

# The Devon Local Sites Manual Policies and Procedures for the Identification and Designation of Wildlife Sites

Version 1.4 – March 2022

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# Changes to the Devon Local Site Manual:

#### Changes agreed by DBRC Steering Group 11/09/08 (v1.1):

Section 1: Introduction

- p5: Section on Local Wildlife Sites amended
- p10: Deleted sites updated
- Section 3: Habitat Guidelines
- p13: Section 3.1.2.1 (b) Non-ancient woodland amended Appendices:
  - p44: Appendix 3 Calcifugous grassland amended

Changes agreed by DBRC Steering Group 08/05/09 (v1.2):

Section 1: Introduction

• p4: Section on proposed County Wildlife Sites (pCWS) amended Section 2: The Selection of County Wildlife Sites

 p8: Section 2.5 – new list of evidence that can be used in the selection of CWS

• p11: Section 2.11– section on notification of landowners updated Section 3: Habitat Guidelines

• p15: Section 3.1.5 – parkland criteria now complete Appendices:

- p41-56: Appendices 2 -7 IHS categories added to all the NVC community appendices
- p47: Appendix 3 table for indicator species of neutral grasslands added
- p57-65: Appendix 8 vascular plant list updated, old status (e.g. DN1) reinstated, references added.

# Changes agreed by the DBRC Executive Group and the County Wildlife Site Selection Panel 14/03/2022 (v1.4):

Section 1: Introduction, p2-6 – multiple updates

Section 2: The Selection of County Wildlife Sites, p7-11 – multiple updates Section 3.2: Grasslands, p18 - additional wording about church yards Section 3.11: Habitats of Industrial Sites and Habitats Under Restoration, p26-27 - new criteria

Section 3.13: Arable fields and margins p27 - new criteria

Section 4.3: Mammals p30-31 – new seals criteria, and updates to otter, water vole, dormouse, and harvest mouse criteria

Section 4.4: Birds p32-34 – Updating threshold criteria, clarifying proof of breeding, and updating BoCC red and amber list speceis

Section 4.6: Invertebrates p35-37 – Criteria updated and amended Section 4.7: Reintroduced or reinforced species p38 – Criteria updated and amended

Section 6: Ecological networks p42-45 - Criteria updated and amended Appendices:

• Appendix 2-7: Addition of overlapping UKHAB catagories



- Appendix 7: Maritime Communities NVC/HIS p64-69 Update to communities occurring in Devon
- Appendix 8: Notable Plant Species in Devon p70-90 Update to nomenclature, and Red Data list.
- Appendix 9 Species rarity scores for breeding bird assemblages p91

   thresholds updated
- Appendix 10 Non-breeding populations for selected species p92-94 thresholds updated
- Appendix 11 Butterflies of County importance in the selection of County Wildlife Sites in Devon p95 – Species list updated
- Appendix 15 Important Arable Plant Areas Outstanding Assemblages (Criterion B) p127-131 supplements new criteria
- Appendix 16 Guidance on UK Biodiversity Action Plan Priority Habitat
   Open mosaic habitats on previously developed land p132-134 supplements new criteria

# Acknowledgements

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#### Introduction

This document forms part of the suite of policy and procedure documents which guide the work of the Devon Biodiversity Record Centre (DBRC).

It updates version 1.3 of the Guidelines for the Selection of County Wildlife Sites in Devon which was used up until March 2022 to guide the selection of County Wildlife Sites in Devon.

The purpose of the document is to provide a robust and consistent set of criteria, policies, and procedures to guide the selection of 'Local Sites' across Devon, on behalf of the partnership which makes up DBRC. In Devon, these 'Local Sites' are known as 'County Wildlife Sites'. This is in line with the expectations of the National Planning Policy Framework (revised 2019), which states in Chapter 15 (Conserving and enhancing the natural environment) that Local Plans should "identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity", and Defra's Local Site Guidance (Local Sites: Guidance on the Identification, Selection and Management, 2006).

#### **Drafting and Adoption of the Manual**

The updated guidance contained within the Manual was compiled by a small group, comprising individuals represented on the DBRC Executive Group and the County Wildlife Site Selection Panel. This work commenced in 2020 and brought to conclusion in January 2022. The principal funders of this review, and development of version 1.4 of the CWS guidelines were Devon County Council, Devon Wildlife Trust, and East Devon AONB, and we are grateful for their contributions.

Input and advice was sought from a wide range of organisations and individuals with specialist knowledge of Devon's wildlife, including those specifically listed in Section 2.

#### Scope of the Manual

As an update to the previous 'Guidelines for the Selection of County Wildlife Sites in Devon', the revised Manual provides a more comprehensive approach to policies and procedures relating to Local Site systems in Devon, and ensures they are contemporary. Its purposes are:

- To define the range of 'Local Site' designations which are applied in a standard manner across Devon through the co-ordination provided by DBRC.
- To set out a detailed set of selection criteria, with related appendices, for the principal 'Local Site' designation: County Wildlife Sites (CWS).

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- To set these within the context of a broader network of biodiversity sites (referred to as Ecological Networks and/or the Nature Recovery Network and linked to policy (NPPF 2019, 25YEP 2018) and legislation (Environment Act 2021).
- To explain the procedures which are applied by an independent 'Selection Panel' and operating with the authority of the DBRC Executive Group, as well as the staff of DBRC, in the selection, and deselection, of such 'Local Sites'.

The policies and procedures relate to the full extent of the Devon's natural environment: terrestrial, aquatic, sub-littoral and marine. However, it should be noted that the contents of this Manual and their application have been much further developed within the terrestrial, than in the marine environment. The section on the marine environment only deals with coasts and estuaries, not the open sea.

The Manual does not currently cover 'Local Sites' in Devon recognised for their geological conservation significance which are referred to as County Geological Sites (CGS), or otherwise known as Regionally Important Geological Sites (RIGS). Instead, the selection of such sites is co-ordinated through the Devon RIGS Group based on the standard, national, criteria established by English Nature (i.e. now Natural England). However, there are clear parallels between these systems and it is hoped, in due course, that their relationship might be properly formalised.

#### **Definitions:**

#### A. Current 'Local Site' Designations County Wildlife Site (CWS)

A County Wildlife Site is a discrete area of land, water, foreshore or seabed which is considered to be of nature conservation significance for its constituent wildlife (or biodiversity) in, at least, a County context and where this status has been verified by DBRC staff and confirmed by the CWS Selection Panel in accordance with the selection guidelines and procedures set out in this Manual.

Note: On occasion, the necessary evidence may be available to justify selection of an area as a County Wildlife Site, but it may be awaiting the required confirmation by the CWS Selection Panel, or there may be a procedural inconsistency preventing this (e.g. in the event of a justified challenge to the validity of the access permission for the site survey). In the interim, such sites may, informally, be referred to as Proposed County Wildlife Sites (pCWS), to enable this pending status to be internally recorded by DBRC, pending the resolution of these issues and the formal confirmation of the CWS status.



# **Unconfirmed Wildlife Site (UWS)**

UWS are sites identified as having possible interest but not fully surveyed to be able to assess if it meets any of the CWS criteria. Sites are often identified through surveys of nearby areas or through aerial photography interpretation. Some of these sites will be areas of significant wildlife interest and, likely to meet CWS standard; however, some will not but may still contain priority habitat or high species interest. In this way the term does not denote a type of designation or assign a particular value to an area of land, but flags it as being of potential interest and a priority for survey, where the opportunity arises.

#### B. Former 'Local Site' Designations Local Wildlife Site

This designation used to be used for sites of significant wildlife interest within a local context that do not reach the criteria for County Wildlife Sites. However, given the potential confusion with the 'Local Sites' terminology promoted through the Defra guidance, and the lack of any consistent approach to the selection of such sites across Devon, this informal designation has been dropped. This includes the terms - Site of Interest for Nature Conservation (SINC) and Site of Local Interest for Nature Conservation (SLINC) which are now covered by the current classifications set out in this guidance. Since these sites still have some wildlife interest, information will be retained about them within the DBRC Combined Habitat Layer, which is being launched during 2022. Unlike DBRC's previous approach to its habitat data layer, which focused on priority habitat only, this newly created layer will include both priority habitat, and non-priority habitat data. As the new layer now allows DBRC to map non-priority habitats of biological importance, alongside those recognised within the UKBAP definitions, we can simplify the number of classifications previously used within the Local Sites Framework including the removal of the following category.

#### Other Sites of Wildlife Interest (OSWI)

These are sites that have been surveyed but they do not reach CWS standard. They will include the old designation of Local Wildlife Site (LWS) where relevant. Important note: Within this review these sites have now been incorporated into the DBRC Combined Habitat Layer, which comprises Biodiversity Action Plan (BAP) priority habitat, other semi natural habitats and broad land use data. Sites formally classified as an OSWI will be recorded within that layer, but that term will no longer be used as the primary attribution. This is to reduce the number of active classifications and add clarity for users of the CWS framework.

#### C. Ecological Networks and the Nature Recovery Network

The Manual also covers previous work on the development of Ecological & Biodiversity Networks within the county and connects these to the current development of a Nature Recovery Network (NRN) for Devon. This initiaitive is being driven by the Devon Local Nature Partnership as part of the 25 Year Environment Plan and Environment Act. The resulting spatial tool will link directly to key elements of the Environment Act, and form the Local Habitat Map within Local Nature Strategies. Those previous terms are now

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superceded by the new Nature Recovery Network, but their historic role in identifying nature rich wildlife corridors and areas of biodiversity value, should still be recognised. They have been fundamental to increasing the previous protection afforded to these often fragmented sites in the past, and longside the current NRN are seen as highly complementary to the CWS system, and vice versa. See section 6 for more information.

#### Site Selection and the 'Ratcliffe Criteria'

The guidelines for selecting County Wildlife Sites are based on the Ratcliffe Criteria (Ratcliffe, 1997\*) which is a long established and widely accepted method of determining the nature conservation value of a site, based on the following attributes:

- Size
- Naturalness
- Representativeness
- Rarity
- Diversity
- Position in an ecological unit
- Recorded History
- Fragility
- Potential Value
- Intrinsic Appeal

These criteria are considered to underpin the selection of all 'Local Sites' in Devon and have been used in the establishment of more detailed criteria, which are intended to be of particular relevance to Devon and to help establish which sites might be considered to be of significance at a County scale.

However, the selection of Local Sites is not always a precise science. The Ratcliffe Criteria assist in providing a consistent approach which is used widely across the UK in recognising attributes that contribute to the perceived nature conservation value of a particular site or feature. More detailed criteria can further assist in the establishment of thresholds. However, there will also be borderline cases. For this reason, this Manual recognises that its primary role is to provide detailed and consistent guidance to inform the selection process, but that decision will involve an element of subjectivity, which should be applied by those with a good knowledge and experience of Devon's wildlife.

\* Ratcliffe, D.A. (1977). A Nature Conservation Review Volume 1. Cambridge University Press

# **Relationship with BAP Habitats and Priority Species**

The Natural Environment and Rural Communities (NERC) Act (2006). Section 41 of the NERC Act requires the Secretary of State to publish and maintain

lists of habitats and species of principal importance for the conservation of biodiversity in England. These lists are derived from the habitats and species previously known as UK BAP priorities for conservation, and the terminology of habitats and species of principal importance supersedes the UK BAP terminology. There are currently 56 habitat types and 943 species that are listed as being of principal importance; these habitats and species were identified as requiring action in the UK BAP, and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework (published in 2012).

In a Devon context, it is 'The Nature of Devon – A Biodiversity Action Plan' which defines key features of biodiversity significance (see Table 2 of Section D of the Devon BAP) and presents action plans for habitats and species requiring a county-wide approach to their conservation; however, action plans are not presented where these might be more appropriately addressed at a local level (e.g. action plans for upland habitats are confined to the Dartmoor and Exmoor BAPs). Whilst these documents are intended to inform conservation action for these habitats and priority species, they are not sufficient to inform the selection of individual sites of substantive nature conservation importance. Although the BAP terminology has been superceded, the information and objectives contained within the Devon BAP remain relevant and will therefore continue to be taken into account through the Ratcliffe criteria, with some overt reference to BAP priorities within the more detailed criteria. BAP status has been used to inform the range of habitats for which detailed criteria are now presented; for example, it is their BAP status which has prompted the specific inclusion of criteria for 'Coastal and Floodplain Grazing Marsh' and 'Traditional Orchards'. Following on from the Devon BAP an updated list of ~ 1,600 species known to be rare in Devon (Devon Priority Species) and a shortlist of 96 species (Devon's Special Species) for which Devon has a particular responsibility, has also been produced.

# Artificial/heavily modified habitats

County Wildlife Sites and Ecological Networks may include artificial habitats that qualify under other habitat or species criteria. These include arable land (and set-aside) and improved grassland that, for example supports important bird wintering grounds; wildlife corridors such as hedgerows, green lanes, dry stone walls, road verges, railway verges, disused railway lines; and areas such as disused airfields, parks, golf courses, gardens, cemeteries, churchyards, tips, sewage works, industrial sites, derelict land and disused buildings that still have value for wildlife, especially in the built environment.



# DBRC

# 2. The Selection of County Wildlife Sites

The selection of all County Wildlife Sites in Devon, from the full range of habitats present in the County, will be undertaken through the rigorous application of the following Guidelines. The procedure for the confirmation of County Wildlife Sites selection will be carried out by a panel of experts from within the County, who operate as an approved County Wildlife Site Selection Panel. Sites can be selected under habitat or species guidelines or a combination of the two.

#### Non-Statutory Wildlife Site Selection Procedure

#### 2.1 Introduction:

The National Planning Policy Framework (revised 2019) requires Local Plans to "identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks". Local Sites (in Devon, these being County Wildlife Sites) are considered to be a component of these ecological networks. DEFRA's publication 'Local Sites: Guidance on their Identification, Selection and Management' outlines the importance of clear and transparent procedures for designating Local Sites.

This document outlines the procedure and guidelines adopted by the Devon Biodiversioty Record Centre (DBRC) Executive Group for designating and de-designating County Wildllife Sites. Ecological surveys to inform this process and the, subsequent, site selection work is carried out in line with current best practice and the policies and procedures set out by this document.

Note - The following is an update to the previous guidelines, it is therefore important to remember that it does not supersede any designation scenario pre-March 2022, and the changes set out below only apply from the date these guidelines were adopted.

# 2.2 Nomination of Sites:

In general, sites will be nominated for selection by DBRC following systematic ecological survey or monitoring programmes. Sites can, however, be nominated for selection by any person or organisation. The person or organisation nominating a site should provide sufficient information to allow the panel to judge the site against criteria set out in this document.

Where DBRC undertakes surveys, written permission for the designation of a site should be obtained from the landowner prior to the site visit. This ensures transparency, and mutual understanding of the purpose of the survey, and of the status of a CWS. However, this may not be strictly necessary in some cases, such as on Open Access Land.

However, where survey information is obtained from, or provided by an external source, it is understood that this will not always be the case. In these situations, DBRC must establish whether the information was gathered in a legitimate manner, including the necessary authority from the relevant landowner where required. In some instances, those

providing the information (e.g. staff with local authorities or certain other public bodies) may have access rights to land, enabling them to conduct ecological surveys. Ecological survey information may also be in the public domain and openly available to all, such as through ecological reports accompanying planning applications.

Both DBRC and external surveyors are strongly encouraged to consult with landowners openly and make them aware of these guidelines prior to their visit, so there is an opportunity to discuss any concerns at that time. This is important as, once designated, a landowner cannot then request de-designation at a future point (See 2.7 for de-designation criteria).

A CWS would not, normally, be designated without advance communication with the relevant landowner. However, there may be occasions where such action is prudent or required. One notable example is where a site of high biodiversity value is believed to be at imminent threat of harm and the designation of a CWS might provide increased recognition and potential protection.

#### 2.3 Written Evidence (environmental data):

Selection must be supported by validated written evidence sufficient to judge a site against the criteria. DBRC can provide guidance on the collection of this information through site surveys or through the collation and provision of environmental data gathered from legitimate sources. All written evidence should be validated by DBRC, and a copy should be held at DBRC for future reference.

The collection, management and presentation of written evidence are dependent on resources being available. Evidence that can be used in the designation of County Wildlife Sites includes, but is not limited to:

- Data from specific CWS survey
- Data from other surveys, where in accordance with the procedures set out in 2.2 above
- Publicly available environmental information such as aerial photos, approved documents such as Environmental Impact Assessments, and ecological records generated through these and other legitimate sources.

In the course of reaching a decision on CWS status, members of the CWS Selection Panel, particularly those involved in the surveying of the site, may add their own personal knowledge and observation to supplement and assist in the interpretation of the available written evidence.

#### 2.4 The Wildlife Site Selection Panel:

County Wildlife Sites in Devon are selected by a panel consisting of:

- A relevant Devon County Council environmental representative
- A relevant Devon Wildlife Trust representative
- Appropriate Local Authority Planning and/or Countryside Officers





- A named local naturalist of known reputation and other specialists as appropriate (e.g. a Bat Group representative when selecting bat sites)
- Relevant Environment Agency and/or Natural England officers
- Devon Biodiversity Records Centre Manager and Survey Officers where possible

Panel meetings should, ideally, be attended by ALL the members above and every effort should be made to set meeting dates which are possible for all members. Members should try and send an appropriate alternative representative where they are unable to attend. The meeting will be quorate when attended by four out of the six categories of member listed above, which must include a DBRC staff member and the relevant local authority representative. The secretariat for the meeting will be provided by DBRC and meetings will be chaired by the DCC representative or, in their absence, by the DWT representative.

# 2.5 Criteria:

Selection is on the basis of written criteria, as set out in this document. Regular review of the guidance should be carried out by DBRC with detailed consultation with members of the Panel, relevant statutory agencies and appropriate species and habitat specialists. The DBRC Exectutive Group will oversee, input to and, ultimately, adopt any review of and amendment to this document.

The selection process should be documented by DBRC (e.g. reasons for selection, persons involved in the selection process and date selection was made) and this documentation should be held with the written evidence.

# 2.6 CWS Site Boundaries:

CWS site boundaries are usually chosen to select a boundary which is clearly defined by features on the ground, such as a hedge or fence line. This may mean that the site includes areas which when considered in isolation do not meet the necessary selection criteria (such as areas of poor semi-improved grassland within a field of otherwise unimproved grassland). Sites can also include entire parcels of ground (i.e. individual fields, or blocks within a woodland) which do not clearly meet the criteria, but are justified in the context of an overall site complex (e.g. blocks of conifer of no apparent interest which are isolated within an otherwise semi-natural woodland).

Continuity with an adjoining, related habitat in a SSSI or County Wildlife Site should be a consideration when designating sites, and sites selected as geological SSSIs may also be selected as a County Wildlife Site.

#### 2.7 The CWS Designation Procedure:

The CWS Selection Panel is responsible for ALL additions / deletions / boundary changes to the CWS list. The Panel can meet in person or



virtually (by video or telephone conference) or may communicate and reach decisions in writing (i.e. by e-mail). These processes will be coordinated by DBRC staff or by the CWS Selection Panel Chair. There are three methods of designation:

# 2.7.1 Full Panel discussion:

For sites where CWS designation is not clear, the CWS Panel members consider each site on an individual basis. Panel members are provided with a copy of the evidence, and summary information (prepared by DBRC and in the form of a table). The summary lists the relevant CWS criteria for each site, and any concerns or problems (e.g. if the site does not easily conform to the CWS criteria, or if only part of the site is of CWS standard). The issues relating to each site are discussed, until agreement is reached on whether the site meets the criteria and what its boundary should be. A vote may be taken where necessary in reaching any decision.

#### 2.7.2 Endorsement:

For clear-cut CWS selection or non-selection cases, the Panel members are specifically informed of ALL sites which are proposed for CWS status and are given summary information about these in the form of a table. The table is compiled by DBRC staff, and includes the reasons for the selection or non-selection of each site. Where a site is to be selected as a CWS, the relevant CWS criteria are listed. The Panel looks at one or two examples of these (or more, if felt to be necessary) to be sure that the interpretation of the CWS guidelines by DBRC staff is correct. The Panel then endorses the remaining recommendations *en bloc* (i.e. adopt these, with the discretion to look in more detail and reverse any recommendations from DBRC staff).

#### 2.7.3 Delegation:

For minor and non-controversial *de minimis* amendments, such as re-digitising sites so that they are correct to the OS Mastermap, correcting mistakes in digitisation and deleting areas where there is clear and irrefutable evidence that they no longer of CWS standard (e.g. part of a site that is now under a housing development) the Panel members have given DBRC staff the delegated authority to take decisions on behalf of the Panel. The list of decisions does not have to be presented to, and specifically approved and adopted by the Panel.

#### 2.8 The CWS De-designation Procedure:

Sites may be de-designated as County Wildlife Sites if it is found that their nature conservation interest has deteriorated to such an extent that they are no longer of CWS standard and where it is considered that there is no scope for their wildlife interest to be appropriately restored



within a reasonable timeframe through management intervention. Where there is clear, current and irrefutable evidence that any site is no longer of CWS standard, the Panel has delegated decisions on the dedesignation process to DBRC. Otherwise, cases will be considered directly by the Selection Panel.

Sites may be de-designated if:

- There is no available evidence to support their original selection as CWS
- New evidence clearly shows that the CWS interest has been lost
- The designation took place in clear contravention of the guidelines in place 'at that time' if there is a balance of doubt then sites will remain as CWS.

Information on sites that have been de-designated will be retained by DBRC on a 'Deleted Sites' layer on the DBRC database. This will cover sites that have been de-designated because there is no evidence to support their selection as CWS, or the CWS interest has been lost. Sites selected in clear contravention of the guidelines in place at the time will be added to the DBRC Combined Habitat Layer, and the reason noted.

#### 2.9 Challenges to decisions:

Owners of sites may challenge the factual basis on which a parcel of land has been selected or not selected as CWS. Such challenges may address an entire CWS or the appropriateness of the selected boundary (including areas that do not meet CWS standard and are not, otherwise, in accord with the provisions set out in section 2.6 of these guidelines).

This procedure will not be used to change the designation of a site because the owner requests this, but will be used to determine whether the selection process has been properly applied. This procedure should be operated by DBRC through the auspices of the Selection Panel and controversial cases will be addressed by the full Panel (by exchange of e-mails, if necessary). However, in some cases, it may be sufficient for the Panel to delegate the consideration of certain issues to DBRC staff.

#### 2.10 Adoption by Local Authority:

After sites are selected, the relevant Local Authority should be formally notified of the sites within their area, and provided with relevant information, through their Service Level Agreement with DBRC.

#### 2.11 Notification to landowners:

After sites are selected or de-designated, landowners shall be notified by either DBRC or the relevant Local Authority.



# 3. Habitat Guidelines for County Wildlife Sites

Appendices 2-7 provide a list of NVC/IHS community types used in the habitat guidelines in section 3. There is a transition from Phase 1 and IHS to UK Habitat Classification (UKHAB), but at the moment this is still in transition. UKHAB categories are provided for reference, based on the published correspondence tables for converting NVC to UKHAB categories: UK-Habitat-Classification-V1-0-including-Correspondences\_3-Oct-2018. Other UKHAB categories not mentioned may also meet CWS guidelines.

# 3.1 Woodlands

Devon is a relatively well-wooded County, with woodland covering approximately 11.59%<sup>1</sup> of the land area. Of this area, about one third is believed to be of ancient origin, with this third comprising 60% ancient seminatural woodland and 40% plantations on ancient sites. Ancient semi-natural woodland in the County is characterised by acid oak-birch stands on welldrained slopes with relatively poor ground floras often supplemented by rich assemblages of bryophytes and epiphytic lichens. Gleying of soils leads to rich flushed woodlands in valley bottoms. Clay soils away from the steep valleys support rich oak-ash-maple woods, while the restricted calcareous soils in the south east of the County support distinctly rich woodland communities. The remainder of the woodland resource is made up of amenity plantations on country estates, conifer plantations on former moorland heath and secondary broadleaved woodland which has arisen through natural regeneration on abandoned farmland and heathland.

