be 'nationally scarce'
-

Application

This guideline should be applied to any site supporting one of these species. Species present in Derbyshire that fall into these categories have not yet been identified. Lists of all Red Data and 'nationally scarce' species are maintained and updated by JNCC and available for downloading from the JNCC website (<http://www.jncc.gov.uk>)

Justification

These species are the rarest and or most threatened in the British Isles. Consequently, the protection, maintenance and enhancement of the populations of these species in Derbyshire is vital for sustaining biological diversity throughout the British Isles.

St2 Any site that supports a species for which Derbyshire is a stronghold within the region or for which there are three or fewer localities known in the County.

Application

All sites for stoneworts in the above category which are not covered elsewhere should be considered.

Justification

Some of these species may be common elsewhere in Britain, but are rare in Derbyshire. We therefore have a responsibility to conserve the most important populations of these species.

St3 Any site that supports a significant proportion of the Derbyshire population, or contributes significantly to the range in Derbyshire, of a stonewort species that is recorded from more than 3 localities within the County, but which could be at risk because of very small populations, recent rapid decline, or habitat loss or change.

Application

All sites for stoneworts in the above category which are not covered elsewhere may be considered where they significantly extend the range of the species in Derbyshire, or support a significant proportion of the Derbyshire population of that species. There is currently insufficient information to provide a complete listing of these species.

Justification

Species included here whilst not immediately in danger of extinction in the County may, nevertheless, be at risk and could fall into the endangered category without adequate preventative measures.