The following will be selected as County Wildlife Sites:

# 3.1.1 Ancient Woodland

- 3.1.1.1 Woodland recorded on the Provisional Devon Inventory of Ancient Woodland (note i) as carrying a semi-natural canopy, unless post-inventory survey has shown this record to be erroneous (note ii), or has revealed severe degradation (note iii).
- 3.1.1.2 Woodland recorded on the Provisional Devon Inventory of Ancient Woodland as carrying a replanted coniferous or broadleaved crop, which is shown to retain, on the basis of post-Inventory survey, restorable elements of its previous semi-natural character, and other extant features of wildlife interest. These should include all of the following:
  - (a) the presence of at least 10 ancient woodland indicator species (note iv);
  - (b) the presence of at least 5 species that are representative of a specific NVC/IHS community type (e.g. acid/base-rich/wet. N.b. Currently lists are only available for W8 & W10) and
  - (c) significant additional features such as herb-rich rides, glades or pockets of semi-natural canopy.

1. Forest Research (2019). The National Forest Inventory

https://data-forestry.opendata.arcgis.com/datasets/67b8a420316940b593c835685388be01\_0/about



- 3.1.1.3 Woodland not recorded on the Inventory of Ancient Woodland but believed, nevertheless, to be ancient because
  - (a) its location is shown as wooded on the Tithe Maps and recent survey has confirmed the presence of a semi-natural canopy (note v) or
  - (b) field evidence suggests ancient origin.
  - (c) Sites should normally be 0.5 ha or larger to qualify.

# 3.1.2 Non-ancient Woodland

- 3.1.2.1 Woodland which is not believed to be of ancient origin but which carries a semi-natural canopy (note v) and meets <u>all of</u> the following qualifications:
  - (a) it has a diverse and well-developed structure (ground flora/shrub, layer/canopy or ride/glade system) <u>and;</u>
  - (b) it has a flora which is rich in the context of the woodland community concerned (note vi) with the presence of at least five species from the relevant NVC/IHS community <u>and</u>;
  - (c) it is not degraded by having grazing, poaching, domination by invasive and/or non-native species (notes iii and vii), or other heavy usage for recreation or other purposes: <u>and</u>
  - (d) the features of value are present in at least 50% of the woodland area.
  - (e) Sites should normally be 0.5 ha or larger.

# 3.1.3 Wet Woodland

3.1.3.1 Woodland which has clear affinities with NVC communities W1, W2, W4, W5, W6 or W7 (see note vi and appendix 2 for IHS categories). Sites should normally be 0.5 ha or larger.

# 3.1.4 Scrub

3.1.4.1 Some scrub communities are common and widespread, and may be considered to be invasive and pose a threat to other habitat types. However, other scrub communities are more restricted in their occurrence and are of conservation value in their own right. Scrub communities can support a wide range of wildlife species, for instance dormice, nesting birds, specialised lichen assemblages and a variety of invertebrates, some of which are partly or wholly dependant on scrub habitats. Scrub is often found as part of a habitat mosaic, where it provides additional valuable niches and micro-habitats (the 'edge effect') which significantly increase the overall value and species-richness of a habitat. Scrub will not normally be selected on its own (other than where it clearly meets the species criteria), but the following may be selected as County Wildlife Sites:



- 3.1.4.2 Scrub which
  - (a) has clear affinities with NVC communities W21 to W25 (See note vi and appendix 2 for IHS categories), <u>and</u>
  - (b) is 0.5ha or larger and
  - (c) is structurally diverse (i.e. has wide range of shrub species with a mixed age structure, has many clearings or glades or an irregular edge and has a well-developed marginal zone with other habitats).
- 3.1.4.3 Areas of scrub may be included within other habitat County Wildlife Sites, where it forms a valuable complement to these other habitats, by increasing structural and species diversity.

#### <u>Notes</u>

- i. The Provisional Devon Inventory of Ancient Woodland was published by the Nature Conservancy Council in 1986. The definition of Ancient Woodland used in these Guidelines accords with that given in this publication. It should be noted that the Inventory only lists Ancient Woodland of 2ha or larger.
- ii. It is recognised that sites shown on the Ancient Woodland Inventory were identified using a variety of techniques and were not all subject to field confirmation at the time of that project. Any such field survey is now more than five years old. Thus although presence on this inventory will be taken as grounds for recognition as County Wildlife Sites, such recognition will usually be confirmed by recent re-survey, and where it is not, recognition will be regarded as provisional pending such survey.
- iii. A 'Severely degraded' site in this context is defined as one where, if management were to be changed immediately to the optimum, the previous nature conservation interest would be unlikely to be regained in the foreseeable future. See 3.1.2.1 (c) for examples of causes of degradation.

Ancient woodland indicator species for this purpose are defined as those which appear on the Devon Ancient Woodland Vascular Plants List, given as Appendix 1. This List is based on the Ancient Woodland Indicators for the South West put forward by Francis Rose in British Wildlife April 1999, and on English Nature's 1993 recommendations. Indicator species should occur widely throughout the body of the wood, rather than be confined to boundaries, open rides or small key features. A further list of ancient woodland indicator species that are representative of a specific NVC community type (e.g. acid/base-rich/wet) are also listed here.

iv. Conclusive field evidence will require the presence of 10 or more ancient woodland indicator species (Appendix 1) <u>and</u> physical features such as ditch and bank boundaries, the shape/outline of the woodland, parish boundaries, large ancient trees/coppice stools or historic name.

- 3. Habitat Guidelines for County Wildlife Sites
- v. Semi-natural woodland is defined as all woodland stands which do not obviously originate from planting, the distribution of species generally reflecting natural variations in site and soil. For practical purposes semi-natural woodlands are also taken to include woods where true semi-natural stands have been slightly modified by planting, eg. Mixed coppice containing a scattering of ornamental conifers, sweet chestnut etc. and also mature plantations of native species which have attained semi-natural characteristics.
- vi. Where NVC data is available, the site should represent a good (typical) example of its community type. Woodland and Scrub NVC and IHS communities occurring in Devon are listed in Appendix 2. Some NVC types are intrinsically poor in species and their lack of richness should not necessarily be taken as an indication of lesser worth.
- vii. Major blocks of coniferous plantation should not normally be selected (conifers on ancient woodland sites are covered separately in 3.1.1.2 above). Exceptions will include sites where there are especially rich rides or other features within the plantation which could not practicably be defined without including the adjacent stand, where the planting is in small patches surrounded by semi-natural woodland or where the ground flora beneath the plantation remains exceptionally rich.

#### 3.1.5 Parkland, Wood Pasture and Veteran Trees

Devon contains a large number of parklands – the *Provisional Inventory of Parklands, Wood Pastures and Veteran Tree Sites in Devon* (2007) lists 162 sites of which 43 are assessed as being of at least CWS quality. This assessment is based partly on the number and speceis of veteran trees present and partly on existing knowledge of their specialist wildlife of fungi, lichens and invertebrates which are dependent on concentrations of veteran trees on historic (ancient) sites. Similarly 47 wood pasture sites are listed of which 28 are of CWS quality. There are also miscellaneous sites with concentrations of veteran trees, notably along river floodplains and settlement pollards. The wood pasture sites are almost certainly already covered by woodland CWSs and form part of the data on cover of ancient semi-natural woodland in Devon.

The key feature of these sites – in terms of vegetation – are the populations of open-grown veteran trees. The trees may be within a matrix of other seminatural vegetation such as grassland or heathland, or within open country under more intensive land-use systems such as improved or semi-improved pastures or even arable. Soil type and hydrology are to a considerable extent irrelevant, although wood pastures tend to occur on land difficult to cultivate and parklands are often on soils which form productive pastures. Some veteran tree sites may have become engulfed within secondary woodland or plantations due to abandonment of grazing or afforestation.

The key features of the trees which make them of significance for specialist wildlife are the characteristics of the wood itself – the bark, sapwood and





heartwood – and so particular tree species are not of the same level of significance as, for example, in ancient semi-natural woodland. Non-native broadleaves can be just as important for their veteran tree biological assemblages as native tree species. Also of great importance is tree form, with open-grown conditions providing the best conditions for the specialist biodiversity.

Small trees and even shrubs can be included. Hawthorn and elder are particularly easily overlooked.

The following will be selected as County Wildlife Sites:

- 3.1.5.1 Concentrations of 10 or more veteran trees
- 3.1.5.2 Sites with ancient trees
- 3.1.5.3 Concentrations of 5 or more trees of more than 1.5m diameter

#### <u>Notes</u>

viii. Ancient trees are defined in terms of the stage achieved in the life of the particular tree species. Ancient oaks may be 500 years or more in age but an ancient birch less than 100 years. Ancient hawthorns and elder will be small and easily overlooked. Canopy break-up due to age – natural retrenchment - is the key feature and this requires expert recognition. Particular care will be required with historic pollards, trees which have been crown reduced for Health & Safety reasons (retrenchment pruning), and wind-damaged trees.

ix. Veteran trees are defined in terms of their features which mirror natural aging, particularly the extensive presence of dead and/or decaying wood, including heartwood which is often not readily visible to the observer.

x. The *Provisional Inventory of Parklands, Wood Pastures and Veteran Tree Sites in Devon* was produced by Devon County Council in 2007. While most of the larger parklands in the county will be listed, it was recognised that many smaller sites will have been overlooked. The core of the wood pasture sites listed are common land, but sites on private land will be under-represented. The miscellaneous other types of sites with concentrations of veteran trees are especially under-represented as exploration on the ground may be the best way of detecting these.

# 3.1.6 Traditional Orchards

Traditional orchards have great cultural and landscape importance and can be valuable habitats for a wide range of species including fungi, lichens, invertebrates, birds and mammals. The trunks of old orchard trees are particularly valuable for lichens, saproxylic invertebrates, insectivorous birds, hole-nesting birds and roosting bat species, with the fruit blossom and fallen fruit providing a source of food for further invertebrates, mammals and birds. The wildlife value of such sites is often increased by the presence of unimproved grassland beneath the orchard canopy, and by their enclosure within species rich hedgerows. Orchards are similar to wood pasture and



parkland but the species composition of the trees is different, these being primarily in the family Rosaceae, and the arrangement of trees is usually denser. The trees are usually much smaller, but some still may be veterans. In Devon 6,000 acres of orchards have been lost since 1905, and they were once a characteristic feature of the landscape.

The following will be selected as County Wildlife Sites:

- 3.1.6.1 Traditional orchards will be selected as County Wildlife Sites if they meet <u>all</u> of the following guidelines:
  - (a) It is not degraded by heavy grazing, poaching, dominated by scrub or non-native species or receiving heavy usage for recreation or other purposes;
  - (b) It is stocked with "traditional" varieties of fruit tree (these include apple (for fruit or cider), pear (for fruit or perry), cherry, plum, damson trees or cob nut plantations);
  - (c) Sites should normally be 0.5ha or larger to qualify, with at least 10 old orchard trees.
- 3.1.6.2 Or The site meets any of the species criteria as set out in sections 1-6 of the species guidelines.

#### 3.2 GRASSLANDS

A wide range of grassland communities of wildlife interest are represented in Devon. These include acidic, mesotrophic and calcareous communities on both well-drained and marshy or boggy ground. A characteristic of sites with these communities is the tendency for true grassland components to be adjacent to or mixed with wet or dry heath, bog or secondary woodland. These communities may need to be judged under other sections of these Guidelines. Acid grassland communities occur relatively frequently, particularly as components of wet acid habitats, but their true distribution has been largely overlooked due in part to their inherent lack of species richness. Mesotrophic communities are scattered across the County, represented principally by the NVC community MG5, with a frequency of occurrence which is of at least regional or possibly national significance. Such communities are commonly associated with well-drained valley slopes but also occur on the margins of marshy communities referred to above. Calcareous grassland communities are of restricted occurrence in the County, being largely confined to soils derived from calcareous outcrops in the south and east.

The following will be selected as County Wildlife Sites:

3.2.1 Where NVC/IHS community analysis information is available, all sites, normally of 0.5 ha or greater (except severely degraded examples – note iii) containing those NVC/IHS communities listed in Appendix 3. See also notes xi and xii.



- 3.2.2 Where NVC/IHS data are not available, mesotrophic/calcareous/calcifugous grassland sites, normally of 0.5 ha or greater, with either:
  - (a) a high diversity of species (this is measured as the number of different grasses, sedges and herbs over a 1m<sup>2</sup> area. Specifically for acidic grasslands 10 species, for neutral grasslands 15 species & for calcareous grasslands 20 species) or
  - (b) an assemblage of species indicative of the above NVC community types or
  - (c) the presence of at least 5 of the 'indicator species' listed in Appendix 3). Indicator species should occur widely throughout the body of the site. See also notes xi, xii and xiii.

#### <u>Notes</u>

- xi. Where an area of interest constitutes only a part of an otherwise improved or semi-improved enclosure, the site should be considered in the same way as for whole enclosures, ie. on the basis of the size and quality of the area of interest. In such cases, if the area of interest makes up more than one quarter of the enclosure, then the whole enclosure should be regarded as a County Wildlife Site for mapping purposes.
- xii. Refer also to mire and fen meadow criteria for Culm Grassland sites.
- xiii. Sites should normally be at least 0.5ha to be selected. Churchyards can be as small as 0.25ha, as they can often be important hotspots for wildlife in urban and rural areas.

# 3.3 Lowland Heath

Lowland heath is considered to be a habitat type of international importance in Britain, with Devon holding a significant proportion of the total resource. While larger areas of heath are present to the west in Cornwall and to the east in Dorset, the Devon heathlands are noteworthy among other reasons for the presence of particular NVC communities which are not common outside of the county. Key concentrations of lowland heath are found on the East Devon Pebblebed Heaths, the Haldon Ridge, the Bovey Basin, the fringes of Dartmoor and Exmoor, and parts of the Blackdown Hills. There is a dry heathland component to the Culm Grasslands of the north and west of the county, though Culm sites will generally be picked out by other sections of these guidelines. Given the significance and restricted occurrence of heathland in the County, the Guidelines seek to include all examples as County Wildlife Sites.

The following will be selected as County Wildlife Sites:



- 3.3.1 All sites dominated by assemblages of heathland species which have clear affinities to heathland communities defined by the NVC/IHS, and are listed in Appendix 4.
- 3.3.2 Sites should normally be 0.5 ha or larger (see also note xiii).
- 3.3.3 Sites should normally contain at least 10% cover of *Calluna* and or *Erica*.
- 3.3.4 Sites may contain up to 25% scrub, bare ground, grassland or ruderals. More than 25% may be included where there is an intention to manage to increase the area of heathland communities (eg scrub removal).
- 3.3.5 Remnant heathland under conifer plantations and recovering heathland in clear-felled plantation areas may be included where the conifer crop is failing and/or there is an intention to manage for heathland.
- 3.3.6 Areas of dense bracken should not be included.
- 3.3.7 Wet heathland will be assessed under the criteria for Mires in Section 3.5. There is an artificial distinction between lowland heaths and mire and bog communities. The area criteria for both types can be added together on a mosaic site.

# 3.4 Upland Habitats

Upland habitats are generally defined as being above 300m, although some habitats are present in both upland and lowland areas. Devon possesses a fine range of upland habitats within the two National Parks of Dartmoor and Exmoor. These habitats include large tracts of upland heath, grassland and bracken. The identification of County Wildlife Site Quality essentially mirrors the criteria used in the drawing up of the National Park Section 3 Moor and Heath Maps (Wildlife and Countryside (Amendment) Act 1985), and hence the correlation between the two is recognised by these Guidelines.

The following will be selected as County Wildlife Sites:

- 3.4.1 All examples of upland heath, mire and acidic grassland NVC/IHS communities listed in Appendices 4, 5 and 6.
- 3.4.2 All sites with vegetation communities restricted to upland areas, except where severely degraded (see note iii).
- 3.4.3 Stands of the bracken community, U20, only where they possess a diverse vernal flora including, for example, *Viola* species (see note xiv). Lower altitude examples of NVC U20 community should also be included here.
- 3.4.4 Any other area defined on Section 3 Moor and Heath Maps that supports upland habitats that are not degraded (see note iii).

#### <u>Notes</u>

xiv. Stands of bracken which form a component of a wider complex of other habitat types should normally be included within a larger County Wildlife Site boundary defined for the other components.



# 3.5 Mires, Bogs, Fens and Swamps

Mire and bog communities are especially well represented in parts of Devon, with the County possessing an assemblage of some communities which is of national significance. Of particular note are those wet, acid communities of the Culm Measures, referred to as Culm Grasslands, where rich examples of the NVC mire communities M23, M24, M25 and M27 are represented, with accompanying important invertebrate and other fauna.

Similar communities are also concentrated on the Blackdown Hills in the east of the County. Elsewhere such communities are more restricted. Fen or swamp communities are not well-represented in the County, with most examples occurring as modest components of larger mire or grassland sites, or as marginal communities around open water habitats.

The following will be selected as County Wildlife Sites:

- 3.5.1 All examples of mire communities as defined by NVC/IHS and listed in Appendix 5.
- 3.5.2 All examples of fen meadow communities as defined by NVC/IHS and listed in Appendix 5.
- 3.5.3 All examples of tall-herb fens and swamp communities as defined by NVC/IHS and listed in Appendices 5 and 6.
- 3.5.4 Where NVC/IHS data are not available, examples should comprise assemblages of species indicative of these community types.

Notes

xv. Examples should normally be 0.5 ha or larger to be selected, except where smaller sites containing particularly rare or threatened communities or species are encountered.

#### 3.6 Standing waters

Standing water communities in the form of lakes, ponds, gravel pits, reservoirs, canals and ditches are at a premium in Devon. Sizeable single areas of open water are particularly scarce, with the most significant concentration of sites occurring in the Bovey Basin area, while other examples are provided by rare natural features such as the lagoon at Slapton Ley and artificial impoundments such as Roadford Lake. Open water sites support particularly important populations of Odonata and other invertebrates, offer important breeding and wintering grounds for waterfowl and are sometimes associated with rich marginal vegetation communities.

The following will be selected as County Wildlife Sites:

3.6.1 Sites with a higher than average number of submerged, floating and emergent plant species for a community type (note xvi), or with individual species that indicate that the site is an especially rich example of its type.



- 3.6.2 Sites with four or more species of *Potamogeton*.
- 3.6.3 All mesotrophic open water sites except where severely degraded (note iii).
- 3.6.4 Sites showing a transition from freshwater to saline conditions, except where severely degraded (note iii).
- 3.6.5 Sites with associated marginal vegetation communities selected under other criteria, e.g. swamp, wet woodland, reedbed or tall-herb fen.

<u>Notes</u>

xvi. See SSSI Selection Guidelines, Table 12, p.125 for an indication of normal expected numbers of species in a given community.

#### 3.7 Rivers

Devon supports an exceptional range of river systems of high quality, most of which support rich marginal communities along main river corridors and associated tributaries. There is a preponderance of spate rivers and a relative lack of wide, slow-flowing river examples. Most rivers in the county support populations of key species, most notably the otter, which has a stronghold in the north and west of the county.

Given that the great majority of rivers in Devon have substantial importance in nature conservation terms, they will be considered in a different way from other habitat types for the purposes of County Wildlife Site selection.

All rivers in the County will normally be recognised as being of comparable value to County Wildlife Sites. Stretches of river afforded County Wildlife Site status will normally be expected to exhibit a minimum degree of modification to bed and water level and a high proportion of semi-natural habitat on both banks. Blocks of habitat adjacent to river channels will be evaluated on their individual merits, with reference to other sections of these Guidelines. The boundary of a riverine County Wildlife Site will be the top of the bank if there is no contiguous semi-natural habitat.

Rivers are also an important part of Biodiversity Networks, so are also covered in Section 6.

# 3.8 Coastal and Floodplain Grazing Marsh and lowland ditch systems

Floodplain grazing marsh is very restricted in Devon. It can be defined as periodically inundated pasture or meadow with ditches containing standing fresh water, which regulate or maintain the water levels. These ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water filled pools, or less often, permanent ponds such as old 'ox-bows' containing emergent swamp communities.

This is a diverse category, covering drained and improved grassland and marshy habitats with a high proportion of rush and sedge species or



meadowsweet. All of these habitats are liable to periodic flooding, mainly from October to April. The grasslands are the product of agricultural management and are found on alluvial nutrient-rich soil created by the periodic flooding of rivers and streams. Grazing marsh is also of great importance for breeding waders and wildfowl, as well as rare wetland plants and invertebrates.

The main groups of grazing marsh are:

- Improved grassland, often re-seeded with rye-grass, timothy or clover mixes;
- Fen or marshy grassland with a high proportion of rushes, sedges or meadowsweet;
- Wet pasture with a predominance of tall herbs such as valerian or wild angelica.
- 3.8.1 All fragments of coastal grazing marsh will be considered for County Wildlife Site status if they meet the following criteria:
  - (a) All examples of grazing marsh containing those NVC/IHS communities listed in Appendix 5 and Appendix 7. Sites should normally be 0.5ha or greater.
  - (b) Sites which are of importance for breeding or wintering wildfowl and waders (see Section 4.4).
  - (c) Sites which are of importance for invertebrates (especially aquatic) or sites with Nationally Notable (Na or Nb) species or Red Data Book species present (see Section 4.6);
  - (d) Sites which are of importance for vascular plants (see Section 4.1).
  - (e) Other sites where the coastal or floodplain grazing marsh does not meet a-d above, but where they support natural processes.

Ditch systems will be considered as County Wildlife Sites if they meet any of the following criteria:

- (a) Complex interconnected ditch systems (excluding completely shaded ditches) >1 km. in total ditch length where at least 25% of the wet ditches have >= 10 submerged/floating/emergent/wet bank species per 20m length with at least one 20m length per field side sampled. Improved grasslands/arable land between ditches will be included within sites as buffer zone;
- (b) Any ditch with a 20m length with at least 15 (brackish ditch 10) floating, submergent, emergent/ wetbank species plus any connecting ditches with at least 10 (brackish ditch 6) of the above species;
- (c) Any site sample with either at least 10 different invertebrate orders or at least 35 aquatic invertebrate species.



# 3.9 Coastal and Marine

A large proportion of Devon's coastline is of high wildlife value, with a large element considered to be of international nature conservation importance. In the coastal context, of particular note are the estuarine complexes on the south and north coasts, and the stretches of rocky coastline, especially the calcareous cliffs of the Torbay and East Devon areas, and the hard granite cliffs of the Exmoor and north Devon coast. Rarer features include the sand dune complexes of Braunton Burrows. Coastal habitats form part of a wider ecological unit, encompassing estuary, sea cliff, saltmarsh, foreshore and the true marine environment, referred to collectively as the coastal zone. This zone overlaps with existing considerations of coastal areas as part of the inland environment, but for the purposes of these guidelines we distinguish between:

- Open coast including small offshore islands
- Estuaries (note xvii)

and between:

•	above high water	(above MHWS <sup>1</sup> )
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- intertidal (MHWS-MLWS<sup>2</sup>)
- sub-tidal (below MLWS)

The following table provides a summary of how sites may, or may not, be defined in this zone.

	Above high water	Intertidal	Sub-tidal
Open coast	Defined in 3.9.1	All, unless modified	N/A
Estuaries	Defined in 3.9.3	Defined in 3.9.4	All

# 3.9.1 Open coast - above high water

The following will be selected as County Wildlife Sites:

- 3.9.1.1 All coastal sites which qualify on one or more of the following grounds:
  - (a) Sites with maritime cliff, maritime heath, scrub or perched saltmarsh, shingle, strandline and dune communities communities as defined by the NVC/IHS and listed in Appendix 7, unless severely degraded (note iii), usually of 0.5 ha or larger.

<sup>&</sup>lt;sup>1</sup> Mean High Water Springs

<sup>&</sup>lt;sup>2</sup> Mean Low Water Springs

3. Habitat Guidelines for County Wildlife Sites



- (b) Sites which show a transition between the above communities and heathland or mesotrophic/calcareous/calcifugous grassland communities (listed in Appendices 3 and 4), usually of 0.5 ha or larger.
- (c) Where NVC/IHS data are not available sites with grassland, heath, sea cliff vegetation, scrub or perched saltmarsh, shingle, strandline and dune vegetation usually of 0.5 ha or larger with either a high diversity of herb species or an assemblage of species indicative of the above NVC/IHS community types.

#### 3.9.2 Open coast - intertidal

The following will be selected as County Wildlife Sites:

- 3.9.2.1 All open coast intertidal sites (note xviii) unless significantly modified (note xix).
- 3.9.2.2 Intertidal sites which have been significantly modified may be considered and selected on an individual basis if a) the modification has not changed the basic substrate type of the site (e.g. stone construction behind/on rocky intertidal) and b) that the modified areas exhibit natural inter-tidal communities in keeping with adjacent areas of similar substrate.

#### 3.9.3 Estuaries - above high water

The following will be selected as County Wildlife Sites:

3.9.3.1 Blocks of habitat above the high water mark on estuaries will be evaluated on their individual merits, with reference to other sections of the Guidelines.

#### 3.9.4 Estuaries - intertidal

The following will be selected as County Wildlife Sites:

- 3.9.4.1 All estuary intertidal sites which qualify on one or more of the following grounds:
- 3.9.4.2 Sites with saltmarsh, coastal floodplain and grazing marsh (note xx) or reedbeds (note xx) as defined by the NVC/IHS and listed in Appendix 7, unless severely degraded (note iii), usually of 0.5 ha or larger.
- 3.9.4.3 Sites which show a transition between the above communities and heathland or mesotrophic/calcareous/calcifugous grassland communities (listed in Appendices 3 and 4), usually of 0.5 ha or larger.



- 3.9.4.4 Where NVC/IHS data are not available, sites with saltmarsh, coastal floodplain and grazing marsh or reedbed vegetation, usually of 0.5 ha or larger with either a high diversity of herb species or an assemblage of species indicative of the above NVC community types.
- 3.9.4.5 All other estuary intertidal sites (note xxii).

#### 3.9.5 Estuaries - sub-tidal

The following will be selected as County Wildlife Sites:

3.9.5.1 All sub-tidal sites in estuaries (note xxii).

#### Notes

- xvii) The inland extent of an estuary is taken to be the tidal limit. The seaward extent of any estuary will be the UK baseline or, if appropriate, the seaward limit of any existing estuary or harbour management areas.
- xviii) In contrast to most terrestrial habitats, where variations in natural communities can reflect human management as well as basic natural processes, differences in community richness etc. in the intertidal zone is most often explained by reference to coastal or estuarine processes and substrate type. It is therefore not appropriate to distinguish between intertidal sites except in terms of the amount of human modification they might be subject to.
- xix) 'Significantly modified' in this context includes sites where the intertidal zone has been altered by construction of harbour walls, coastal defences, slipways etc.
- xx) Criteria for identifying and recognising valuable open water and seabed habitats are being developed though other projects such as the Irish Sea Pilot. Similarly, the need for new marine management frameworks are currently being discussed and so it is unlikely that there will be any future need for incorporating criteria for sub-tidal open coast into any future CWS review.
- xxi) NVC communities for broad habitat type as defined in SW NBN Pilot
- xxii) The value of estuary intertidal and estuary sub-tidal habitats does not lie solely in the plant and/or animal communities they directly support. Their form, and presence or absence, will also have significant effects upon the physical processes within the estuary as a whole, and therefore influence the wider distribution of habitats and species. As such it is not considered appropriate to distinguish between these sites on any biological or physical grounds.



## 3.10 Non-montane Rock Habitats

Examples of nature conservation interest include tors, clitter slopes, and small rock outcrops in grasslands, heathlands and woodlands. Detailed information is often lacking on these habitats, so they are assessed on species interest or are included within County Wildlife Sites chosen by other criteria.

#### 3.11 Habitats of Industrial Sites and Habitats Under Restoration

The guidelines here cover habitats developed through natural colonisation of non-natural sites, often in areas of historic industrial activity or urban development. These sites may also be covered by the Regionally Important Geological Sites (RIGS) criteria. These are currently covered by a different system, but the long term aim is to integrate them into the wildlife sites system.

The following artificial or artificially created sites should be considered for County Wildlife Site status:

- a) <u>Disused quarries.</u> These will normally be assessed on other criteria, but sites which demonstrate particularly good examples of active succession from bare ground towards wildlife-rich grassland, heathland or woodland communities will be included.
- b) <u>Disused mining sites</u>. Sites will be selected which carry good examples of flora showing adaptations to heavy metal-rich soils. Such sites should normally be 0.5 ha or larger.
- c) <u>Roadside cuttings and walls (mural habitats)</u>. These sites will be assessed on the presence of species adapted to these habitats.
- d) <u>Brownfield sites</u>. Abandoned or industrial land with a mosaic of early successional species, meeting the UK Priority Habitat status of Open mosaic habitats on previously developed land.
  - i) Sites must meet all the criteria in the table below. Guidance on this criteria is taken from the UK Biodiversity Action Plan Priority Habitat Description, and provided in appendix 16
  - ii) Brownfield sites that meet CWS status are under a higher than usual probability of being developed in the future, but CWS status can help in providing additional value to these habitats.

Open mosaic habitats on previously developed land criteria		
1.	The area of open mosaic habitat is at least 0.25ha in size.	
2.	Known history of disturbance at the site or evidence that soil has been	
	removed or severely modified by previous use(s) of the site. Extraneous	
	materials/substrates such as industrial spoil may have been added.	
3.	The site contains some vegetation. This will comprise early successional	
	communities consisting mainly of stress-tolerant species (e.g. indicative	



	of low nutrient status or drought). Early successional communities are composed of (a) annuals, or (b) mosses/liverworts, or (c) lichens, or (d) ruderals, or (e) inundation species, or (f) open grassland, or (g) flower-
	rich grassland, or (h) heathland.
4.	The site contains unvegetated, loose bare substrate and pools may be
	present.
5.	The site shows spatial variation, forming a mosaic of one or more of the
	early successional communities (a)–(h) above (criterion 3) plus bare
	substrate, within 0.25ha.

#### e) Created grasslands

Sites established through seeding, green haying or other created means, not restored through a change in management

- i) Established for at least 10 years, to demonstrate sustainability. Must also meet one of the criteria for grassland sites, section 3.2. However, it should be noted that fluctuations in species composition are likely in the 1<sup>st</sup> 20 years from initial sowing.
  - (a) Weight will be given to designation considerations when artificially created grassland functions as a buffer and/or creates ecological networks around existing sites.

#### 3.12 Mosaic Sites

It is recognised that combination sites, where two or more semi-natural habitats occur in close combination or mosaic, may warrant recognition as County Wildlife Sites where individually one or more of the habitats may fail to qualify on single habitat or notable species grounds.

Where mosaics occur, in order to qualify, at least one of the habitats in the mosaic should be considered a borderline County Wildlife Site. This component should constitute a significant proportion of the whole mosaic, usually one quarter or more.

#### 3.13 Arable Fields and Margins:

The plants and animals of arable farmland have shown the greatest declines of any habitat groups in Britain and western Europe. The extreme edges and corners of arable fields are places where some the rarest arable plants are still be found. South Devon, particularly the South Hams, has been found to support good arable plant communities but this may be due to greater survey effort within recent years. Other parts of the county, such as East Devon, which supports more arable and mixed farming may also be important for this suite of species. In addition, there are historical records of arable plants (such as broad-fruited cornsalad *Valerianella rimosa* and annual knawel *Scleranthus annuus*) on the fringes of Dartmoor. Devon has nationally important populations of species including *Valerianella rimosa*, small-flowered catchfly *Silene gallica and* cornflower *Centaurea cyanus*.

Arable plant communities of ecological significance are selected using Plantlife's Important Arable Plant Areas (IAPA) criteria, Wilson & Byfield



(2005). If a site is found to not meet the Arable Field Margins criteria, it might be worth consulting the Vascular Plants criteria 4.1 to see if the site could meet these criteria.

- 3.13.1 Regularly cultivated fields and margins with an assemblage of plant species that have a IAPA index score of:
  - 30 or more points for calcareous soils
  - 20 or more points for sands and gravels or heavy clays.
- 3.13.2 Scores can be cumulative over a 10-year period because of the ability of seed to persist in the soil and the erratic appearance of some species through time.
- 3.13.3 The scores for plant species may change over time when their conservation status in the UK is reviewed.
- 3.13.4 Arable sites where reintroductions have taken place may still be designated as CWS but the field IAPA score must exclude species that have been included within the reintroduction.

Byfield, A.J. & Wilson, P. J. (2005). *Important Arable Plant Areas: identifying priority sites for arable plant conservation in the United Kingdom*. Plantlife International, Salisbury, UK.



#### **Species Guidelines for County Wildlife Sites**

Sites which meet any of the following guidelines on species grounds should be selected as County Wildlife Sites: There is no minimum or maximum size for sites; species needs will be taken into consideration and each site will be considered on a case by case basis.

#### 4.1 Vascular Plants

- 4.1.1 Sites where one or more Red Data Book 1, 2 or 3 species (Critically Endangered, Endangered or Vulnerable) or one or more Schedule 8 species with full protection have been recorded within the past five years (see Appendix 8)
- 4.1.2 Sites where one or more nationally rare or two or more nationally scarce species have been recorded within the last 5 years (see Appendix 8)
- 4.1.3 Sites where three or more Devon rarities (see Appendix 8) have been recorded in the past five years.
- 4.1.4 Sites where five or more Devon notable species (see Appendix 8) have been recorded in the past 5 years.

#### 4.2 Non-Vascular Plants

These include lichens, bryophytes, fungi and charophytes.

- 4.2.1 Sites with 1 or more RDB 1,2,3 (Critically Endangered, Endangered or Vulnerable) or nationally rare, or 2 or more nationally scarce species (see Appendix 13)
- 4.2.2 Sites with 5 or more Devon notable species. If no published list will use the informed opinion of County Experts

# 4.2.3 Fungi

4.2.3.1 Waxcap grasslands

Waxcap grasslands are of conservation interest as indicators of semi-natural species-rich grasslands. The species concerned can be associated with unfertilised, unimproved, nutrient-poor grasslands, but are not always associated with botanically rich grassland. They often thrive in short, moss-rich, often highly grazed swards. Waxcap grasslands are under-recorded in Devon, but Exmoor, Dartmoor and the Blackdown Hills hold nationally important populations.



Sites which meet any of the following guidelines will be selected as County Wildlife Sites:

- (b) The presence of any of the following UK BAP/RDB species: the pink (Ballerina) waxcap (*Hygrocybe calyptriformis*), the date waxcap (*Hygrocybe spadicea*) or the olive earthtongue (*Microglossum olivaceum*).
- (c) The presence of at least 5 species of *Hygrocybe*
- (d) Sites with 5 or more Devon Notable species.

#### 4.3. Mammals

Due to the mobile and landscape scale nature of mammals some species do not lend themselves to protection within the CWS system in their own right. However, these guidelines are provided to assist in the selection of sites using supplementary mammal species records, in addition to habitat information.

# 4.3.1 <u>Otter</u>

- 4.3.3.1All confirmed recent holts and hovers recorded in the last 10 years, together with contiguous semi-natural habitat, including all bankside, wetland, scrub, and woodland, usually selected under other criteria. This can include artificial holts as well as natural ones.
- 4.3.3.2Sites selection should include the stretch of water 200m either side of the holt or hover, and semi-natural habitat 20m back from the water.

# 4.3.2 Water Vole

- 4.3.2.1Sites with water vole recorded in two out of the last ten years with associated semi-natural habitat selected under other criteria.
- 4.3.2.2Site selection should include:
- 1. The stretch of watercourse or water body within which the colony is situated (recorded at optimum breeding time).
- 2. Where colonies are 1km or less apart and linked by watercourse/s then all colonies and links should be included within the site.
- 3. Water voles may also cross land so where colonies are 500m apart or less, even where there is no linking watercourse, they should be included in the same site.
- 4.3.2.3Site boundaries should also be set to allow for the inclusion of:
  - 1. All bankside vegetation and associated potential foraging areas.
  - 2. Burrows in current use, feeding signs and latrines.
  - 3. Winter refuge areas (flooding)
- 4.3.2.4A buffer zone of at least 50m either side of each colony, with a further buffer zone of 10m either side of the watercourse, should also be included around all such features.

# 4.3.3 Water Shrew

4.3.3.1Sites with water shrew recorded in the past five years with associated semi-natural habitat selected under other criteria.



# 4.3.4 <u>Bats</u>

- 4.3.4.1Known recent greater and lesser horseshoe maternity sites, together with contiguous semi-natural habitat, selected under other criteria.
- 4.3.4.2Winter roosts where five or more horseshoe bats have been recorded in the past five years.
- 4.3.4.3Breeding roosts of barbastelle, Bechstein's, grey long-eared, Natterer's, Daubenton's, whiskered, Brandt's, serotine, noctule and Leisler's bats.
- 4.3.4.4Winter roosts of the above species with two or more species or more than 10 animals occupying roost at any one time for at least five years.

#### 4.3.5 Dormouse

4.3.5.1Sites with dormouse recorded in the past five years, with associated semi-natural woodland, hedgerow and scrub habitat usually selected under other criteria.

#### 4.3.6 Harvest Mouse

4.3.6.1Sites with harvest mouse recorded in the past ten years, with associated semi-natural habitat.

# 4.3.7 Common and Grey Seal

- 4.3.7.1 All haul out sites with at least one annual count of at least 20 in the last 10 years of seals of either species or a combination of species.
- 4.3.7.2 All sites used for pupping.
- 4.3.7.3 Sites can include artificial structures, such as platforms.
  - Sites should consider incorporating a buffer area to reduce disturbance.

Grey and common seals are protected by the Bern Convention 1979 as a 'vulnerable migratory species '. With 34% of the world's population of grey seals, the UK provides vital habitat and is a 'hotspot' for globally rare grey seals, our national speciality (JNCC 2016a) heritage species. 30% of European common seals are found in the UK with ongoing declines in several populations in Scotland. Common seals are also a Section 41 (NERC) Priority Species in England.


# 4.4 Birds

- 4.4.1 Sites with Rare Breeding Species
- 4.4.1.1All sites with proof (see Note xxiii) of ideally regular breeding most years by the species in group 1 in Appendix 9.
- 4.4.1.2In addition, any sites holding c.1% of the Devon breeding population of cirl bunting (10 pairs); or c.0.5% of the Devon breeding population of cirl bunting (5 pairs) in strategic locations that are considered to be of particular importance to the maintenance or spread of the species' range (see Note xxivi).
- 4.4.1.3A number of other rare species, considered to be of National or County importance are occasional, former (e.g. bittern, long-eared owl, redbacked shrike, black redstart, grey partridge) or potential breeding species in Devon (Cattle egret, Great white egret, Red kite). Sites for any such species that establish or re-establish regular breeding should also be selected.

# 4.4.2 Sites with Important Breeding Assemblages

- 4.4.2.1Sites which regularly support outstanding breeding assemblages of the species listed in Appendix 9 (see Note xxvii). County Wildlife Sites will have a total score of at least 12.
- 4.4.2.2 Sites with colonies of at least 10% of the Devon breeding population (e.g. 10 pairs of cormorants, 13 pairs of grey herons, 35 pairs of sand martins or 13 pairs of shags) should be considered as County Wildlife Sites in their own right.

# 4.4.3 Sites with Important Non-Breeding Populations

- 4.4.3.1 Sites which regularly support either:
  - 0.5% of the peak British non-breeding population or 10% of the peak Devon non-breeding population of any one of the species listed in Appendix 10 (see Note xxviii), or
  - 0.1% of the peak British non-breeding population or 5% of the peak Devon non-breeding population of four or more of the species listed in Appendix 10 (see Note xxviii).

# 4.4.4 Sites with Non-Breeding Populations of Notable Species

- 4.4.4.1 Sites which regularly support communal roost sites of the following species:
  - Hen harrier
  - Merlin
  - Hawfinch (at least 5)
  - Pied/White wagtail (at least 200)



- Starling (at least 100,000)
- 4.4.4.2 Sites which regularly support wintering populations of the following species, even where remote from known breeding territories:
  - Cirl bunting (at least 20; (see Note xxv)
  - Woodlark (at least 5; (see Note xxvi)

# 4.4.5 Marine Sites

County Wildlife Sites do not address some species of importance that are mainly or wholly associated with sub-tidal marine areas (notably divers, blacknecked and slavonian grebes, balearic shearwater, common scoter, eider and roseate tern). Neither do they include sub-tidal areas vital to some coastal breeding species.

# Notes

xxiii. Proof of breeding following BTO Breeding Status Codes:

- DD Distraction-Display or injury feigning
- UN Used Nest or eggshells found (occupied or laid within period of survey)
- FL Recently Fledged young (nidicolous species) or downy young (nidifugous species). Careful consideration should be given to the likely provenance of any fledged juvenile capable of significant geographical movement. Evidence of dependency on adults (e.g. feeding) is helpful. Be cautious, even if the record comes from suitable habitat.
- ON Adults entering or leaving nest-site in circumstances indicating Occupied Nest (including high nests or nest holes, the contents of which can not be seem) or adults seen incubating
- FF Adult carrying Faecal sac or Food for young
- NE Nest containing Eggs
- NY Nest with Young seen or heard
- xxiv Sites will be deemed to comprise the breeding territories and those fields or other parcels of land contiguous with, or in close proximity to, these where they provide habitats known, or considered suitable, to support Cirl Buntings or which have the clear potential to provide such conditions through changes in management (in particular, through changes in cropping patterns).
- xxv. Such habitats are likely to include unimproved, semi-improved and other rough grasslands, orchards, hedgerows and patchy scrub for nesting; and, especially for wintering birds, areas of arable (particularly where this has conservation headlands or field margins, is subject to rotational set-aside or supports winter stubbles) or market garden cultivation.
- xxvi Such habitats are likely to include arable, particularly rotational setaside or overwinter stubbles, or areas of market garden cultivation; sites will be typically in undulating terrain, have scattered mature trees and may have overhead cables.



- xxvii The rarity scores are based on recent surveys and/or data published in Devon Bird Reports, with some amendments in the light of current knowledge or belief. This will need to be updated to account for changes in species populations.
- xxviii The national figures in Appendix 10 are based on Musgrove *et al* 2013 (Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 106: 64-100) or from mean Wetland Bird Survey (WeBS) counts; Devon figures are derived from WeBS and other information in recent Devon Bird Reports.

# 4.5 Reptiles and Amphibians

# Amphibians:

- 4.5.1 Sites with a recently (within 15 years\*) confirmed population of great crested newts. \*Taking into account the known life span of great crested newts and the likelihood of repeat surveys.
- 4.5.2 Sites with good populations of smooth newts (NCC SSSI guidelines, 1989 see note xxix).
- 4.5.3 Sites supporting widespread amphibian species with score of five or more using the NCC SSSI guidelines (see note xxix).
- 4.5.4 Both the breeding ponds and a substantial surrounding area (ideally with a radius of at least 300m from the pond) should be included. The site boundary should include substantial semi-natural terrestrial habitat where this occurs contiguous to or near the breeding sites (i.e. structurally diverse mixtures of open, scrub and woodland habitats, and other features such as allotments). Sites should exclude garden ponds. Groups of ponds within 250m of each other may count as a single site.

# Notes

xxix. SSSI Guidelines (NCC, 1989)

		Low	Good	Exceptional
		population	population	population
		Score 1	Score 2	Score 3
Great Crested	Seen or netted in day	<5	5-50	>50
Newt	Counted at night	<10	10-100	>100
Smooth Newt	Netted in day/counted at	<10	10-100	>100
	night			
Palmate Newt	Netted in day/counted at	<10	10-100	>100
	night			
Common Toad	Estimated	<500	500-5000	>5000
	Counted	<100	100-1000	>1000
Common Frog	Spawn clumps counted	<50	50-500	>500



NB: Scores have to be for breeding sites observed during the breeding season. Daytime netting should be made during a 15-minute period for sites with less than 50m of water's edge, for 30 minutes for sites with 50-100 m etc. To compute the total score for a site, add the scores for individual species and add one point for four of these species present and two points for five species. If natterjack toads are present, add two more points.

# **Reptiles:**

- 4.5.5 Sites supporting populations of smooth snakes or sand lizards. NB. As far as we know smooth snakes are not present in Devon at the moment, though they are found in Dorset. Sand lizards have been re-introduced to two sites in Devon. Re-introductions need to follow official guidelines and populations must be shown to be self-sustaining before the site can be considered to be a County Wildlife Site.
- 4.5.6 Sites with recent (within the last 15 years) records of three or more reptile species, giving a score of five or more (see table). Where there is contiguous, open, semi-natural habitat (i.e. structurally diverse mixtures of open, scrub and woodland habitats, and other features such as allotments) these should be included even though reptiles may not have been recorded in all parts of the site. Suitable man-made structures (e.g. tumuli, embankments and stone walls) should also be included. The site boundary should be drawn around parcels of land use rather than be drawn to narrowly around a specific good habitat. Consideration should also be given to incorporating parcels of adjacent open land, if it provides an essential buffer against future land-use pressures such as housing.

	Score if present on site	
Adder	2	
Grass snake	2	
Common Lizard	1	
Slow worm	1	
If any of the species are known to be breeding, add one extra point		

# 4.6 Invertebrates

4.6.1 Sites with one or more records of species that are Critically Endangered (CR), Endangered (EN) or Vulnerable (VU) under IUCN criteria, or RDB1 (Endangered) or RDB2 (Vulnerable) under former assessment system, should be designated CWS. Sites with two or more records of species that are either Near Threatened (NT) or RDB3 (Rare) should be designated. For all such species, <u>the site should</u> <u>provide suitable habitat conditions to provide key resources necessary</u> for survival, to exclude vagrants or wanderers (note xxxiii). Records of these species must have been made in the last 25 years, except for dragonflies where acceptable records must be from the last 10 years



(note xxxii), and butterflies in the past 5 years (including reintroductions, but not introductions or casual records) Status should be assessed on a Great Britain basis. Sites inside Buglife's Important Invertebrate Areas should also be considered for their potential for important invertebrate species.

4.6.2 Records of Nationally Scarce (Na, Nb or Notable), NERC Act Section 41or Devon Special Species (<u>https://www.dbrc.org.uk/devons-special-species</u>) should be a consideration in deciding whether or not to designate a CWS. A key consideration should be whether any such species present is indicative of high quality habitat features. As in 6.1 above, records of these species must have been made in the last 25 years, except for dragonflies where acceptable records must be from the last 10, and butterflies in the last 5.

#### <u>Notes</u>

- xxxii. Firm records more than five years old may be acceptable if the complete loss of the species at the site is in doubt and the necessary habitat conditions remain.
- xxxiii. It should be noted that some species such as High Brown Fritillary, Dingy Skipper, Brown Argus, and Grayling can occur away from suitable breeding habitat, and this should be taken into consideration.
- xxxiv. See Appendix 11 for a list of Butterflies of importance in the selection of County Wildlife Sites in Devon
- xxxv. The selection of sites based on invertebrate records should be informed by the opinion of local experts and records have to be backed up by evidence of the site being used in the life cycle of the species, for example butterflies egg-laying.

# 4.6.3 Dragonflies

The criteria follow those produced by the British Dragonfly Society in 2007 for the identification of "Key Dragonfly Sites" in the UK. They are determined through evidence, obtained during the last ten years, of species' abundance, persistence and breeding (see definitions and flowchart in Appendix 12 for details). Confirmed and Probable Key Sites should be regarded as County Wildlife Sites, those with RDB species being of SSSI potential.

Key Sites should hold established breeding populations of Nationally Important or Locally Important species, or exceed Vice County species diversity thresholds. For Devon, they are defined as either:

Sites holding abundant breeding populations of any of the following species:

- White-legged Damselfly (Platycnemis pennipes)\*
- Scarce Blue-tailed Damselfly (Ischnura pumilio)

4. Species Guidelines for County Wildlife Sites



- Southern Damselfly (Coenagrion mercuriale)
- Red-eyed Damselfly (Erythromma najas)\*
- Small Red Damselfly (Ceriagrion tenellum)
- Hairy Dragonfly (Brachytron pratense)\*
- Downy Emerald (Cordulia aenea)\*
- Scarce Chaser (Libellula fulva)
- Ruddy Darter (Sympetrum sanguineum)\*

#### or

Sites holding abundant breeding populations of at least 14 species.

# Definitions

- Nationally Important species: RDB species, as revised for JNCC by the BDS in 2007.
- Locally Important species (\* in the list above): recorded during the last 20 years in 2% or less of the tetrads in Devon from which dragonfly records have been received.
- Abundant: at least 21 individuals for damselfly species (but six in the case of Scarce Blue-tailed Damselfly), at least six for dragonfly species (21 for Migrant Hawker, Four-spotted Chaser, Keeled Skimmer, Black-tailed Skimmer, Common Darter, Ruddy Darter and Black Darter).



# 4.7 Reintroduced or reinforced species populations

This guidance on CWS designation relates only to species populations which have been established and self-sustaining through planned reintroduction and/or reinforcement programmes.

It does not apply to scenarios where species have become established through natural colonisation, or as a result of ad-hoc releases.

This guidance recognises that the distinction between natural colonisation, and ad-hoc release and/or unlawful reintroduction of species is rarely clearcut. In these cases, we will rely on expert opinion, drawing on historical species data, to determine if CWS designation is appropriate. In recognition of the biodiversity crisis we face, if there is a balance of doubt, we will err on the side of designation.

Many native species which would have formerly had thriving populations in Devon have become locally extinct. The drivers of extinction are manifold and include habitat loss, fragmentation, degradation, and inappropriate management leading to unsuitable condition. Disease, threats from Invasive Non Native Species (INNS), and climate change are likely to exert significant future impacts.

High profile recent species extinctions include the large blue butterfly which had its last breeding population in the UK on the coastal grasslands of northern Devon. Recent local extinctions include water vole, golden plover and nightingale. The extent of species extinctions over the last 200 years is extremely sobering.

Other species are at very high risk or extinction or functionally extinct – for example white clawed crayfish or the six banded nomad bee.

As concerted efforts are made to restore habitat extent and condition the role that species reintroductions play in restoring natural processes and ecological balance is considered increasingly important. This CWS designation guidance is therefore likely to be referred to frequently in the future.

Sites supporting populations of native (or formally native) reintroduced and reinforced species can qualify for CWS status under any of the specific species guidelines already mentioned, providing both criteria below are met:

- 4.7.1 The reintroduction has been carried out as part of a formally recognised reintroduction, for example, a species recovery programme.
- 4.7.2 The population is deemed to be stable and self-sustaining after an appropriate number of years since reintroduction, specific to that species or taxon group, based on published guidelines and/or expert advice.



# 5. Social and Community Guidelines for County Wildlife Sites

County Wildlife Sites are selected using criteria based on the Ratcliffe Criteria. However, in some areas these criteria need to be adapted slightly, to allow for special circumstances.

In the built environment sites are more likely to be modified (so are less natural) they can be small and isolated, and may not have a high level of diversity or rare species or habitats. However, these sites are still valuable for wildlife and may provide important green space within the built environment. The Social and Community Criteria allow the assessment of sites that may not quite reach the CWS criteria on habitats or species on their own, but are important to local communities. Sites will not be selected on their social and community qualities alone; instead these criteria will be used to 'add value' to a site.

Many wildlife sites are valuable because they give access to the public to see and enjoy wildlife. Our quality of life is enhanced by everyday contact with wildlife. Having access to wildlife sites close at hand increases our opportunities to study and learn about ecology and the natural world.

The importance of wildlife sites for people is recognized in PPS9 which states that '...Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education'

Community criteria apply not only to urban areas, but also to Country Parks, churchyards and any place in the town, countryside or urban fringe where people can experience wildlife. These criteria assess the social value derived from the enjoyment and understanding of wildlife and natural features on site.

These criteria should be seen as contributing to the substantive nature conservation value of a proposed CWS, and be used to in the assessment of sites that do not have a clear justification in terms of habitat or species.

Indicators of a site's social and community wildlife value are assessed at three levels (High, Medium and Low). A quantitative assessment is not possible for all factors. It is important in these instances to collate documentary evidence to support the assessment.

These scores will be used to guide the professional judgments of the CWS selection panel rather than attempting to achieve a specific target or threshold for social or community value. It would be expected that a site would have mostly High or Medium scores for these criteria (see Appendix 14).

# 5.1 Visual Amenity

Views within, into, and out of, a site should be considered in terms of how they contribute to a visitor's appreciation of wildlife. Features which provide a seasonal high point such as a carpet of bluebells, heather in bloom, autumn colour, winter wetlands



# 5.2 Accessibility and usage

Accessibility and usage should be assessed by a single site survey looking for evidence of human activity. Use of a site varies according to time of day, season and weather. In addition, activity will increase at the weekend and during holidays. For this reason, only hard evidence in the form of physical features seen on the site should be used; observed use by people is not a reliable indicator because it will be affected by too many factors. A human use map showing the path network, access points, links to other facilities and locations of main features such as areas for informal children's play, should be documented as part of the assessment.

# Indicators:

The site is a public open space or freely open to the public most of the time, or a significant proportion of the site can be seen(Visual Access) from adjacent land which is freely open to public access (such as a park, public open space, canal towpath, public right of way or highway).

# 5.3 Education and awareness

The use of a site for informal education and awareness raising of the general public needs to be considered as well as its formal use by educational establishments.

# 5.4 Community ownership

Sites of importance to the local community may be 'adopted' by a group of people either informally or by agreement with the owner. It is not necessary for the site to be accessible to a group for them to feel ownership of it.

Indicators:

There is a group of people who have been actively and voluntarily involved in the care and management of the wildlife of the site or actively campaigning for the site for some time.

Group activities may include voluntary wardening, species recording, practical nature conservation management, habitat creation, guided walks and organising events. Groups do not need to be solely responsible for a site, but can be actively involved in a partnership with other agencies.

# 5.5 History

Sites may be of value to the community because they played an important historic role in natural history or because they are associated with a well-known naturalist. Other sites may continue to play an important role as part of a monitoring scheme.

# Indicators:

The site is associated with an historic event of significance to the study of wildlife and the environment. For example, the site may have been featured



in an important publication, studied by a famous naturalist or was a key site in the development of ecological understanding, whether in a local or wider context, or there is an historical record of past management and wildlife on the site. The historical record must be extensive and systematic so that it can provide a genuine and scientific basis for site monitoring.



# 6. Ecological Networks

Much of England's wildlife is now restricted to certain places, our wildlife sites, consisting largely of semi-natural habitats often shaped by millennia of human-use. These sites are essential for the survival of many plants and animals and will remain important even if the species and habitats within them change (see Section 5.3). Surviving in small, isolated sites is, however, difficult for many species, and often impossible in the longer term, because they rarely contain the level of resources, or the diversity of habitats needed to support sustainable populations (see Section 4.3.2). However, re-creating large expanses of contiguous natural habitat is not a feasible option over most of England. An alternative approach is to secure a suite of high quality sites which collectively contain the range and area of habitats that species require and ensure that ecological connections exist to allow species, or at least their genes, to move between them. It is this network of core sites connected by buffer zones, wildlife corridors and smaller but still wildlife-rich sites that are important in their own right and can also act as 'stepping stones' (see Section 2.2.3) that we call an ecological network. 'Wildlife corridors' do not have to be continuous, physical connections: a mosaic of mixed land use, for example, may be all that is needed – it is the permeability of the landscape to species (or their genes) that matters (Hilty et al. 2006).

# NPPF 2019 – ecological networks

170 Planning policies and decisions should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures

174: To protect and enhance biodiversity and geodiversity, plans should: a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity<sup>56</sup>; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation<sup>57</sup>; and

b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Note 56: Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

Note 57: Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

#### **ODPM Circular 06/2005 – continuous or stepping stone features**

88: Article 10 of the Habitats Directive requires Member States (where they consider it necessary) to endeavour to encourage the management of features of the landscape that are of major importance for wild flora and



fauna. These features are those that, because of their linear and continuous structure or their function as stepping-stones, are essential for migration, dispersal and genetic exchange. Examples given in the Directive are rivers with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods. Suitable planning conditions and obligations may serve to promote such management.

# UK Government 25 Year Environment Plan – Nature Recovery Networks

Chapter 2: Recovering nature and enhancing the beauty of landscapes 1: We will.... develop a Nature Recovery Network to complement and connect our best wildlife sites (ii) Through changes in the way we manage our land, we will develop a Nature Recovery Network providing 500,000 hectares of additional wildlife habitat, more effectively linking existing protected sites and landscapes, as well as urban green and blue infrastructure. Such a network will deliver on the recommendations from Professor Sir John Lawton: recovering wildlife will require more habitat; in better condition; in bigger patches that are more closely connected.

# Environment Act 2021 – Local Nature Recovery Strategies

99: Content of local nature recovery strategies

(1) A local nature recovery strategy relating to an area ("the strategy area") is to include—

(a) a statement of biodiversity priorities for the strategy area, and

(b) a local habitat map for the whole strategy area or two or more local habitat maps which together cover the whole strategy area.

100: Information to be provided by the Secretary of State

- (2) The national habitat map must in particular identify-
- (a) national conservation sites, and

(b) other areas that in the opinion of the Secretary of State are of particular importance for biodiversity.

# **Ecological Networks and Nature Recovery Networks** (Parr Ferris. (2019) *Devon NRN Draft Strategy*)

The concept of ecological networks has been around for many years (e.g. Forman and Godron 1981) and highlighted in Making Space for Nature 2010\*, describing how wildlife require networks of connected habitats in a series of patches and corridors across the landscape in order to remain viable in the long term. Nature Recovery Networks are essentially ecological networks, but they specifically refer to the desperate state of nature and the critical need to restore and recreate large networks of linked habitat across the country.

\* Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborner, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J. & Wynne, G.R. (2010) Making Space for Nature: a review of England's wildlife sites and ecological networks. Report to Defra.

# 6.1 Identifying Ecological Networks:

When identifying areas that make up an Ecological Network, Lawton's five key approaches to rebuild nature and address the weaknesses of the current series of wildlife sites should be used:

(i) Increase the size of current wildlife sites.



- (ii) Improve the quality of current sites by better habitat management.
- (iii) Create new sites.
- (iv) Enhance connections between, or join up, sites, either through physical corridors, or through 'stepping stones'.
- (v) Reduce the pressures on wildlife by improving the wider environment, including through buffering wildlife sites.

# **Bigger/Better**

(i), (ii) and (v) can all be dealt with, in the context of CWS designation, through looking to designate land which extends or buffers (i.e. is contiguous with) designated nature conservation sites. This should consist of similar habitat to that of the designated site, or habitat which complements or protects the designated habitat (e.g. acid grassland alongside designated heathland, low-input grassland alongside wetland). The habitat to be designated should also meet some of criteria in its own right.

#### Joined

(iii) represents the main reason for designation within Ecological Networks and consists of:

- Land which links designated nature conservation sites these areas should link wildlife sites occurring within close, or moderately close proximity to one another by routes likely to be used by wildlife. The useful proximity may vary by habitat type and species but will often be 5 fields or fewer distance.
- Land which links designated nature conservation sites with the wider countryside - priority should be given to routes that support assemblages of ecological/landscape features offering the best potential for the passage of wildlife and where possible form a connection with other significant wildlife habitat and/or recognised wildlife sites within the wider landscape.
- Land which creates a green finger from the wider countryside into the urban area consideration should be given to habitat features likely to support the movement of wildlife into urban areas.
- Land which may have nature conservation interest that cannot be covered by the CWS guidelines, such as bat foraging areas, bird feeding areas and toad migration routes
- Areas of open water, such as ponds or lakes, especially if they link to other areas of semi-natural habitat
- Linear features such as watercourses, hedges, railway lines and green lanes

# More

(iv) represents a more challenging reason for designation of sites, but should be viewed in the context of the Nature Recovery Network as those sites where new habitat is being created. These sites may also fulfil the bigger, better and joined aspects too, although this is not a requirement. These sites should: 6. Ecological Networks



- Contain newly created native habitat (or mosaic of habitats) that in time will become native habitats and species assemblages eligible for CWS designation.
- Be established for a sufficient period of time to ensure both the landowner will to retain the habitat, and that the habitat is self-sustaining. This will vary by habitat, e.g. grasslands and wetlands may be eligible at 5 years, while woodlands and heathlands may become eligible at 10 years
- There is some certainty of longevity for the new habitat.

# 6.1.2 Watercourses

Rivers and streams form an important part of a Biodiversity Network, as they provide vital wildlife corridors and links. Significant watercourses that are selected as part of a Biodiversity Network should have a 50 metre wide (25 metres from each bank) buffer wherever possible

# 6.1.3 Green lanes and important hedgerows:

A green lane can be defined as an unmetalled track with field boundaries either side. These boundaries may be banks, hedges, woodland edge, stone walls or fences and often features such as ditches or streams are incorporated within the lanes. The combination of the track, its boundaries and associated features create a landscape unit with its own microclimate and ecology. These sheltered conditions within lanes are of great importance to butterfly populations and may be more botanically species-rich than single hedge boundaries. Many green lanes contain ancient hedges with veteran trees and can support declining species such as dormouse, brown hairstreak and many bat species. In Devon there are many hundreds of miles of speciesrich hedge, and many green lanes. The South Hams district is particularly well known for its green lanes.



**90 species which in Devon are typical components of botanically rich ancient woodlands.** Uncommon indicators or those that have a strong/strict affinity with ancient woodland are marked with an asterisk.

Scientific Name	Scientific Name
Acer campestre	L. sylvatica
Aconitum napellus*	Lysimachia nemorum
Adoxa moschatellina	Malus sylvestris
Allium ursinum	Melampyrum pratense
Anemone nemorosa	Melica uniflora
Aquilegia vulgaris*	Melittis melissophyllum*
Asplenium scolopendrium	Milium effusum
Betonica officinalis	Moehringia trinervia
Blechnum spicant	Narcissus pseudonarcissus
Bromopsis ramosa	Neottia nidus-avis*
Calamagrostis epigejos*	Orchis mascula
Carex laevigata*	Oreopteris limbosperma*
Carex pallescens*	Oxalis acetosella
Carex pendula	Phegopteris connectilis*
Carex remota	Platanthera chlorantha*
Carex sylvatica	Poa nemoralis
Ceratocapnos claviculata	Polypodium vulgare
Chrysosplenium oppositifolium	Polystichum aculeatum*
Conopodium majus	P. setiferum
Daphne laureola	Populus tremula
Dryopteris aemula*	Potentilla sterilis
D. affinis	Primula vulgaris
D. carthusiana*	Prunus avium
Elymus caninus	Quercus petraea
Epipactis helleborine*	Ranunculus auricomus*
Equisetum sylvaticum	Ribes nigrum
Euphorbia amygdaloides	R. rubrum
Frangula alnus	Rosa arvensis
Galium odoratum*	Ruscus aculeatus*
Geum rivale*	Sanicula europaea
Helleborus foetidus*	Schedonorus giganteus
H. viridis*	Sibthorpia europaea*
Holcus mollis	Scirpus sylvaticus
Hyacinthoides non-scripta	Solidago virgaurea
Hymenophyllum tunbrigense*	Sorbus (microspecies)*
Hypericum androsaemum	Sorbus torminalis
H. pulchrum	Tamus communis
llex aquifolium	Tilia cordata*
Iris foetidissima	Ulmus glabra
Lamiastrum galeobdolon	Vaccinium myrtillus
Lathraea squamaria*	Viburnum opulus
Lathyrus linifolius	Vicia sylvatica*
L. sylvestris	Viola palustris
Luzula forsteri	V. reichenbachiana
L. pilosa	Wahlenbergia hederacea



Ancient Woodland indicator species are characteristic of:

Ash-maple-mercury woodland (W8) on calcareous soils, or of
 Oak-bracken-bramble woodland (W10) on heavier more acidic soils.

Indicators of base-rich soils (W8 type)	Indicators of acidic soils (W10 type)
Acer campestre	Anemone nemorosa
Adoxa moschatellina	Blechnum spicant
Allium ursinum	Conopodium majus
Asplenium scolopendrium	Epipactis helleborine
Carex pendula	Equisetum sylvaticum
Carex sylvatica	Hyacinthoides non-scripta
Daphne laureola	llex aquifolium
Iris foetidissima	Lathyrus linifolius
Lamiastrum galeobdolon	Lysimachia nemorum
Lathyrus sylvestris	Melampyrum pratense
Neottia nidus-avis	Orchis mascula
Platanthera chlorantha	Oxalis acetosella
Polystichum setiferum	Populus tremula
Ranunculus auricomus	Solidago virgaurea
Sanicula europaea	Vaccinium myrtillus



# Wet Woodland NVC

- W1 Salix *cinerea Galium palustre* woodland. Occasional on water margins on mineral soils.
- W2 Salix cinerea Betula pubescens Phragmites australis woodland. Occasional on topogenous fen-peats on flood plain mires.
- W4 Betula pubescens Molinia caerulea *woodland*. Occasional on moderately acidic peaty soils.
- W5 Alnus *glutinosa Carex paniculata* woodland. Occasional on base-rich wet or waterlogged organic soils.
- W6 Alnus *glutinosa Urtica dioica* woodland. Occasional on moist, eutrophic mineral soils.
- W7 Alnus glutinosa Fraxinus excelsior Lysimachia nemorum woodland. Occasional on moist base-rich, but not eutrophic, mineral soils. Locally common at the base of slope in valley oakwoods, where flushing concentrates nutrients from above.

# Wet Woodland IHS

- WB34 Wet woodland (Priority Habitat Type) (NVC W1-W7)
- WB341 Residual alluvial forests (NVC W5, W6, W7)
- WB342 Bog woodland (NVC W4)
- WB34Z Other wet woodland (NVC W1, W2, W3, W5, W6)

# Potential overlap with the following UKHAB categories

- w1d Wet woodland
- w1d5 Alder woodland on floodplains
- w1d6 Bog woodland

# **Dry Woodland NVC**

- W8 *Fraxinus excelsior Acer campestre Mercurialis perennis* woodland. Widespread and locally common on calcareous mull soils in lowland areas. Can also be considered under wet woodland.
- W9 *Fraxinus excelsior Sorbus aucuparia Mercurialis perennis* woodland. Occasional as the analogue of W8 on moist, free-draining brown earths

# Appendix 2 – Woodland NVC/IHS/UKHAB communities present in Devon



derived from calcareous bedrocks, in upland situations subject to high rainfall. May be associated with W7 in valley systems.

- W10 Quercus robur Pteridium aquilinum Rubus fruticosus woodland.
  Widespread and common on base-poor brown earthes in lowland areas.
  Also common in treatment-derived stands or plantations.
- W11 Quercus petraea Betula pubescens Oxalis acetosella woodland. Occasional as the analogue of W10 on moist, free-draining base-poor soils in wetter, cooler upland situations.
- W14 Fagus sylvatica Rubus fruticosus woodland. Beech community of base-poor, poorly drained brown earths, sometime under plantations.
- W15 *Fagus* sylvatica Deschampsia flexuosa woodland. Beech community of very acid soils, sometimes derived from W16 where the oak canopy has been replaced.
- W16 Quercus Betula Deschamsia caespitosa woodland. Common oak community of very acidic soils in lowland areas.
- W17 Quercus petraea Betula pubescens Dicanum majus woodland. Occasional oak community of very acidic soils in upland situations.

# **Dry Woodland IHS**

WB31 Upland Oakwood (Priority Habitat Type) (NVC W11, W17, W16b, W10, W10e)

WB32 Upland mixed ash woodland (Priority Habitat Type) (NVC W8, W9)

WB321 Tilio-Acerion forests of slopes, screes and ravines (upland) NVC W8, W9)

WB32Z Other upland mixed ashwoods (NVC W8)

WB331 Lowland beech and yew woodland (Priority Habitat Type) (W12, W13, W14, W15) n.b. we don't get true beech woodlands in Devon, but some beech dominated woodlands have affinities to these beech communities.

WB3311 Beech forests with Ilex and Taxus, rich in epiphytes (NVC W14, W15)

WB35 Upland birch woodland (PHT) (NVC W11, W17, small patches of W9, W4 & W7)

WB36 Lowland mixed deciduous woodland (Priority Habitat Type) (NVC W8, W10, W16)

WB361 Old acidophilus oak woods with Quercus robur on sandy plains (NVC W10, W16)



- WB36Z Other lowland mixed deciduous woodland
- WB3Z Other broadleaved woodland (NVC W16)

# Potential overlap with the following UKHAB categories

- w1a5 Western acidic oak woodland
- w1b5 Lime-maple woodlands of rocky slopes
- w1b6 Other upland mixed ashwoods
- w1c5 Beech forests on acid soils
- w1c6 Beech forests on neutral to rich soils
- w1e Upland birchwoods
- w1f5 Dry oak-dominated woodland
- w1f7 Other Lowland mixed deciduous woodland
- w1g7 Other broadleaved woodland types

# Scrub NVC

- W21 Crataegus monogyna Hedera helix scrub.
- W22 Prunus spinosa Pteridium aquilinum scrub.
- W23 Ulex europaeus Rubus fruticosus scrub.
- W24 Rubus fruticosus Holcus lanatus underscrub.
- W25 Pteridium aquilinum Rubus fruticosus underscrub

# Scrub IHS

WB2 Scrub woodland (NVC W21-25)

# Potential overlap with the following UKHAB categories

- h3a Blackthorn scrub
- h3d Bramble scrub
- h3e Gorse scrub



h3f Hawthorn scrub

h3h Mixed scrub

s2a5 Vegetated sea cliffs



# Mesotrophic NVC

- MG4 *Alopecurus pratensis Sanguisorba officinalis* flood-meadow. Scarce on traditionally-managed alluvial meadows.
- MG5 *Cynosurus cristatus Centaurea nigra* meadow and pasture. Widespread on range of soil types in lowland areas, with affinities to both calcicolous and acid grasslands.
- MG8 *Cynosurus cristatus Caltha palustris* flood pasture. Scarce on traditional riverside pastures.
- MG11 Festuca rubra Agrostis stolonifera Potentilla anserina inundation grassland. Occasional in lowland river valleys, and rarely from saltmarsh margins.
- MG12 *Festuca arundinacea* coarse grassland. A coastal community of estuaries and saltmarshes.
- MG13 Agrostis stolonifera Alopecurus geniculatus grassland. Locally common on lowland alluvium soils.

#### Mesotrophic IHS

GN1 Lowland Hay meadow (Priority Habitat Type) (NVC MG5, MG4, MG8)

GN11 Lowland hay meadows (Alopecurus pratensis- Sanguisorba officinalis) (NVC MG4)

GNZ Other neutral grassland (only NVC that qualifies is MG11-13) all other NVC in this category are not CWS standard (eg. NVC MG6, MG9, MG10 – should be considered if in the context of coastal floodplain and grazing marsh).

#### Potential overlap with the following UKHAB categories

g3a5 Lowland hay meadows

g3c Other neutral grassland

g3c5 Arrhenatherum neutral grassland

g3c6 Lolium-Cynosurus neutral grassland

g3c8 Holcus-Juncus neutral grassland

s2a Maritime cliff and slopes



# Calcareous NVC

- CG1 Festuca ovina Carlina vulgaris grassland. Occasional on hard limestone outcrops in the south of the county.
- CG2 Festuca ovina \_ Avenula pratensis grassland. Occasional on limestone in the south.
- CG3 *Bromus erectus* grassland. Rare on calcareous soils.
- CG4 *Brachypodium pinnatum* grassland. Rare on calcareous soils.
- CG5 Bromus erectus Brachypodium pinnatum grassland. Rare on limestone.
- CG6 Avenula pubescens grassland. Rare on limestone.
- CG7 Festuca ovina Hieracium pilosella Thymus praecox grassland. Very occasional on calcareous soils in the south.

#### Calcareous IHS

GC1 Lowland calcareous grassland (Priority Habitat Type) (NVC CG1-5, CG6, CG7), (*CG8-14 don't get these in Devon*)

GC12 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (important orchid sites) (NVC CG2-CG5)

#### Potential overlap with the following UKHAB categories

g2a5 Dry grasslands and scrub on chalk or limestone; lowland

g2a6 Dry grasslands and scrub on chalk or limestone; important orchid sites

# Calcifugous NVC

- U1 Festuca ovina Agrostis capillaris Rumex acetosella grassland. Widespread on light, dry soils in lowland areas.
- U2 Deschampsia flexuosa grassland. Locally frequent on moist but free-draining base-poor soils in lowland areas.
- U3 Agrostis curtesii grassland A locally frequent community based on frequency of A. curtisii



U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland. NB this habitat can be agriculturally improved, so only species-rich examples should be chosen as County Wildlife Site.

# Calcifugous IHS

GA1 Lowland dry acid grassland (Priority Habitat Type) (NVC U1, U2-U4 - lowland examples)

GA1Z Other lowland dry acid grassland

GAZ Upland acid grassland (NVC U2-U4 – upland examples), (U5, U6 don't get these in Devon)

#### Potential overlap with the following UKHAB categories

- g1a6 Other lowland dry acid grassland
- s3b5 Perennial vegetation on coastal shingle
- g1b6 Other upland acid grassland

# Appendix 3 – Grassland NVC/IHS communities of importance in Devon for the selection of County Wildlife Sites



# Species indicative of old unimproved neutral/acid/calcareous grassland in Devon

"\*" denotes plants which seldom occur outside unimproved grasslands/marshes or are particularly indicative of a long period of traditional grassland management.

Agrimonia eupatoria	Agrimony	
Agrostis curtisii	Bristle bent	
Anacamptis morio	Green-winged Orchid *	
Anacamptis pyramidalis	Pyramidal Orchid	
Avenella flexuosa	Wavy hair-grass	
Betonica officinalis	Betony	
Briza media	Quaking Grass *	
Carex caryophyllea	Spring Sedge	
Carex nigra	Black Sedge	
Carex panicea	Carnation Sedge	
Carlina vulgaris	Carline Thistle	
Centaurea nigra	Common knapweed	
Centaurea scabiosa	Great Knapweed	
Conopodium majus	Pignut	
Cruciata laevipes	Crosswort	
Danthonia decumbens	Heath Grass	
Euphrasia officinalis agg.	Eyebright	
Galium saxatile	Heath bedstraw	
Galium verum	Lady's Bedstraw	
Helianthemum nummularium	Common Rock-rose	
Inula conyzae	Ploughman's Spikenard	
Juncus squarrosus	Heath Rush	
Koeleria macrantha	Crested hair-grass	
Lathyrus nissolia	Grass Vetchling	
Lathyrus pratensis	Meadow vetchling	
Leucanthemum vulgare	Ox-eye daisy	
Luzula campestris	Field wood-rush	
Molinia caerulea	Purple Moor-grass	
Nardus stricta	Mat-grass	
Ophioglossum vulgatum	Adder's Tongue Fern	
Pedicularis sylvatica	Lousewort	
Pilosella officinarum	Mouse-ear hawkweed	
Pimpinella saxifraga	Burnet-saxifrage	
Potentilla anglica	Trailing Tormentil	
Potentilla erecta	Tormentil	
Poterium sanguisorba subsp.	Salad Burnet	
sanguisorba		
Primula veris	Cowslip	
Rhinanthus minor	Yellow Rattle *	
Silaum silaus	Pepper Saxifrage *	
Spiranthes spiralis	Autumn Lady's-tresses *	

# Appendix 3 – Grassland NVC/IHS communities of importance in Devon for the selection of County Wildlife Sites



Succisa pratensis	Devil's-bit scabious	
Thymus drucei	Wild Thyme	
Trisetum flavescens	Yellow oat-grass	

Indicators of calcareous grassland		
Anacamptis pyramidalis	Pyramidal Orchid	
Briza media	Quaking Grass	
Carlina vulgaris	Carline Thistle	
Centaurea scabiosa	Great Knapweed	
Cirsium acaule	Dwarf Thistle	
Filipendula vulgaris	Dropwort	
Galium verum	Ladies bedstraw	
Helianthemum nummularium	Common Rock-rose	
Helictochloa pratensis	Meadow Oat-grass	
Hippocrepis comosa	Horseshoe Vetch	
Inula conyza	Ploughman's Spikenard	
Koeleria macrantha	Crested hair-grass	
Picris hieracioides	Hawkweed Oxtongue	
Pilosella officinarum	Mouse-ear hawkweed	
Poterium sanguisorba subsp.	Salad Burnet	
sanguisorba		
Trisetum flavescens	Yellow oat-grass	
Thymus drucei	Wild Thyme	

Indicators of acidic grassland		
Agrostis curtisii	Bristle bent	
Avenella flexuosa	Wavy hair-grass	
Conopodium majus	Pignut	
Danthonia decumbens	Heath Grass	
Galium saxatile	Heath bedstraw	
Molinia caerulea	Purple Moor-grass	
Nardus stricta	Mat-grass	
Oenanthe pimpinelloides	Corky-fruited Water-dropwort	
Peduncularis sylvatica	Lousewort	
Potentilla erecta	Tormentil	

Indicators of neutral grassland		
Agrimonia eupatoria	Agrimony	
Anthoxanthum odoratum	Sweet vernal-grass	
Carex sp.	Sedges	
Centaurea nigra	Common knapweed	
Conopodium majus	Pignut	
Cynosurus cristatus	Crested dog's-tail	
Euphrasia officinalis agg.	Eyebrights	
Lathyrus pratensis	Meadow vetchling	

# DBRC

# Appendix 3 – Grassland NVC/IHS communities of importance in Devon for the selection of County Wildlife Sites

Leucanthemum vulgare	Oxeye daisy	
Lotus corniculatus	Common bird's-foot-trefoil	
Luzula campestris	Field wood-rush	
Oenanthe pimpinelloides	Corky-fruited water-dropwort	
Pimpinella saxifraga	Burnet-saxifrage	
Polygala vulgaris	Common milkwort	
Rhinanthus minor	Yellow-rattle	
Scorzoneroides autumnalis	Autumn hawkbit	



# Dry Heath NVC

- H4 *Ulex gallii Agrostis curtisii* heath. The commonest community of lowland heathlands in the county.
- H7 *Calluna vulgaris Scilla verna* heath. Very local on coastal cliffs.
- H8 Calluna vulgaris Ulex gallii heath. Widespread on lowland heath sites.
- H10 *Calluna vulgaris Erica cinerea* heath. On Dartmoor and Exmoor
- H12 *Calluna vulgaris Vaccinum myrtillus* heath. Common on the fringes of Dartmoor.
- H18 Vaccinium myrtillus Deschampsia flexuosa heath. Localised - on southwest Dartmoor.

#### Dry and wet heath IHS

HE0 Dwarf shrub heath

HE1 European dry heaths (Priority Habitat Type) (NVC H4, H7-8, H10, H12, H18) (*H1-H3, H5-6, H11 don't get in Devon*)

HE2 Wet heaths (NVC M14-16)

- HE21 Northern Atlantic wet heaths with Erica tetralix (NVC M14-16)
- HE2Z Other wet heaths

HE3 Lichen/Bryophyte heath

HEZ Other dwarf shrub heath

# Potential overlap with the following UKHAB categories

- h1a5 Dry heaths; lowland
- h1b5 Dry heaths; upland
- h1b6 Wet heathland with cross-leaved heath; upland

g1a6 Other lowland dry acid grassland

s2a5 Vegetated sea cliffs

# (See also wet heath NVC communities below).

# Appendix 5 – Mire NVC/IHS communities present in Devon



#### Mire NVC

- M1 Sphagnum auriculatum bog pool community.
- M2 Sphagnum cuspidatum Sphagnum recurvum bog pool community.
- M4 *Carex rostrata Sphagnum recurvum* mire. Rare, confined to bog pools.
- M6 *Carex echinata Sphagnum recurvum/auriculatum* mire. Widespread in soligenous situations.
- M13 Schoenus nigricans Juncus subnodulosus mire. Rare in soligenous situations.
- M14 Schoenus nigricans Narthecium ossifragum mire. Occasional in east Devon.
- M15 *Scirpus cespitosus Erica tetralix* wet heath. Occasional component of heathland sites.
- M16 *Erica tetralix Sphagnum compactum* wet heath. Common in seasonally waterlogged bases of heathland sites.
- M17 *Scirpus cespitosus Eriophorum vaginatum* blanket mire. Common component of soligenous mires.
- M21 *Narthecium ossifragum Sphagnum papillosum* valley mire.
- M29 Hypericum elodes Potamogeton polygonifolius soakway.
- M35 Ranunculus omiophyllus Montia fontana rill.

#### **Fen Meadows**

- M22 Juncus subnodulosus Cirsium palustre fen-meadow. Rare in east of the county.
- M23 Juncus effusus/acutiflorus Galium palustre rush pasture. Widespread on a range of moist soils, especially on Culm Measures.
- M24 Molinia caerulea Cirsium dissectum fen-meadow. Frequent of peat and peaty-mineral soils, especially the Culm Measures and a speciality of the south west.
- M25 *Molinia caerulea Potentilla erecta* mire. Widespread on Culm Measures and elsewhere on peat or peaty-mineral soils.

# Appendix 5 – Mire NVC/IHS communities present in Devon



- M27 *Filipendula ulmaria Angelica sylvestris* mire. Widespread on circumneutral soils protected from grazing.
- M28 Iris pseudacorus Filipendula ulmaria mire. Rare on coastal fringes.

## (Refer also to fen woodland communities W1 – W6 above).

#### Mire & fen-meadow IHS

EO0 Bog

EO1 Blanket bog (Priority Habitat Type) (NVC M17, M1, M3) (M18, M2 – don't get in Devon)

EO2 Lowland raised bog (M17, M1, M3) (M18, M2 – don't get in Devon)

EO21 Degraded raised bogs still capable of natural regeneration

EO22 Active raised bogs (NVC M1, M3, M21) (M18, M2 – don't get in Devon)

EO2Z Other lowland raised bogs

EOZ Other bogs

EM0 Fen, marsh and swamp (NVC M4, M6, M13-14, M21-22, M24-25, M27-29, M35 S3-S14, S16, S18-S28) (*M5, M7-M12, M26, M30-M34 M36-M38, S1-S2, S15, S17, don't get in Devon*)

EM3 Fens EM31 Fens (and flushes - lowland) (PHT)

EM314 Transition mires and quaking bogs (lowland)

EM31Z Other lowland fens

EM3Z Other fens, transition mires, springs and flushes (NVC M6, M27, M28) (*M7, M36 don't get in Devon*)

EM4 Purple moor grass and rush pastures (Molinia-Juncus) (PHT) (NVC M22-25) (*M*26 don't get in Devon)

EM41 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinia caeruleae) (NVC M24), (*M26 don't get in Devon*)

EM4Z Other purple moor grass and rush pastures (Molinia-Juncus) (NVC M22, M23, M25)

# Potential overlap with the following UKHAB categories

# Appendix 5 – Mire NVC/IHS communities present in Devon



- f1a Blanket bog
- f1b5 Active raised bogs
- f1b6 Degraded raised bog
- f2a Lowland fens
- f2a5 Calcium-rich fen dominated by great fen sedge
- f2a7 Calcium-rich springwater-fed fens; lowland
- f2a8 Transition mires and quaking bogs; lowland
- f2b Purple moor grass and rush pastures
- f2b5 Purple moor-grass meadows
- f2c7 Calcium-rich springwater-fed fens; upland
- f2c8 Transition mires and quaking bogs; upland
- f2f Other swamps
- h1a5 Dry heaths; lowland
- h1a7 Wet heathland with cross-leaved heath; lowland
- h1b6 Wet heathland with cross-leaved heath; upland

# Appendix 6 – Swamp NVC/IHS communities present in Devon



## Swamp NVC

- S3 Carex paniculata swamp.
- S4 *Phragmites australis* swamp and reed beds.
- S5 *Glyceria maxima* swamp.
- S6 Carex riparia swamp.
- S7 Carex acutiformis swamp.
- S8 Scirpus lacustris ssp. lacustris swamp.
- S9 Carex rostrata swamp.
- S10 Equisetium fluviatile swamp.
- S11 Carex vesicaria swamp.
- S12 Typha latifolia swamp.
- S13 Typha angustifolia swamp.
- S14 Sparganium erectum swamp.
- S16 Sagittaria sagittifolia swamp.
- S18 Carex otrubae swamp.
- S19 Eleocharis palustris swamp.
- S20 Scirpus lacustris ssp. tabernaemontani swamp.
- S22 Glyceria fluitans swamp.
- S24 *Phragmites australis Peucedanum palustre* tall-herb fen.
- S25 *Phragmites australis Eupatorium cannbinum* tall-herb fen.
- S26 *Phragmites australis Urtica dioica* tall-herb fen.
- S27 Carex rostrata Potentilla palustris tall-herb fen.
- S28 Phalaris arundinacea tall-herb fen.

#### Swamp IHS

EM1 Swamp (NVC S3-14, S15, S16, S18-S28) (*S1-S2, S15, S17, don't get in Devon*)



EM1Z Other swamp vegetation (NVC S3, S5-S14, S16, S18, S19-23) (S1, S15, S17 don't get in Devon)

EM2 Marginal and inundation vegetation

EM21 Marginal vegetation (NVC S3, S5-S14, S16, S18S-23) (S1, S15, S17 don't get in Devon)

EM22 Inundation vegetation

AS31 Mesotrophic lakes (Priority Habitat Type)

# Potential overlap with the following UKHAB categories

- f2a Lowland fens
- f2a5 Calcium-rich fen dominated by great fen sedge
- f2a8 Transition mires and quaking bogs; lowland
- f2c Upland flushes, fens and swamps
- f2c8 Transition mires and quaking bogs; upland
- f2d Aquatic marginal vegetation
- f2e Reedbeds
- f2f Other swamps
- r1a5 Naturally nutrient-rich lakes or lochs
- r1a6 Other eutrophic standing waters
- r1b5 Calcium-rich nutrient-poor lakes lochs and pools
- r1c5 Clear-water lakes or lochs with aquatic vegetation
- r1d Aquifer fed naturally fluctuating water bodies
- r2a5 Rivers with floating vegetation



# Maritime Cliff Communities NVC

- MC1 Crithmum maritimum Spergularia rupicola maritime rock-crevice community
- MC4 Brassica oleracea maritime cliff-ledge community
- MC5 Armeria maritima Cerastium diffusum ssp. diffusum maritime therophyte community
- MC6 Atriplex hastata Beta vulgaris ssp. maritima sea-bird cliff community
- MC7 Stellaria media Rumex acetosa sea-bird cliff community
- MC8 Festuca rubra Armeria maritima maritime grassland
- MC9 Festuca rubra Holcus lanatus maritime grassland
- MC10 Festuca rubra Plantago spp. maritime grassland
- MC11 Festuca rubra Daucus carota ssp. gummifer maritime grassland

MC12 Festuca rubra - Hyacinthoides non-scripta maritime grassland

#### **Maritime Cliff Communities IHS**

SR1 Vegetated maritime cliff and slopes (Priority Habitat Type) (NVC MC1, MC4-MC12) (MC2, MC3 don't get in Devon)

SR11 Vegetated sea cliffs of the Atlantic and Baltic coasts (NVC MC1, MC4-MC12, H8) (MC2, MC3, H6 don't get in Devon)

SR1Z Other vegetated cliffs and lichen dominated cliffs

#### Maritime Heath Community NVC

H7 Calluna vulgaris – Scilla verna heath

#### Maritime Scrub Communities NVC

- W22 Prunus spinosa Pteridium aquilinum scrub
- W23 Ulex europaeus Rubus fruticosus scrub

#### Potential overlap with the following UKHAB categories

s2a5 Vegetated sea cliffs

s2a6 Soft rock sea cliffs



s3b5 Perennial vegetation on coastal shingle

h1a5 Dry heaths; lowland

See also scrub communities above

The following is based on NVC communities mapped in 'British Plant Communities – vol 5', supplemented with Devon SSSI citation information, or from other evidence known to DBRC on the occurrence or likely occurrence of the community in Devon. Other NVC Maritime communities may also occur in Devon, but not picked up by the sources mentioned.

# Perched Saltmarsh Community NVC

SM15 Festuca rubra saltmarsh

# Shingle, Strandline and Dune Communities (as mapped in British Plant Communities vol 5) NVC

- SD4 Elytrigia juncea foredune community
- SD6 Ammophila arenaria mobile dune community
- SD7 Ammophila arenaria Festuca rubra semi-fixed dune community
- SD8 Festuca rubra Galium verum fixed dune grassland
- SD9 Ammophila arenaria Arrhenatherum elatius dune
- SD11 Carex arenaria Coeloocaulon aculeatum dune community
- SD12 Carex arenaria Festuca ovina Agrostis capillaris dune grassland
- SD13 Sagina nodosa Bryum pseudotriquetrum dune-slack
- SD14 Salix repens Campylium stellatum dune-slack
- SD15 Salix repens Calliergonella cuspidata dune-slack
- SD16 Salix repens Holcus lanatus dune-slack community
- SD17 Phleum arenarium Arenaria serpyllifolia dune annual community

#### Shingle, Strandline and Dune Communities IHS

SS1 Coastal sand dunes (Priority Habitat Type) (NVC SD6-SD7, SD16, H10, M15-16) (*SD2, SD5, SD10, H11 don't get in Devon*)



SS12 Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") (NVC SD6) (SD5 don't get in Devon)

SS13 Fixed dunes with herbaceous vegetation ("grey dunes") (NVC SD7)

SS15 Dunes with Salix repens ssp. argentea (Salicion arenariae)

SS17 Humid dune slacks (NVC SD16)

- SS3 Shingle above high tide mark
- SS31 Coastal vegetated shingle (Priority Habitat Type)

# Potential overlap with the following UKHAB categories

- s3a Coastal sand dunes
- s3a3 Humid dune slacks
- s3a5 Embryonic shifting dunes
- s3a6 Shifting dunes with marram
- s3a7 Dune grassland
- t2a7 Atlantic salt meadows

# Saltmarsh Communities NVC

- SM1 Zostera communities
- SM2 Ruppia maritima saltmarsh
- SM3 Eleocharis parvula saltmarsh
- SM6 Spartina anglica saltmarsh
- SM7 Sarcocornia perennis stands
- SM8 Annual Salicornia saltmarsh
- SM9 Suaeda maritima saltmarsh

SM10 Transitional low marsh vegetation with *Puccinellia maritima*, annual *Salicornia* species and *Suaeda maritima* 

SM12 Rayed Aster tripolium on saltmarshes

SM13 Puccinellia maritima saltmarsh



- SM14 Halimione portulacoides saltmarsh
- SM15 Juncus maritimus Triglochin maritima saltmarsh
- SM16 Festuca rubra saltmarsh
- SM17 Seriphidium maritimum salt-marsh community
- SM18 Juncus maritimus saltmarsh
- SM20 Eleocharis uniglumis salt-marsh community
- SM23 Spergularia marina Puccinellia distans saltmarsh
- SM24 Elymus pycanthus saltmarsh

SM27 Ephemeral salt-marsh vegetation with Sagina maritima

# Saltmarsh Communities IHS

LS3 Coastal saltmarsh (Priority Habitat Type) (NVC SM1-SM4, SM6, SM14, SM16) (*SM5, SM11, SM19, SM22 don't get in Devon*)

- LS31 Salicornia (glasswort) and other annuals colonising mud and sand
- LS32 Spartina swards (Spartinion maritimae) (SM6) (SM5 don't get in Devon)
- LS33 Atlantic salt meadows
- LS34 Mediterranean salt meadows (Juncetalia maritima)
- LS3Z Other saltmarsh

# Potential overlap with the following UKHAB categories

- t2a Coastal saltmarsh
- t2a5 Glasswort and other annuals colonising mud and sand
- t2a6 Cord-grass swards
- t2a7 Atlantic salt meadows
- t2a8 Mediterranean saltmarsh scrub
- t2c Seagrass beds [Zostera noltii]


### <u>Reedbed Communities NVC (as defined in SW NBN Pilot and mapped in</u> <u>British Plant Communities vol 4)</u>

S4 Phragmites australis swamp and reed-beds

#### **Reedbed Communities IHS**

EM11 Reedbeds (NVC S4, S26)

#### Potential overlap with the following UKHAB categories

f2e Reedbeds

# Coastal floodplain and grazing marsh (as defined in SW NBN Pilot and mapped in British Plant Communities vols 2, 3 & 4)

- MG6 Lolium perenne Cynosurus cristatus grassland
- MG9 Holcus lanatus Deschampia cespitosa grassland
- MG10 Holcus lanatus Juncus effusus rush pasture
- MG11 Festuca rubra Agrostis stolonifera Potentilla anserina grassland
- MG12 Festuca arundinacea grassland
- M22 Juncus subnodulosus Cirsium palustre fen-meadow
- M23 Juncus effusus/acutiflorus Galium palustre fen-meadow
- M24 Molinia caerulea Cirsium dissectum fen-meadow
- M25 Molinia caerulea Potentilla erecta mire
- S6 Carex riparia swamp

#### Potential overlap with the following UKHAB categories

- g3c Other neutral grassland
- g3c5 Arrhenatherum neutral grassland
- g3c6 Lolium-Cynosurus neutral grassland
- g3c8 Holcus-Juncus neutral grassland
- g4 Modified grassland
- f2a Lowland fens



f2b Purple moor grass and rush pastures

f2b5 Purple moor-grass meadows

f2f Other swamps



<u></u>	Taxon vernacular name <sup>1</sup>	Rank	GB Red Data List (revised 2021) . <sup>2</sup>	England Red list . <sup>2</sup>	National status. <sup>3</sup>	Native status <sup>4.5</sup>	name used in 2009 list guidelines if different
Aconitum napellus	Monk's-hood	species		WL		NA	
Adiantum capillus-veneris	Maidenhair Fern	species	LC		NS	N AR	
Alchemilla filicaulis subsp. vestita	Hairy Lady's-mantle	subspecies	LC	LC		N	
Alchemilla xanthochlora	Intermediate Lady's- mantle	species	LC	LC		Ν	
Alisma lanceolatum	plantain	species	LC	LC		Ν	
Allium oleraceum	Field Garlic	species	VU	LC		Ν	
Alopecurus bulbosus	Bulbous Foxtail	species	LC	LC	NS	Ν	
Ammophila arenaria	Marram	species	LC	LC		Ν	
Anacamptis morio	Green-winged Orchid	species	NT	VU		Ν	Orchis morio
Anacamptis pyramidalis	Pyramidal Orchid	species	LC	LC		Ν	
Anagallis arvensis subsp. foemina	Blue Pimpernel	subspecies	LC	DD,LC	NS	Ν	
Anisantha madritensis	Compact Brome	species					
Anthemis arvensis	Corn Chamomile	species	EN	EN		AR	
Anthemis cotula	Stinking Chamomile	species	VU	VU		AR	
Anthriscus caucalis	Bur Chervil	species	LC	LC		Ν	
Apium graveolens	Wild Celery	species		LC		Ν	
Apium inundatum	Lesser Marshwort	species	LC	VU		Ν	



Arabis hirsuta	Hairy Rock-cress	species	LC	NT		Ν	
Arenaria leptoclados	Thyme-leaved Sandwort	species	LC	LC			Arenaria serpyllifolia subsp. leptoclados
Artemisia absinthium	Wormwood	species	LC	LC		AR	
Artemisia maritima	Sea Wormwood	species	LC	NT		Ν	Seriphidium maritimum
Arum italicum subsp. neglectum	Italian Lords-and-Ladies	subspecies	NT	LC	NS	Ν	
Asperula cynanchica	Squinancywort	species	LC	LC		Ν	
Asplenium marinum	Sea Spleenwort	species	LC	LC		Ν	
Asplenium obovatum	Lanceolate Spleenwort	species	NT	NT	NS	Ν	
Applonium contentrionale	Forked Spleenwort	anaoiaa	NT	VII	NIC	N	
	Poliked Spieeriwon	species			INO.		
	Babington's Orache	species				IN NI	
Atripiex laciniata	Frosted Orache	species	LC			N	
Atriplex littoralis	Grass-leaved Orache	species	LC	LC		N	
Atriplex portulacoides	Sea-purslane	species	LC	LC		N	
Avenula pratensis	Meadow Oat-grass	species	LC	LC		N	Helictotrichon pratense
Avenula pubescens	Downy Oat-grass	species	LC	LC		Ν	Helictotrichon pubescens
Baldellia ranunculoides	Lesser Water-plantain	species	NT,VU	VU		Ν	
Berula erecta	Lesser Water-parsnip	species	LC	LC		Ν	
Bidens cernua	Nodding Bur-marigold	species	LC	LC		Ν	
Bidens tripartita	Trifid Bur-marigold	species	LC	LC		Ν	
Blackstonia perfoliata	Yellow-wort	species	LC	LC		Ν	
Botrychium lunaria	Moonwort	species	LC	VU		Ν	
Brachypodium pinnatum s.l.	Heath False-brome	species		LC		Ν	
Brassica oleracea	Wild Cabbage	species	LC	LC	NS	NA	
Bromopsis erecta	Upright Brome	species	LC	LC		Ν	
Bromus commutatus	Meadow Brome	species	LC	LC		Ν	
Bromus hordeaceus subsp. ferronii	Least Soft-brome	subspecies	LC	LC	NS	N	
Bromus racemosus	Smooth Brome	species	LC	LC		Ν	



Bromus secalinus	Rye Brome	species	NT	NT	NS	AR	
Bupleurum baldense	Small Hare's-ear	species	EN	EN	NR	Ν	
Butomus umbellatus	Flowering-rush	species	LC	LC		Ν	
Cakile maritima	Sea Rocket	species	LC	LC		Ν	
Calamagrostis epigejos	Wood Small-reed	species	LC	LC		Ν	
Callitriche obtusangula	Blunt-fruited Water- starwort	species	LC	LC		N	
Callitriche truncata	starwort	species	LC	LC	NS	Ν	
Calystegia soldanella	Sea Bindweed	species	LC	VU		Ν	
Campanula rotundifolia	Harebell	species	LC	NT		Ν	
Campanula trachelium	Nettle-leaved Bellflower	species	LC	LC		Ν	
Cardamine impatiens	Narrow-leaved Bitter- cress	species	NT	LC	NS	N	
Carduus pycnocephalus	Plymouth Thistle	species					
Carex acutiformis	Lesser Pond-sedge	species	LC	LC		Ν	
Carex arenaria	Sand Sedge	species	LC	LC		Ν	
Carex canescens	White Sedge	species	LC	LC		Ν	
Carex dioica	Dioecious Sedge	species	LC	LC		Ν	
Carex distans	Distant Sedge	species	LC	LC		Ν	
Carex disticha	Brown Sedge	species	LC	LC		Ν	
Carex divisa	Divided Sedge	species	VU	LC	NS	Ν	
Carex divulsa subsp. leersii	Many-leaved Sedge	subspecies	LC	LC		Ν	
Carex extensa	Long-bracted Sedge	species	LC	LC		Ν	
Carex lasiocarpa	Slender Sedge	species	LC	VU		Ν	
Carex lepidocarpa	Long-stalked Yellow- sedge	species	LC	LC		N	
Carex montana	Soft-leaved Sedge	species	LC	LC	NS	Ν	
Carex oederi	Small-fruited Yellow- sedge	species	LC	LC		N	
Carex pallescens	Pale Sedge	species	LC	LC		Ν	



Carex pseudocyperus	Cyperus Sedge	species	LC	LC		Ν	
Carex punctata	Dotted Sedge	species	LC	LC	NS	Ν	
Carex riparia	Greater Pond-sedge	species	LC	LC		Ν	
Carex rostrata	Bottle Sedge	species	LC	LC		Ν	
	Thin-spiked Wood-						
Carex strigosa	sedge	species	LC	LC		N	
Carex vesicaria	Bladder-sedge	species	LC	VU		N	
Carum verticillatum	Whorled Caraway	species	LC	VU		N	
Catabrosa aquatica	Whorl-grass	species	LC	VU		N	
Catapodium marinum	Sea Fern-grass	species	LC	LC		Ν	
Centaurea cyanus	Cornflower	species	LC	LC		AR	
Centaurium pulchellum	Lesser Centaury	species	LC	LC		Ν	
Centunculus minimus	Chaffweed	species	NT	EN		Ν	Anagallis minima
Cerastium arvense	Field Mouse-ear	species	LC	NT		Ν	
Cerastium diffusum	Sea Mouse-ear	species	LC	LC		Ν	
Cerastium pumilum	Dwarf Mouse-ear	species	NT	LC	NS	Ν	
Cerastium semidecandrum	Little Mouse-ear	species	LC	LC		Ν	
Ceratophyllum demersum	Rigid Hornwort	species	LC	LC		Ν	
Ceratophyllum submersum	Soft Hornwort	species	LC	LC		Ν	
Chamaemelum nobile	Chamomile	species	VU	VU		Ν	
Chenopodium bonus-henricus	Good-King-Henry	species	VU	VU		AR	
Chenopodium ficifolium	Fig-leaved Goosefoot	species	LC	LC		AR	
Chenopodium glaucum	Oak-leaved Goosefoot	species	VU	VU	NS	AR	
Chenopodium murale	Nettle-leaved Goosefoot	species	EN	EN		AR	
Chenopodium rubrum	Red Goosefoot	species	LC	LC		Ν	
Chenopodium vulvaria	Stinking Goosefoot	species	EN	EN	NS	AR	
Chrysosplenium alternifolium	Alternate-leaved Golden-saxifrage	species	LC	LC		N	



Cicendia filiformis	Yellow Centaury	species	VU	VU	NS	Ν	
Cirsium acaule	Dwarf Thistle	species	LC	LC		Ν	
Cirsium eriophorum	Woolly Thistle	species	LC	LC		Ν	
Cladium mariscus	Great Fen-sedge	species	LC	LC		Ν	
Clinopodium acinos	Basil Thyme	species	VU	VU		Ν	
Cochlearia anglica	English Scurvygrass	species	LC	LC		Ν	
Coeloglossum viride	Frog Orchid	species	VU	VU		Ν	
Coincya wrightii	Lundy Cabbage	species	NT	NT	NR	NE	
Comarum palustre	Marsh Cinquefoil	species	LC	NT		Ν	Potentilla palustris
Corrigiola litoralis	Strapwort	species	EN	EN	NR	Ν	
Crambe maritima	Sea-kale	species	LC	LC		Ν	
Crepis biennis	Rough Hawk's-beard	species	LC	LC		Ν	
Cryptogramma crispa	Parsley Fern	species	LC	VU		Ν	
Cuscuta epithymum	Dodder	species	VU	VU		Ν	
Cynodon dactylon	Bermuda-grass	species		WL	NR	NA	
Cynoglossum officinale	Hound's-tongue	species	NT	NT		Ν	
Cyperus longus	Galingale	species	NT	NT	NS	Ν	
	Diaphanous Bladder-			N/LL			
Cystopteris diapnana	Tern	species		VU	NK	NI	
Cystopteris tragilis	Brittle Bladder-tern	species	LC	LC		IN	
<i>Cytisus scoparius</i> subsp.	Drestrate Dress	oubonosioo				NI	
manumus	Prostrate broom	subspecies	LC,NT	LC,VU	INK	IN	
Dactylorhiza incarnata	Early Marsh-orchid	species	LC	WL		Ν	
Daphne laureola	Spurge-laurel	species	LC	LC		Ν	
Dianthus armeria	Deptford Pink	species	EN	EN	NS	Ν	
Dianthus deltoides	Maiden Pink	species	NT	VU	NS	Ν	
Diplotaxis tenuifolia	Perennial Wall-rocket	species	LC	LC		AR	
Dipsacus pilosus	Small Teasel	species	LC	LC		Ν	
Draba muralis	Wall Whitlowgrass	species	LC	LC	NS	N	



Drosera anglica	Great Sundew	species	NT	EN		Ν	
Drosera intermedia	Oblong-leaved Sundew	species	LC	VU		Ν	
Dryopteris aemula	Hay-scented Buckler- fern	species	LC	LC		Ν	
Dryopteris carthusiana	Narrow Buckler-fern	species	LC	LC		Ν	
Elatine hexandra	Six-stamened Waterwort	species	LC	LC		Ν	
Eleocharis acicularis	Needle Spike-rush	species	LC	NT		Ν	
Eleocharis parvula	Dwarf Spike-rush	species	LC	EN	NR	Ν	
Eleocharis quinqueflora	Few-flowered Spike- rush	species	LC	LC		N	
Eleocharis uniglumis	Slender Spike-rush	species	LC	LC		Ν	
Eleogiton fluitans	Floating Club-rush	species	LC	LC		Ν	
Elytrigia atherica	Sea Couch	species	LC	LC		Ν	
Elytrigia juncea	Sand Couch	species	LC	LC		Ν	
Empetrum nigrum	Crowberry	species	LC	LC		Ν	
Epipactis palustris	Marsh Helleborine	species	LC	NT		Ν	
Equisetum sylvaticum	Wood Horsetail	species	LC	LC		Ν	
Equisetum variegatum	Variegated Horsetail	species	LC	LC	NS	Ν	
Erigeron acris	Blue Fleabane	species	LC	LC		Ν	
Eriophorum latifolium	Broad-leaved Cottongrass	species	LC	LC		Ν	
Erodium maritimum	Sea Stork's-bill	species	LC	LC		Ν	
Erodium moschatum	Musk Stork's-bill	species	LC	LC		AR	
Ervilia sylvatica	Wood Vetch	species	LC	LC		Ν	Vicia sylvatica
Ervum gracile	Slender Tare	species	VU	VU	NS	Ν	Vicia parviflora
Eryngium campestre	Field Eryngo	species	NT	NT	NR	AR	
Eryngium maritimum	Sea-holly	species	LC	NT		Ν	
Euphorbia exigua	Dwarf Spurge	species	VU	VU		AR	
Euphorbia hyberna	Irish Spurge	species	VU	VU	NR	Ν	
Euphorbia paralias	Sea Spurge	species	LC	LC		Ν	



Euphorbia portlandica	Portland Spurge	species	LC	LC		Ν	
Euphrasia arctica subsp. borealis	Eyebright	subspecies	NT	DD,VU		N	
Euphrasia confusa	Confused Eyebright	species	VU	VU		Ν	
Euphrasia micrantha	Slender Eyebright	species	VU	EN		Ν	
Euphrasia officinalis subsp. anglica	Eyebright	subspecies	EN,LC	EN,LC		N,NE	
Euphrasia pseudokerneri	Chalk Eyebright	species	VU	VU	NS	NE	
Euphrasia tetraquetra	Western Eyebright	species	LC,NT	LC,NT		N	
Euphrasia vigursii	Cornish Eyebright	species	EN	EN	NR	NE	
Festuca arenaria	Rush-leaved Fescue	species	LC	LC	NS	Ν	
Festuca filiformis	Fine-leaved Sheep's- fescue	species	LC	LC		N	
Filago minima	Small Cudweed	species	LC	NT		Ν	
Filago vulgaris	Common Cudweed	species	NT	NT		Ν	
Filipendula vulgaris	Dropwort	species	LC	LC		Ν	
Frankenia laevis	Sea-heath	species	NT	NT	NS	N	
Fumaria bastardii	Tall Ramping-Fumitory	species	LC	LC		N	
Fumaria capreolata	White Ramping- Fumitory	species	LC	LC		N	
Fumaria purpurea	Purple Ramping- fumitory	species	LC	VU	NS	NE	
Galatella linosyris	Goldilocks Aster	species	VU	EN	NR	N	Aster linosyris
Galeopsis angustifolia	Red Hemp-nettle	species	CR	CR	NS	AR	
Galeopsis speciosa	Large-flowered Hemp- nettle	species	VU	VU		AR	
Galium constrictum	Slender Marsh-bedstraw	species	LC	LC	NR	N	
Galium parisiense	Wall Bedstraw	species	VU	VU	NS	NA	
Gastridium ventricosum	Nit-grass	species	LC	LC	NS	NA	
Genista anglica	Petty Whin	species	NT	VU		N	
Genista tinctoria	Dyer's Greenweed	species	LC	LC,VU	NR	Ν	



	Autumn Gentian, Early	_					
Gentianella amarella	Gentian	species	LC,VU	NT,WL		N,NE	
Gentianella anglica	Early Gentian	species	VU	WL		NE	
Gentianella campestris	Field Gentian	species	VU	EN		N	
Geranium purpureum	Little-Robin	species	LC	LC	NS	N	
Geranium rotundifolium	Round-leaved Crane's- bill	species	LC	LC		N	
Geranium sanguineum	Bloody Crane's-bill	species	LC	NT		N	
Geum rivale	Water Avens	species	LC	LC		N	
Glaucium flavum	Yellow Horned-poppy	species	LC	NT		N	
Glebionis segetum	Corn Marigold	species	VU	VU		AR	
Glyceria maxima	Reed Sweet-grass	species	LC	LC		Ν	
Gnaphalium sylvaticum	Heath Cudweed	species	EN	EN		Ν	
Groenlandia densa	Opposite-leaved Pondweed	species	VU	VU		N	
Gymnadenia conopsea s.l.	Fragrant-orchid	species	DD,LC	DD,LC			
Gymnadenia densiflora	Marsh Fragrant-orchid	species	DD,LC	DD,LC			
Hammarbya paludosa	Bog Orchid	species	LC	VU		Ν	
Helianthemum apenninum	White Rock-rose	species	VU	VU	NR	N	
Helianthemum nummularium	Common Rock-rose	species	LC	NT		N	
Helleborus viridis	Green Hellebore	species	LC	LC		NA	
Hippocrepis comosa	Horseshoe Vetch	species	LC	LC		N	
Hippuris vulgaris	Mare's-tail	species	LC	LC		Ν	
Honckenya peploides	Sea Sandwort	species	LC	LC		Ν	
Hordeum marinum	Sea Barley	species	VU	VU	NS	Ν	
Hordeum secalinum	Meadow Barley	species	LC	LC		Ν	
Huperzia selago	Fir Clubmoss	species	LC	LC		Ν	



Hydrocharis morsus-ranae	Frogbit	species	VU	VU		Ν	
Hylotelephium telephium	Orpine	species	LC	LC		Ν	Sedum telephium
Hymenophyllum tunbrigense	Tunbridge Filmy-fern	species	LC	LC		Ν	
Hymenophyllum wilsonii	Wilson's Filmy-fern	species	NT	LC		Ν	
Hyoscyamus niger	Henbane	species	VU	VU		AR	
Hypericum linariifolium	Toadflax-leaved St John's-wort	species	NT	LC	NR	Ν	
Hypericum maculatum	Imperforate St John's- wort	species	LC	LC		Ν	
Hypericum montanum	Pale St John's-wort	species	NT	LC		Ν	
Hypericum undulatum	Wavy St John's-wort	species	LC	LC	NS	Ν	
Hypochaeris glabra	Smooth Cat's-ear	species	VU	VU		Ν	
Hypopitys monotropa subsp.	Vollow Pird'a post	aubanasias			NG	N	Manatrona humanitua aukan humankaraa
		SUDSDECIES				IN	Monoliopa hypopilys subsp. hypopilegea
	Goldon samphira	species			NIC	N	
Inula crithmoides	Golden-samphire	species	LC	LC	NS	N	
Inula crithmoides Isoetes echinospora	Golden-samphire Spring Quillwort	species species			NS	N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris	Golden-samphire Spring Quillwort Quillwort	species species species	LC LC LC	LC LC LC	NS	N N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua	Golden-samphire Spring Quillwort Quillwort Slender Club-rush	species species species species	LC LC LC LC	LC LC LC LC	NS	N N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus	Golden-samphire Spring Quillwort Quillwort Slender Club-rush Sharp Rush	species species species species species	LC LC LC LC LC	LC LC LC LC LC	NS NS	N N N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus Juncus compressus	Golden-samphire Spring Quillwort Quillwort Slender Club-rush Sharp Rush Round-fruited Rush	species species species species species species	LC LC LC LC LC VU	LC LC LC LC LC LC VU	NS	N N N N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus Juncus compressus Juncus gerardii	Golden-samphire Spring Quillwort Quillwort Slender Club-rush Sharp Rush Round-fruited Rush Saltmarsh Rush	species species species species species species species	LC LC LC LC LC VU LC	LC LC LC LC LC LC VU LC	NS	N N N N N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus Juncus compressus Juncus gerardii Juncus maritimus	Golden-samphire Spring Quillwort Quillwort Slender Club-rush Sharp Rush Round-fruited Rush Saltmarsh Rush Sea Rush	species species species species species species species species	LC LC LC LC LC VU LC LC	LC LC LC LC LC LC VU LC LC	NS NS	N N N N N N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus Juncus compressus Juncus gerardii Juncus maritimus Juncus subnodulosus	Golden-samphire         Spring Quillwort         Quillwort         Slender Club-rush         Sharp Rush         Round-fruited Rush         Saltmarsh Rush         Sea Rush         Blunt-flowered Rush	species species species species species species species species species	LC LC LC LC LC LC LC LC LC	LC LC LC LC LC LC LC LC LC	NS NS	N N N N N N N N	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus Juncus compressus Juncus gerardii Juncus maritimus Juncus subnodulosus Kickxia elatine	Golden-samphire         Spring Quillwort         Quillwort         Slender Club-rush         Sharp Rush         Round-fruited Rush         Saltmarsh Rush         Sea Rush         Blunt-flowered Rush         Sharp-leaved Fluellen	species species species species species species species species species species	LC LC LC LC LC VU LC LC LC LC	LC LC LC LC LC LC VU LC LC LC LC	NS NS	N N N N N N N N AR	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus Juncus compressus Juncus gerardii Juncus maritimus Juncus subnodulosus Kickxia elatine Kickxia spuria	Golden-samphire         Spring Quillwort         Quillwort         Slender Club-rush         Sharp Rush         Round-fruited Rush         Saltmarsh Rush         Sea Rush         Blunt-flowered Rush         Sharp-leaved Fluellen         Round-leaved Fluellen	species species species species species species species species species species species	LC LC LC LC LC LC LC LC LC LC	LC LC LC LC LC LC LC LC LC LC LC	NS NS	N N N N N N N AR AR	
Inula crithmoides Isoetes echinospora Isoetes lacustris Isolepis cernua Juncus acutus Juncus compressus Juncus gerardii Juncus maritimus Juncus subnodulosus Kickxia elatine Kickxia spuria Koeleria macrantha s.l.	Golden-samphire         Spring Quillwort         Quillwort         Slender Club-rush         Sharp Rush         Round-fruited Rush         Saltmarsh Rush         Sea Rush         Blunt-flowered Rush         Sharp-leaved Fluellen         Round-leaved Fluellen         Crested Hair-grass	species species species species species species species species species species species species	LC LC LC LC LC LC LC LC LC LC LC	LC LC LC LC LC LC LC LC LC LC LC	NS NS	N N N N N N N AR AR AR	



Lamium amplexicaule	Henbit Dead-nettle	species	LC	LC		AR	
Lamium hybridum	Cut-leaved Dead-nettle	species	LC	LC		AR	
Lathraea squamaria	Toothwort	species	LC	LC		Ν	
Lathyrus aphaca	Yellow Vetchling	species	VU	VU	NS	NA	
Lathyrus japonicus	Sea Pea	species	LC	LC	NS	Ν	
Lathyrus nissolia	Grass Vetchling	species	LC	LC		Ν	
Legousia hybrida	Venus's-looking-glass	species	LC	LC		AR	
Lemna gibba	Fat Duckweed	species	LC	LC		N	
Lemna trisulca	Ivy-leaved Duckweed	species	LC	LC		Ν	
Leucojum aestivum	Summer Snowflake	species		LC	NS	Ν	
Leymus arenarius	Lyme-grass	species	LC	LC		Ν	
	Rock Sea-Lavender agg.,Tall Sea- lavender,Western Sea-						
Limonium binervosum agg.	lavender	species	LC	LC,WL		N,NE	
Limonium vulgare	Common Sea-lavender	species	LC	NT		N	
Linaria repens	Pale Toadflax	species	LC	LC		AR	
Linaria supina	Prostrate Toadflax	species					
Liparis loeselii	Fen Orchid	species	EN	EN	NR	N	
Lithospermum arvense	Field Gromwell	species	EN	EN		AR	
Lithospermum officinale	Common Gromwell	species	LC	LC		Ν	
Lithospermum purpureocaeruleum	Purple Gromwell	species	LC	LC	NR	N	
Littorella uniflora	Shoreweed	species	LC	LC		Ν	
Lobelia urens	Heath Lobelia	species	VU	VU	NR	Ν	
Lotus angustissimus	Slender Bird's-foot- trefoil	species	NT	NT	NS	N	
Lotus subbiflorus	Hairy Bird's-foot-trefoil	species	LC	LC	NS	N	
Lotus tenuis	Narrow-leaved Bird's- foot-trefoil	species	LC	LC		N	Lotus glaber
Lycopodiella inundata	Marsh Clubmoss	species	EN	EN	NS	Ν	



Lycopodium clavatum	Stag's-horn Clubmoss	species	LC	VU		Ν	
Lysimachia vulgaris	Yellow Loosestrife	species	LC	LC		Ν	
Malva arborea	Tree-mallow	species	LC	LC		Ν	Lavatera arborea
Marrubium vulgare	White Horehound	species	LC	LC	NS	Ν	
Matthiola incana	Hoary Stock	species				AN	
Matthiola sinuata	Sea Stock	species	VU	VU	NR	NA	
Medicago polymorpha	Toothed Medick	species	LC	LC	NS	Ν	
Melittis melissophyllum	Bastard Balm	species	VU	VU	NS	Ν	
Mentha pulegium	Pennyroyal	species	EN	CR	NS	Ν	
Mentha suaveolens	Round-leaved Mint	species	DD	NT	NS	Ν	
Minuartia hybrida	Fine-leaved Sandwort	species		EN	NS	Ν	
Misopates orontium	Weasel's-snout	species	VU	VU		AR	
Moenchia erecta	Upright Chickweed	species	LC	VU		Ν	
Myosoton aquaticum	Water Chickweed	species	LC	LC		Ν	
Myosurus minimus	Mousetail	species	VU	VU		NA	
Myrica gale	Bog-myrtle	species	LC	NT		Ν	
Myriophyllum alterniflorum	Alternate Water-milfoil	species	LC	LC		N	
Myriophyllum spicatum	Spiked Water-milfoil	species	LC	LC		Ν	
Neotinea ustulata	Burnt Orchid	species	EN	EN	NS	Ν	Orchis ustulata
Neottia cordata	Lesser Twayblade	species	LC	LC		Ν	Listera cordata
Neottia nidus-avis	Bird's-nest Orchid	species	NT	VU		Ν	
Nuphar lutea	Yellow Water-lily	species	LC	LC		Ν	
Nymphaea alba	White Water-Lily	species	LC	LC		Ν	
Oenanthe fistulosa	Tubular Water-dropwort	species	VU	VU		Ν	
Oenanthe lachenalii	Parsley Water-dropwort	species	LC	NT		Ν	
Oenanthe pimpinelloides	Corky-fruited Water- dropwort	species	LC	LC		N	
Ononis reclinata	Small Restharrow	species	LC	VU	NR	Ν	
Ononis spinosa	Spiny Restharrow	species	LC	NT		Ν	



Onopordum acanthium	Cotton Thistle	species	LC	LC		AR	
Ophioglossum azoricum	Small Adder's-tongue	species	LC	LC	NS	Ν	
Ophioglossum vulgatum	Adder's-tongue	species	LC	LC		Ν	
Ophrys apifera	Bee Orchid	species	LC	LC		Ν	
Ophrys insectifera	Fly Orchid	species	VU	VU		Ν	
Ornithogalum pyrenaicum	Spiked Star-of- Bethlehem	species	LC	LC	NS	N	
Orobanche hederae	Ivy Broomrape	species	LC	LC		Ν	
Orobanche minor	Common Broomrape	species	LC	LC		Ν	
Orobanche rapum-genistae	Greater Broomrape	species	NT	VU	NS	N	
Osmunda regalis	Royal Fern	species	LC	LC		N	
Papaver lecoqii	Yellow-juiced Poppy	species	LC	LC			Papaver dubium subsp. lecoqii
Parapholis strigosa	Hard-grass	species	LC	LC		N	
Parentucellia viscosa	Yellow Bartsia	species	LC	LC		Ν	
Paris quadrifolia	Herb-paris	species	LC	LC		Ν	
Persicaria minor	Small Water-pepper	species	VU	LC		Ν	
Persicaria mitis	Tasteless Water-pepper	species	VU	VU	NS	Ν	
Petrosedum forsterianum	Rock Stonecrop	species	LC	LC	NS	Ν	Sedum forsterianum
Petroselinum crispum	Garden Parsley	species	LC	LC		AR	
Petroselinum segetum	Corn Parsley	species	LC	LC		Ν	
Phegopteris connectilis	Beech Fern	species	LC	LC		Ν	
Phleum arenarium	Sand Cat's-tail	species	LC	NT		Ν	
Physospermum cornubiense	Bladderseed	species	LC	LC	NR	Ν	
Pilularia globulifera	Pillwort	species	NT	VU	NS	Ν	
Plantago media	Hoary Plantain	species	LC	NT		Ν	
Platanthera bifolia	Lesser Butterfly-orchid	species	VU	EN		Ν	
Platanthera chlorantha	Greater Butterfly-orchid	species	NT	LC		Ν	
Poa angustifolia	Narrow-leaved Meadow-	species	LC	LC		Ν	



	grass						
Poa bulbosa	Bulbous Meadow-grass	species	LC	LC	NS	Ν	
Poa infirma	Early Meadow-grass	species	LC	LC	NS	Ν	
Polycarpon tetraphyllum	Four-leaved Allseed	species	LC	LC	NR	NA	
Polygonatum multiflorum	Solomon's-seal	species	LC	LC		N	
Polygonum oxyspermum	Ray's Knotgrass	species	LC	LC		Ν	
Polypodium cambricum	Southern Polypody	species	LC	LC		Ν	
Populus nigra subsp. betulifolia	Black-poplar	subspecies	LC	LC		Ν	
Potamogeton alpinus	Red Pondweed	species	LC	VU		Ν	
Potamogeton berchtoldii	Small Pondweed	species	LC	LC		Ν	
Potamogeton coloratus	Fen Pondweed	species	LC	LC	NS	Ν	
Potamogeton crispus	Curled Pondweed	species	LC	LC		Ν	
Potamogeton lucens	Shining Pondweed	species	LC	LC		Ν	
Potamogeton obtusifolius	Blunt-leaved Pondweed	species	LC	LC		Ν	
Potamogeton pectinatus	Fennel Pondweed	species	LC	LC		Ν	
				1.0			
Potamogeton perfoliatus	Perfoliate Pondweed	species	LC	LC		N	
Potamogeton pusillus	Lesser Pondweed	species	LC	LC		Ν	
Potentilla argentea	Hoary Cinquefoil	species	NT	NT		Ν	
Primula veris	Cowslip	species	LC	LC		Ν	
	Reflexed Saltmarsh-						
Puccinellia distans	grass	species	LC	LC		Ν	
	Borrer's Saltmarsh-						
Puccinellia fasciculata	grass	species	NT	NT	NS	N	
Puccipollia maritima	Common Saitmarsh-	spacias				N	
		species					-
Puccinellia rupestris	Stiff Saltmarsh-grass	species	LC	LC	NS	N	



Pyrola rotundifolia subsp.	Round-leaved						
maritima	Wintergreen	subspecies	LC	LC	NS	N	
Pyrus cordata	Plymouth pear	species	EN	EN	NR	NA	
Radiola linoides	Allseed	species	NT	VU		Ν	
	Common Water-						
	crowfoot,Pond Water-						
	crowfoot Thread-leaved						
Ranunculus aquatilis s.l.	Water-crowfoot	species	LC	LC	NS	Ν	
Ranunculus arvensis	Corn Buttercup	species	CR	EN		AR	
Ranunculus auricomus	Goldilocks Buttercup	species	LC	LC		Ν	
Ranunculus baudotii	Brackish Water-crowfoot	species	LC	LC		N	
	Fan-leaved Water-						
Ranunculus circinatus	crowfoot	species	LC	LC		N	
Ranunculus fluitans	River Water-crowfoot	species	LC	LC		N	
Ranunculus omiophyllus	Round-leaved Crowfoot	species	LC	LC		N	
D / //	Small-flowered						
Ranunculus parviflorus	Buttercup	species	LC	LC		N	
Ranunculus peltatus	Pond Water-crowfoot	species	LC	LC		N	
Ranunculus penicillatus	Stream Water-crowfoot	species	LC	LC	NS	N	
Ranunculus sardous	Hairy Buttercup	species	LC	LC		NA	
	Thread-leaved Water-						
Ranunculus trichophyllus	crowfoot	species	LC	LC		N	
Ranunculus tripartitus	Three-lobed Crowfoot	species	EN	EN	NS	N	
Reseda lutea	Wild Mignonette	species	LC	LC		NA	
Rhamnus cathartica	Buckthorn	species	LC	LC		Ν	
Rhynchospora alba	White Beak-sedge	species	LC	NT		Ν	
Rhynchospora fusca	Brown Beak-sedge	species	LC	LC	NS	Ν	
Roemeria argemone	Prickly Poppy	species	VU	EN		AR	Papaver argemone
Roemeria hispida	Rough Poppy	species	LC	LC		AR	Papaver hybridum
Romulea columnae	Sand Crocus	species	VU	VU	NR	Ν	



Rorippa amphibia							
Doop ograatie	Small-leaved Sweet-		NT	NT	NC	NI	
Rosa agrestis	Small-flowered Sweet-	species		INT	INS	IN	
Rosa micrantha	briar	species	LC	LC		Ν	
Rosa rubiginosa agg.	Sweet-briar	species	LC	LC		Ν	
Rosa spinosissima	Burnet Rose	species	LC	LC		Ν	Rosa pimpinellifolia
Rubus saxatilis	Stone Bramble	species	LC	LC		Ν	
Rumex hydrolapathum	Water Dock	species	LC	LC		Ν	
Rumex maritimus	Golden Dock	species	LC	LC		Ν	
Rumex rupestris	Shore Dock	species	EN	VU	NS	Ν	
Ruppia maritima	Beaked Tasselweed	species	LC	NT		Ν	
Sagina maritima	Sea Pearlwort	species	LC	LC		Ν	
Sagina nodosa	Knotted Pearlwort	species	LC	VU		Ν	
Sagina subulata	Heath Pearlwort	species	LC	NT		Ν	
Sagittaria sagittifolia	Arrowhead	species	LC	LC		Ν	
Salicornia agg.	Glasswort	species	LC	LC		Ν	
Salix triandra	Almond Willow	species	LC	LC		AR	
Salsola kali subsp. kali	Prickly Saltwort	subspecies	VU	LC		Ν	
Salvia verbenaca	Wild Clary	species	LC	NT		Ν	
Sambucus ebulus	Dwarf Elder	species	LC	LC		AR	
Samolus valerandi	Brookweed	species	LC	LC		Ν	
Sanguisorba officinalis	Great Burnet	species	LC	LC		Ν	
Saxifraga granulata	Meadow Saxifrage	species	LC	LC		Ν	
Scabiosa columbaria	Small Scabious	species	LC	LC		Ν	
Scandix pecten-veneris	Shepherd's-needle	species	CR	EN		AR	
Schoenoplectus lacustris	Common Club-rush	species	LC	LC		Ν	
Schoenoplectus tabernaemontani	Grey Club-rush	species	LC	LC		Ν	
Schoenoplectus triqueter	Triangular Club-rush	species	CR	CR	NR	Ν	



Sahaanua nigriaana	Diack Dag with	anasiaa				NI	
	Black Bog-rush	species	LC			IN	
Scilla autumnalis	Autumn Squill	species	LC	LC	NS	N	
Scilla verna	Spring Squill	species	LC	LC		N	
Scirpoides boloschoenus	Round-headed Club-	species	VII	VII	NR	N	
Seirpula sylvatious	Wood Club rush	apocios				N	
		species					
Scleranthus annuus	Annual Knawel	species	EN	EN		N	
Scleranthus annuus subsp.		subspecies	EN	EN		N	
		subspecies			NO		
	Baim-leaved Figwort	species			NO NO	AN	
Sibtnorpia europaea		species	LC	LC	NS	N	
Silaum silaus	Pepper-saxifrage	species	LC	LC		N	
Silene gallica	Small-flowered Catchfly	species	EN	EN	NS	AR	
Silene noctiflora	Night-flowering Catchfly	species	VU	VU		AR	
Silene nutans	Nottingham Catchfly	species	NT	NT	NS	Ν	
Silybum marianum	Milk Thistle	species	LC	LC		AR	
Sorbus anglica	English Whitebeam	species	NT	VU	NR	NE	
Sorbus devoniensis	Devon Whitebeam	species	VU	LC	NS	NE	
Sorbus porrigentiformis	Grey-leaved Whitebeam	species	VU	LC	NS	N,NE	
Sorbus rupicola	Rock Whitebeam	species	LC	LC	NS	Ν	
Sorbus subcuneata	Somerset Whitebeam	species	EN	VU	NR	NE	
Sorbus torminalis	Wild Service-tree	species	LC	LC		N	
Sorbus vexans s.s.	Bloody Whitebeam	species	CR				
Sparganium emersum	Unbranched Bur-reed	species	LC	LC		N	
Spartina anglica	Common Cord-grass	species	LC	LC		NE	
Spartina maritima	Small Cord-grass	species	EN	EN	NS	Ν	
Spergula arvensis	Corn Spurrey	species	VU	VU		Ν	
Spergularia marina	Lesser Sea-spurrey	species	LC	LC		Ν	
Spergularia media	Greater Sea-spurrey	species	LC	LC		Ν	



Spiranthes romanzoffiana	Irish Lady's-tresses	species	LC	RE	NS	Ν	
Spiranthes spiralis	Autumn Lady's-tresses	species	NT	NT		Ν	
Spirodela polyrhiza	Greater Duckweed	species	LC	LC		Ν	
Stachys arvensis	Field Woundwort	species	NT	NT		AR	
Stellaria nemorum	Wood Stitchwort	species	LC	LC		Ν	
Stellaria pallida	Lesser Chickweed	species	LC	LC		Ν	
Suaeda maritima	Annual Sea-blite	species	LC	LC		Ν	
Teesdalia nudicaulis	Shepherd's Cress	species	NT	NT		Ν	
Teucrium scordium	Water Germander	species	EN	EN	NR	Ν	
Thalictrum flavum	Common Meadow-rue	species	LC	LC		Ν	
Thalictrum minus	Lesser Meadow-rue	species	LC	LC		Ν	
Thelypteris palustris	Marsh Fern	species	LC	LC	NS	Ν	
Tilia cordata	Small-leaved Lime	species	LC	LC		Ν	
	Spreading Hedge-						
I orilis arvensis	parsley	species		EN	NS	AR	
Torilis nodosa	Knotted Hedge-parsley	species	LC	LC		N	
Trichophorum germanicum	Deergrass	species	LC	LC			Trichophorum cespitosum subsp. cespitosum
Trifolium fragiferum	Strawberry Clover	species	VU	VU		Ν	
Trifolium glomeratum	Clustered Clover	species	LC	LC	NS	Ν	
Trifolium incarnatum subsp.							
molinerii	Long-headed Clover	subspecies	LC	LC	NR	N	
Trifolium occidentale	Western Clover	species	LC	LC	NS	Ν	
Trifolium ornithopodioides	Bird's-foot Clover	species	LC	LC		Ν	
Trifolium scabrum	Rough Clover	species	LC	LC		Ν	
Trifolium squamosum	Sea Clover	species	LC	LC	NS	Ν	
Trifolium striatum	Knotted Clover	species	LC	LC		Ν	
Trifolium suffocatum	Suffocated Clover	species	LC	LC	NS	Ν	



Triglochin palustris	Marsh Arrowgrass	species	LC	NT		Ν	
Trinia glauca	Honewort	species	LC	LC	NR	Ν	
Tripolium pannonicum	Sea Aster	species	LC	LC		Ν	Aster tripolium
Typha angustifolia	Lesser Bulrush	species	LC	LC		Ν	
Llimus minor subsp. angustifolia	Smooth-leaved Flm	subspecies	IC	I C		N	
I Itricularia australis	Bladderwort	species				N	
Valeriana dioica	Marsh Valerian	species				N	
Valerianella dentata	Narrow-fruited Cornsalad	species	EN	EN		AR	
Valerianella eriocarpa	Hairy-fruited Cornsalad	species	LC	LC	NR	AN	
Valerianella rimosa	Broad-fruited Cornsalad	species	EN	EN	NS	AR	
Verbascum lychnitis	White Mullein	species	LC	LC	NS	Ν	
Verbascum nigrum	Dark Mullein	species	LC	LC		Ν	
Verbascum virgatum	Twiggy Mullein	species				AN	
Veronica anagallis-aquatica	Blue Water-Speedwell	species	LC	LC		Ν	
Veronica catenata	Pink Water-Speedwell	species	LC	LC		Ν	
Vicia bithynica	Bithynian Vetch	species	VU	LC	NS	Ν	
Vicia lutea	Yellow-vetch	species	NT	VU	NS	Ν	
Vicia orobus	Wood Bitter-vetch	species	NT	VU	NS	Ν	
Viola canina	Heath Dog-violet	species	NT	VU		Ν	
Viola canina subsp. canina	Heath Dog-violet	subspecies	NT	VU		Ν	
Viola lactea	Pale Dog-violet	species	VU	EN	NS	Ν	
Viola tricolor	Seaside Pansy, Wild Pansy	species	LC,NT	NT		N	
Viola tricolor subsp. tricolor	Wild Pansy	subspecies	NT	NT		N	
Vulpia ciliata subsp. ambigua	Purple Fescue	subspecies	LC	LC	NS	Ν	
Vulpia fasciculata	Dune Fescue	species	LC	LC	NS	Ν	
Vulpia myuros	Rat's-tail Fescue	species	LC	LC		AR	



Wahlenbergia hederacea	Ivy-leaved Bellflower	species	NT	NT		Ν	
Zannichellia palustris	Horned Pondweed	species	LC	LC		Ν	
Zostera marina	Eelgrass	species	NT	VU		Ν	
Zostera marina var. stenophylla	Eelgrass	var.	NT	VU		Ν	
Zostera noltei	Dwarf Eelgrass	species	VU	VU	NS	Ν	

<sup>1</sup> scientific and common names based on Stace 2019

### <sup>2</sup>'Red Data' categories according to Cheffings and Farrel (2005 [revised 2021]) and Stroh et. al. (2014)

- CR Critically endangered (Red Data Book 1) facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E. Red listing based on 2001 IUCN guidelines.
- EN Endangered (Red Data Book 2) not Critically endangered but is facing a very high risk of extinction in the wild in the near future. Red listing based on 2001 IUCN guidelines.
- VU Vulnerable (Red Data Book 3) not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future. Red listing based on 2001 IUCN guidelines.
- DD Data deficient
- LC Least concern
- NT Near threatened
- WL Waiting list

#### <sup>3</sup>Key to National status:

NR Nationally rare:

#### Appendix 8 – Notable Plant Species in Devon



- 1-15 10 km squares in the Atlas of British Flora, 1962
- NS Nationally scarce: 15-100 10km squares in the Atlas of British Flora, 1962

#### <sup>5</sup>Native status:

- N Native (colonised British Isles by natural means, usually long ago and from other native areas)
- NE Native endemic (confined to British Isles)
- N, NE Native near-endemic (marginally present elsewhere)
- AR Archaeophyte (naturalised alien species introduced by humans before AD1500).
- AN Neophyte (naturalised alien species introduced by humans since AD1500).
- NA Native status doubtful (native or alien)

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#### Appendix 8 – Notable Plant Species in Devon



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### Appendix 9 – Species rarity scores for breeding bird assemblages

Grou	p definition	Species	Score
1	Less than 20 breeding pairs or less than 5 sites in Devon	Common Sandpiper, Curlew, Dunlin, Gadwall, Grey Partridge, Hawfinch, Kittiwake, Lapwing, Lesser Spotted Woodpecker, Little Ringed Plover, Manx Shearwater, Puffin, Razorbill, Ring Ouzel, Shoveler, Teal, Turtle Dove	12
2	20-50 breeding pairs or 5-20 sites in Devon	Crossbill, Firecrest, Goosander, Goshawk, Great Crested Grebe, Greylag Goose, Guillemot, Lesser Whitethroat, Little Egret, Little Grebe, Little Owl, Mandarin, Oystercatcher, Red Grouse, Tufted Duck, Water Rail, Wood Warbler, Woodlark.	6
3	50-100 breeding pairs or 20-50 sites in Devon	Cetti's Warbler, Cuckoo, Hobby, Mute Swan, Peregrine, Willow Tit.	4
4	100-500 breeding pairs in Devon	Barn Owl, Coot, Cormorant, Fulmar, Grasshopper Warbler, Grey Heron, Great Black-backed Gull, Kestrel, Kingfisher, Lesser Black-backed Gull, Lesser Redpoll, Nightjar, Pied Flycatcher, Redstart, Sand Martin, Sedge Warbler, Shag, Shelduck, Snipe, Tree Pipit, Wheatear, Whinchat, Dartford Warbler	3
5	500-1000 breeding pairs in Devon or recorded in a mean of less than 10% of Breeding Bird Survey 1km squares in Devon	Dipper, Green Woodpecker, Marsh Tit, Moorhen, Reed Bunting, Reed Warbler, Rock Pipit, Siskin, Spotted Flycatcher, Stonechat.	2
6	Red List species recorded in a mean of at least 10% of Breeding Bird Survey 1km squares in Devon	Greenfinch, Herring Gull, House Martin, House Sparrow, Linnet, Mistle Thrush, Skylark, Swift, Starling, Willow Warbler, Yellowhammer.	1
7	Amber List species recorded in a mean of at least 10% of Breeding Bird Survey 1km squares in Devon	Bullfinch, Common Whitethroat, Dunnock, Grey Wagtail, Mallard, Meadow Pipit, Rook, Song Thrush, Sparrowhawk, Stock Dove, Swallow, Tawny Owl, Water Pipit, Willow Warbler, Wood pigeon, Wren	1 for 4 species

### Appendix 10 – Non-breeding populations for selected species



### Appendix 10 – Non-breeding populations for selected species

<u>Species</u>	British	0.5% British	0.1% British	Devon	10% Devon	5% Devon
	Non-breeding	Non-breeding	Non-breeding	Non-breeding	Non-breeding	Non-breeding
	Population	Population	Population	population	population	population
Mute Swan	50,500	253	51	450	45	23
Dark-bellied Brent Goose	105,000	525	105	2200	220	110
Shelduck	47,000	235	47	1,200	120	60
Mandarin	13,500	68	14	50	5	3
Wigeon	445,000	2225	445	6,000	600	300
Teal	430,000	2150	430	2,500	250	125
Mallard	665,000	3325	665	5,000	500	250
Gadwall	31,000	155	31	120	12	6
Pintail	19,500	98	20	150	15	8
Shoveler	19,000	95	19	140	14	7
Pochard	23,000	115	23	50	5	3
Tufted Duck	130,000	650	130	400	40	20
Goldeneye	18,500	93	19	30	3	2
Red-breasted Merganser	10,500	53	11	100	10	5
Goosander	14,500	73	15	200	20	10
Little Grebe	15,000	75	15	150	15	8
Great Crested Grebe	16,500	83	17	100	10	5
Cormorant	62,000	310	62	500	50	25
Grey Heron	45,000	225	45	1,000	100	50
Little Egret	11,500	58	12	500	50	25
Cattle Egret				80	8	4
Spoonbill	300,000	1500	300	3,000	300	150
Moorhen	200,000	1000	200	700	70	35
Coot	50,500	253	51	450	45	23



### Cont.

<u>Species</u>	British	0.5% British	0.1% British	Devon	10% Devon	5% Devon
	Non-breeding	Non-breeding	Non-breeding	Non-breeding	Non-breeding	Non-breeding
	Population	Population	Population	population	population	population
Water Rail	1,000	5	1	100	10	5
Oystercatcher	285,000	1425	285	4000	400	200
Avocet	8,700	44	9	650	65	33
Ringed Plover	41,500	208	42	500	50	25
Golden Plover	400,000	2000	400	5,000	500	250
Grey Plover	33,500	168	34	500	50	25
Lapwing	620,000	3100	620	6,000	600	300
Knot	265,000	1325	265	150	15	8
Sanderling	20,000	100	20	250	25	13
Dunlin	345,000	1725	345	5,000	500	250
Purple Sandpiper	9,700	49	10	40	5*	2
Jack Snipe	100,000	500	100	50	5	3
Snipe	1,000,000	5000	1000	1,000	100	50
Woodcock	1,400,000	7000	1400	100	10	5
Black-tailed Godwit	39,000	195	39	1500	150	75
Bar-tailed Godwit	50,500	253	51	340	34	17
Whimbrel	3,530	18	4	200	20	10
Curlew	120,000	600	120	2,400	240	120
Redshank	94,500	473	95	1500	150	75
Greenshank	810	4	1	160	16	8
Green Sandpiper	290	1	1	10	5*	1
Common Sandpiper	52	1	1	12	5*	1
Turnstone	40,000	200	40	200	20	10
Mediterranean Gull	4,000	20	4	200	20	10
Black-headed Gull	2,200,000	11000	2200	35,000	3500	1750



Cont.						
<u>Species</u>	British Non-breeding Population	0.5% British Non-breeding Population	0.1% British Non-breeding Population	Devon Non-breeding population	10% Devon Non-breeding population	5% Devon Non-breeding population
Common Gull	700,000	3500	700	1,200	120	60
Lesser Black-backed Gull	120,000	600	120	1,200	120	60
Herring Gull	730,000	3650	730	8,000	80	40
Great Black-backed Gull	76,000	380	76	1,200	120	60
Sandwich Tern	12,500	63	13	325	33	17
Common Tern	9,600	48	10	120	12	6

\* An arbitrary minimum threshold of 5 is used for 10% of the Devon non-breeding population.

### Appendix 11 – Butterflies of County importance in the selection of County Wildlife Sites in Devon



1. Nationally rare species

Wood White Silver-studded Blue Adonis Blue Pearl Bordered Fritillary High Brown Fritillary Marsh Fritillary Heath Fritillary Grayling Brown Hairstreak Leptidea sinapis Plebejus argus Polyommatus bellargus Boloria euphrosyne Argynnis adippe Eurodryas aurinia Mellicta athalia Hipparchia semele Thecla betulae

2. Species which have suffered substantial local declines

Dingy Skipper Grizzled Skipper White Letter Hairstreak Small Blue Chalk-hill Blue Small Pearl-bordered Fritillary White Admiral Erynnis tages Pyrgus malvae Satyrium w-album Cupido minimus Polyommatus coridon Boloria selene Limenitis camilla



### Appendix 12 – Dragonflies of County importance in the selection of County Wildlife Sites in Devon

### **Dragonflies of Couny importance:**





### **Non-Vascular Plants:**

**Liverworts:** (Listings based on 2001 IUCN guidelines and Bryophyte Red List British Bryological Society, 2005 + Preston, C.D. 2006. A revised list of nationally scarce bryophytes. Field Bryology 90: 22-30).

- NR Nationally Rare Rare and scarce species occurring in 15 or fewer hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- NS Nationally Scarce Rare and scarce species occurring in 16-100 hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- CE Red Data Book 1 Critically Endangered facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E. Red listing based on 2001 IUCN guidelines.
- E Red Data Book 2 Endangered not Critically endangered but is facing a very high risk of extinction in the wild in the near future. Red listing based on 2001 IUCN guidelines.
- V Red Data Book 3 Vulnerable not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future. Red listing based on 2001 IUCN guidelines.

Scientific Name	Common Name	Status
Acrobolbus wilsonii		NS
Adelanthus decipiens		NS
Adelanthus lindenbergianus		NR, E
Anastrophyllum alpinum		NR
Anastrophyllum donnianum		NS
Anastrophyllum hellerianum		NS
Anastrophyllum joergensenii		NR
Anastrophyllum saxicola		NR; V
Anthelia juratzkana		NS
Athalamia hyaline		NR; V
Barbilophozia kunzeana		NR; V
Barbilophozia lycopodioides		NS
Barbilophozia quadriloba		NR
Bazzania pearsonii		NS
Calypogeia azurea		NS
Calypogeia integristipula		NS
Calypogeia suecica		NS
Cephalozia ambigua		NR; V
Cephalozia catenulate		NS
Cephalozia loitlesbergeri		NS
Cephalozia macrostachya		NS
Cephalozia pleniceps		NS
Cephaloziella baumgartneri		NR; E
Cephaloziella calyculata		NR; V
Cephaloziella dentata		NR, CE



Cephaloziella elachista	NR
Cephaloziella integerrima	NR: V
Cephaloziella massalongi	NR
Cephaloziella nicholsonii	NS; V
Cephaloziella spinigera	NS
Cephaloziella stellulifera	NS
Cephaloziella turneri	NS
Cladopodiella francisci	NS
Cololejeunea rossettiana	NS
Cryptothallus mirabilis	NS
Diplophyllum taxifolium	NS
Dumortiera hirsuta	NR; V
Eremonotus myriocarpus	NS
Fossombronia angulosa	NS
Fossombronia caespitiformis	NS
Fossombronia fimbriata	NR
Fossombronia foveolata	NS
Fossombronia husnotii	NS
Fossombronia incurva	NS
Fossombronia maritima	NS
Geocalyx graveolens	NR; V
Gongylanthus ericetorum	NR
Gymnocolea acutiloba	NR; V
Gymnomitrion apiculatum	NR; V
Gymnomitrion corallioides	NR
Haplomitrium hookeri	NS
Harpanthus flotovianus	NS
Herbertus borealis	NR; V
Jamesoniella autumnalis	NS
Jamesoniella undulifolia	NR; E
Jungermannia borealis	NS
Jungermannia caespiticia	NR; V
Jungermannia confertissima	NS
Jungermannia leiantha	NR, CE
Jungermannia polaris	NR; V
Jungermannia subelliptica	NS
Leiocolea fitzgeraldiae	NR
Leiocolea gillmanii	NR
Leiocolea heterocolpos	NS
Leiocolea rutheana	NR; E
Lejeunea holtii	NR; V
Lejeunea mandonii	NR; E
Leptoscyphus cuneifolius	NS
Lophozia capitata	NS; E
Lophozia herzogiana	NR; V
Lophozia longidens	NS
Lophozia longiflora	NR, CE
Lophozia obtuse	NS



Lophozia opacifolia	NS
Lophozia perssonii	NR
Lophozia wenzelii	NR; V
Marsupella adusta	NS
Marsupella alpine	NS
Marsupella arctica	NR; V
Marsupella boeckii	NR; V
Marsupella brevissima	NS
Marsupella condensate	NR
Marsupella profunda	NR; V
Marsupella sparsifolia	NR; V
Marsupella sphacelata	NS
Marsupella stableri	NS
Mastigophora woodsii	NS
Moerckia blyttii	NS
Moerckia hibernica	NS
Nardia breidleri	NR
Nardia geoscyphus	NS
Nardia insecta	NR; V
Odontoschisma elongatum	NS
Odontoschisma macounii	NR; V
Pallavicinia Iyellii	NS
Pedinophyllum interruptum	NS
Petalophyllum ralfsii	NS
Plagiochila atlantica	NS
Plagiochila carringtonii	NS
Plagiochila norvegica	NR
Pleurocladula albescens	NS
Porella pinnata	NS
Radula carringtonii	NR; V
Radula voluta	NS
Riccardia incurvata	NS
Riccia beyrichiana	NS
Riccia bifurca	NR; E
Riccia canaliculata	NR; V
Riccia cavernosa	NS
Riccia huebeneriana	NS
Riccia nigrella	NR; E
Ricciocarpos natans	NS
Scapania aequiloba	NS
Scapania calcicola	NS
Scapania curta	NR
Scapania cuspiduligera	NS
Scapania degenii	NS
Scapania gymnostomophila	NR
Scapania lingulata	NS
Scapania nimbosa	NS
Scapania ornithopodioides	NS



Scapania paludicola	NR
Scapania paludosa	NR
Scapania parvifolia	NR
Scapania praetervisa	NR; V
Scapania uliginosa	NS
Southbya nigrella	NR; V
Southbya tophacea	NR; V
Sphaerocarpos michelii	NS
Sphaerocarpus texanus	NS; V
Sphenolobopsis pearsonii	NS
Targionia hypophylla	NS
Telaranea murphyae	V
Telaranea nematodes	NR; E
Tetralophozia setiformis	NS
Tritomaria exsecta	NS
Tritomaria polita	NS

**Mosses:** (Listings based on 2001 IUCN guidelines and Bryophyte Red List British Bryological Society, 2005 + Preston, C.D. 2006. A revised list of nationally scarce bryophytes. Field Bryology 90: 22-30).

- NR Nationally Rare Rare and scarce species occurring in 15 or fewer hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- NS Nationally Scarce Rare and scarce species occurring in 16-100 hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- CE Red Data Book 1 Critically Endangered facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E. Red listing based on 2001 IUCN guidelines.
- E Red Data Book 2 Endangered not Critically endangered but is facing a very high risk of extinction in the wild in the near future. Red listing based on 2001 IUCN guidelines.
- V Red Data Book 3 Vulnerable not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future. Red listing based on 2001 IUCN guidelines.
- WCA Legally Protected Mosses: Wildlife and Countryside Act 1981 Schedule 8 Plants which are protected from: intentional picking, uprooting or destruction; selling, offering for sale, possessing or transporting for the purpose of sale; advertising for buying or selling.

Scientific Name	Common Name	Status
Acaulon triquetrum		NR; E, WCA
Aloina ambigua		NS
Aloina brevirostris		NS
Aloina rigida		NS
Amblyodon dealbatus		NS
Amblystegium confervoides		NS



Amblystegium humile	NS
Amblystegium radicale	NR
Amphidium lapponicum	NS
Andreaea alpestris	NR
Andreaea blyttii	NR
Andreaea frigida	NR; V
Andreaea megistospora	NS
Andreaea mutabilis	NS
Andreaea nivalis	NS; V
Andreaea sinuosa	NR
Anomodon attenuatus	NR; CE
Anomodon longifolius	NR; E, WCA
Aongstroemia longipes	NR
Aplodon wormskjoldii	NR; CE
Arctoa fulvella	NS
Atrichum angustatum	NS; CE
Atrichum tenellum	NS
Aulacomnium turgidum	NS
Bartramia halleriana	NS
Bartramia stricta	NR; CE; WCA
Blindia caespiticia	NR; V
Brachydontium trichodes	NS
Brachythecium erythrorrhizon	NR
Brachythecium glaciale	NR
Brachythecium reflexum	NR
Brachythecium salebrosum	NS
Brachythecium starkei	NR; E
Brachythecium trachypodium	NR; CE
Bryoerythrophyllum caledonicum	NR
Bryum archangelicum	NR
Bryum arcticum	NR; V
Bryum calophyllum	NR; E
Bryum canariense	NS
Bryum creberrimum	NS
Bryum cyclophyllum	NR; E
Bryum dixonii	NS
Bryum dyffrynense	NR
Bryum elegans	NS
Bryum gemmilucens	NR
Bryum gemmiparum	NR, E
Bryum intermedium	NS
Bryum knowltonii	NR; V
Bryum kunzei	NR NR
Bryum mamillatum	WCA
Bryum marratii	NR; E
Bryum mildeanum	NS
Bryum muehlenbeckii	NR
Bryum neodamense	NR; WCA



Bryum pallescens	NS
Bryum riparium	NS
Bryum salinum	NR; E
Bryum schleicheri	NR; WCA
Bryum schleicheri var. latifolium	CE
Bryum tenuisetum	NS
Bryum torquescens	NS
Bryum uliginosum	NR; CE
Bryum warneum	NS; V
Bryum weigelii	NS
Buxbaumia aphylla	NS
Buxbaumia viridis	NR; E; WCA
Calliergon trifarium	NS
Campyliadelphus elodes	NS
Campylophyllum calcareum	NS
Campylophyllum halleri	NR; V
Campylopus pilifer	NS
Campylopus schimperi	NS
Campylopus setifolius	NS
Campylopus shawii	NS
Campylopus subulatus	NS
Campylostelium saxicola	NS
Catoscopium nigritum	NS
Ceratodon conicus	NR; CE
Cheilothela chloropus	NR; V
Cinclidium stygium	NS
Cinclidotus riparius	NR; V
Cirriphyllum cirrosum	NR; V
Conardia compacta	NS
Conostomum tetragonum	NS
Coscinodon cribrosus	NS
Cryphaea lamyana	NR; V; WCA
Ctenidium procerrimum	NR; V
Cyclodictyon laetevirens	NR;E; WCA
Cynodontium jenneri	NS
Cynodontium polycarpon	NR; V
Cynodontium strumiferum	NR
Cynodontium tenellum	NR; V
Daltonia splachnoides	NR; V
Dichodontium flavescens	NS
Dicranella crispa	NS
Dicranella grevilleana	NR; V
Dicranodontium asperulum	NS
Dicranodontium uncinatum	NS
Dicranoweisia crispula	NS
Dicranum bergeri	NS; V
Dicranum elongatum	NR; CE
Dicranum flagellare	NS



Dicranum leioneuron	NR
Dicranum polysetum	NS
Dicranum spurium	NS; V
Dicranum subporodictyon	NR
Didymodon acutus	NS
Didymodon cordatus	NR; E; WCA
Didymodon glaucus	NR; CE; WCA
Didymodon icmadophilus	NR
Didymodon mamillosus	NR
Didymodon tomaculosus	NS
Didymodon umbrosus	NS
Discelium nudum	NS
Distichium inclinatum	NS
Ditrichum cornubicum	NR; E; WCA
Ditrichum flexicaule	NS
Ditrichum lineare	NS
Ditrichum plumbicola	NR
Ditrichum pusillum	NS
Ditrichum subulatum	NR; V
Ditrichum zonatum	NS
Drepanocladus lycopodioides	NS
Drepanocladus sendtneri	NS
Drepanocladus vernicosus	WCA
Encalypta alpine	NS
Encalypta ciliata	NS
Encalypta rhaptocarpa	NS
Ephemerum cohaerens	NR; E
Ephemerum recurvifolium	NS
Ephemerum sessile	NS
Eurhynchium meridionale	NR; V
Eurhynchium pulchellum	NR
Eurhynchium pulchellum var.	E
diversifolium	
Eurhynchium striatulum	NS
Fissidens curvatus	NR; E
Fissidens limbatus	NS
Fissidens monguillonii	NR
Fissidens polyphyllus	NS
Fissidens rivularis	NS
Fissidens rufulus	NS
Fissidens serrulatus	NR; V
Funaria muhlenbergii	NS
Funaria pulchella	NR; V
Glyphomitrium daviesii	NS
Grimmia alpestris	NR; V
Grimmia arenaria	NR; V
Grimmia atrata	NS
Grimmia austrofunalis	NS


Grimmia crinita	NR; CE
Grimmia decipiens	NS
Grimmia dissimulata	NS
Grimmia elatior	NR; V
Grimmia elongata	NR; E
Grimmia incurva	NS
Grimmia laevigata	NS
Grimmia longirostris	NS
Grimmia montana	NS
Grimmia orbicularis	NS
Grimmia ovalis	NS
Grimmia retracta	NS
Grimmia tergestina	NR; V
Grimmia ungeri	NR; E
Grimmia unicolor	NR; V; WCA
Gymnostomum calcareum	NS
Gymnostomum viridulum	NS
Habrodon perpusillus	NS; E
Hamatocaulis vernicosus	NS
Hedwigia ciliata	NR
Hedwigia integrifolia	NS
Herzogiella seligeri	NS
Herzogiella striatella	NS
Heterocladium dimorphum	NR; V
Homomallium incurvatum	NR; CE
Hygrohypnum duriusculum	NS
Hygrohypnum molle	NR; V
Hygrohypnum polare	NR; E; WCA
Hygrohypnum smithii	NR; V
Hygrohypnum styriacum	NR; CE
Hylocomium pyrenaicum	NS
Hymenostylium insigne	NR
Hynum bambergeri	NR
Hypnum hamulosum	NS
Hypnum imponens	NS
Hypnum revolutum	NR; E
Hypnum vaucheri	NR; WCA
Isopterygiopsis muelleriana	NS
Kiaeria falcata	NS
Kiaeria glacialis	NS
Kiaeria starkei	NS
Leptobarbula berica	NS
Leptodontium gemmascens	NR; V
Meesia uliginosa	NS
Microbryum starckeanum	NS
Micromitrium tenerum	 NR; CE; WCA
Mielichhoferia elongata	NR; V
Mielichhoferia mielichhoferiana	 NR; E; WCA



Mnium ambiguum	NR; V
Mnium spinosum	NR
Mnium thomsonii	NS
Myrinia pulvinata	NS
Myurella julacea	NS
Myurella tenerrima	NR; E
Myurium hochstetteri	NS
Octodiceras fontanum	NS
Oedipodium griffithianum	NS
Oncophorus virens	NS
Oncophorus wahlenbergii	NR
Orthodontium gracile	NR; V
Orthothecium rufescens	NS
Orthotrichum gymnostomum	NR; V
Orthotrichum obtusifolium	NR; V; WCA
Orthotrichum pallens	NR; E
Orthotrichum pumilum	NR; E
Orthotrichum speciosum	NR
Palustriella decipiens	NR
Paraleptodontium recurvifolium	NS
Paraleucobryum longifolium	NR
Philonotis arnellii	NS
Philonotis caespitosa	NS
Philonotis cernua	NR; CE
Philonotis marchica	NR; E
Philonotis rigida	NS
Philonotis seriata	NS
Philonotis tomentella	NR
Physcomitrium eurystomum	NR; CE
Physcomitrium sphaericum	NR
Pictus scoticus	NR
Plagiobryum demissum	NR; E
Plagiomnium medium	NR
Plagiopus oederianus	NS
Plagiothecium cavifolium	NS
Plagiothecium laetum	NS
Plagiothecium piliferum	WCA
Plagiothecium platyphyllum	NS
Platydictya jungermannioides	NS
Platygyrium repens	NS
Pleurochaete squarrosa	NS
Pohlia andalusica	NR
Pohlia crudoides	NR; V
Pohlia elongata polymorpha	NS
Pohlia filum	NS
Pohlia flexuosa	NS
Pohlia lescuriana	NS
Pohlia ludwigii	NS



Pohlia obtusifolia	NR; E
Pohlia proligera sens. strict.	NS
Pohlia scotica	NR; V
Polytrichum sexangulare	NS
Pottiopsis caespitosa	NS
Pseudobryum cinclidioides	NS
Pseudoleskea incurvata	NR; V
Pseudoleskea patens	NS
Pseudoleskeella catenulata	NS
Pseudoleskeella nervosa	NR; CE
Pseudoleskeella rupestris	NR
Pterigynandrum filiforme	NS
Pterygoneurum ovatum	NS
Ptychodium plicatum	NR; V
Pylaisia polyantha	NS
Racomitrium affine	NS
Racomitrium canescens	NS
Racomitrium elongatum	NS
Racomitrium himalayanum	NR; V
Racomitrium macounii	NR
Racomitrium sudeticum	NS
Rhizomnium magnifolium	NS
Rhynchostegiella curviseta	NS
Rhynchostegium alopecuroides	NS
Rhynchostegium rotundifolium	NR; CE; WCA
Rhytidiadelphus subpinnatus	NR; E
Rhytidium rugosum	NS
Saelania glaucescens	NR; V; WCA
Sanionia orthothecioides	NR
Schistidium agassizii	NS
Schistidium atrofuscum	V
Schistidium confertum	NS
Schistidium frigidum	NS
Schistidium papillosum	NS
Schistidium pruinosum	NS
Schistidium robustum	NS
Schistidium trichodon	NS
Scopelophila cataractae	NR; V
Scorpidium turgescens	NR; V; WCA
Seligeria acutifolia	NS
Seligeria brevifolia	NR; V
Seligeria campylopoda	NR; V
Seligeria carniolica	NR; CE
Seligeria diversifolia	NR; V
Seligeria pusilla	NS
Sematophyllum demissum	NR; V
Sematophyllum micans	NS
Sematophyllum substrumulosum	NR



Sphagnum affine	NS
Sphagnum angustifolium	NS
Sphagnum austinii	NS
Sphagnum balticum	NR; E; WCA
Sphagnum flexuosum	NS
Sphagnum lindbergii	NS
Sphagnum majus	NR; V
Sphagnum platyphyllum	NS
Sphagnum pulchrum	NS
Sphagnum riparium	NR
Sphagnum skyense	NR
Sphagnum subsecundum	NS
Splachnum vasculosum	NS; V
Stegonia latifolia	NR; V
Syntrichia norvegica	NR; V
Syntrichia princes	NS
Syntrichia virescens	NS
Tayloria lingulata	NR; E
Tayloria tenuis	NR; CE
Tetraplodon angustatu	NS
Tetrodontium repandum	NR; CE
Thamnobryum angustifolium	NR; CE; WCA
Thamnobryum cataractarum	NR; V
Thuidium abietinum abietinum	NS
Thuidium abietinum hystricosum	NS
Thuidium recognitum	NS
Timmia austriaca	NR; E
Timmia megapolitana	V
Timmia norvegica	NR
Tomentypnum nitens	NS
Tortella densa	NS
Tortella fragilis	NR; V
Tortella inclinata	NS
Tortella inflexa	NS
Tortula atrovirens	NS
Tortula canescens	NS
Tortula cernua	NR; E; WCA
Tortula cuneifolia	NR; E
Tortula freibergii	NR
Tortula leucostoma	NR; V
Tortula solmsii	NR; V
Tortula vahliana	NR; V
Tortula wilsonii	NS; E
Trichostomum hibernicum	NS
Ulota calvescens	NS
Ulota coarctata	NS
Weissia condensa	NS; V
Weissia levieri	NR; E



Weissia multicapsularis	NR; CE
Weissia perssonii	NS
Weissia rostellata	NS
Weissia squarrosa	NS; V
Weissia sterilis	NS; V
Zygodon forsteri	NR; E; WCA
Zygodon gracilis	NR; E; WCA

**Lichens:** Listing based on A conservation evaluation of British lichens, R.G. Woods & B.J. Coppins. British Lichen Society, London, 2003

- NR Nationally Rare Rare and scarce species occurring in 15 or fewer hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- NS Nationally Scarce Rare and scarce species occurring in 16-100 hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- **CE Red Data Book 1 Critically Endangered -** facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E. Red listing based on 2001 IUCN guidelines.
- E Red Data Book 2 Endangered not Critically endangered but is facing a very high risk of extinction in the wild in the near future. Red listing based on 2001 IUCN guidelines.
- V Red Data Book 3 Vulnerable not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future. Red listing based on 2001 IUCN guidelines.
- WCA Legally Protected Lichens: Wildlife and Countryside Act 1981 Schedule 8 Plants which are protected from: intentional picking, uprooting or destruction; selling, offering for sale, possessing or transporting for the purpose of sale; advertising for buying or selling.

Scientific Name	Common Name	Status
Absconditella delutula		NS
Acarospora glaucocarpa		NS
Acarospora heppii		NS
Acarospora rhizobola		V
Acarospora subrufula		V
Acarospora umbilicata		NS
Acarospora veronensis		NS
Acrocordia macrospore		NS
Adelanthus lindenbergianus		WCA
Agonimia allobata		NS
Agonimia gelatinosa		NS
Agonimia globulifera		NS
Agonimia octospora		NS
Ainoa mooreana		NS
Alectoria ochroleuca		V; WCA
Alectoria sarmentosa sarmentosa		NS



Alectoria sarmentosa vexillifera	NS
Allantoparmelia alpicola	NS
Amandinea coniops	NS
Amandinea lecideina	NS
Amygdalaria consentiens	NS
Anaptychia ciliaris ciliaris	V
Anaptychia ciliaris mamillata	NS
Anisomeridium viridescens	NS
Arthonia anglica	E
Arthonia anombrophila	NS
Arthonia apotheciorum	NS
Arthonia arthonioides	NS
Arthonia astroidestera	NS
Arthonia cohabitans	V
Arthonia endlicheri	NS
Arthonia fuscopurpurea	NS
Arthonia graphidicola	NS
Arthonia leucopellaea	NS
Arthonia mediella	NS
Arthonia muscigena	NS
Arthonia phaeobaea	NS
Arthonia stellaris	NS
Arthonia varians	NS
Arthopyrenia carneobrunneola	NS
Arthopyrenia cerasi	NS
Arthopyrenia fraxini	NS
Arthopyrenia nitescens	NS
Arthopyrenia saxicola	NS
Arthothelium lirellans	NS
Arthothelium macounii	V
Arthothelium orbilliferum	NS
Arthothelium ruanum	NS
Arthrorhaphis aeruginosa	NS
Arthrorhaphis alpine	NS
Arthrorhaphis grisea	NS
Aspicilia epiglypta	NS
Aspicilia laevata	NS
Aspicilia melanaspis	E
Bacidia absistens	NS
Bacidia beckhausii	NS
Bacidia caesiovirens	NS
Bacidia caligans	NS
Bacidia carneoglauca	NS
Bacidia chloroticula	NS
Bacidia circumspecta	NS; V
Bacidia delicate	NS
Bacidia egenula	NS
Bacidia friesiana	NS



Bacidia fuscoviridis	NS
Bacidia herbarum	NS
Bacidia igniarii	V
Bacidia incompta	V
Bacidia saxenii	NS
Bacidia subincompta	NS; V
Bacidia trachoma	NS
Bacidia vermifera	E
Bacidia viridescens	NS
Bactrospora corticola	NS
Bactrospora dryina	CE
Bactrospora homalotropa	NS
Bellemerea alpina	CE
Belonia incarnate	NS
Belonia russula	NS
Biatora carneoalbida	CE
Biatora chrysantha	NS
Biatora tetramera	V
Biatora vernalis	NS
Biatorella fossarum	E
Biatorella hemisphaerica	V
Biatoridium delitescens	V
Biatoridium monasteriense	E
Brodoa intestiniformis	CE
Bryonora curvescens	V
Bryophagus gloeocapsa	NS
Bryoria bicolor	NS
Bryoria capillaris	NS
Bryoria chalybeiformis	NS
Bryoria furcellata	V; WCA
Bryoria lanestris	NS
Bryoria nadvornikiana	V
Bryoria smithii	CE
Buellia asterella	CE; WCA
Buellia badia	NS
Buellia erubescens	NS
Buellia hyperbolica	V
Buellia insignis	CE
Buellia papillata	CE
Buellia pulverea	NS
Buellia sequax	NS
Buellia stellulata	NS
Byssoloma marginatum	NS
Calicium adspersum	CE
Calicium corynellum	CE
Calicium diploellum	CE
Calicium lenticulare	NS
Caloplaca alociza	NS



Caloplaca aractina	V	
Caloplaca arenaria	NS	
Caloplaca arnoldii	NS	
Caloplaca atroflava	CE	
Caloplaca caesiorufella	V	
Caloplaca cerina var. chloroleuca	NS	
Caloplaca cerinelloides	NS	
Caloplaca chalybaea	NS	
Caloplaca cinnamomea	E	
Caloplaca crenulatella	NS	
Caloplaca ferruginea	NS	
Caloplaca flavorubescens	NS;	E
Caloplaca herbidella	V	
, Caloplaca littorea	NS	
Caloplaca lucifuga	V	
Caloplaca luteoalba	NS:	V: WCA
Caloplaca maritima	NS.	,
Caloplaca nivalis	WC	4
Caloplaca nivalis		
Caloplaca obliterans	NS	
Caloplaca ochracea	NS	
Caloplaca phlogina	NS	
Caloplaca scopularis	NS	
Caloplaca ulcerosa	NS NS	
Caloplaca virescens	NS:	F
Calvitimela adlaga		
Calvitimela agraed		
Candolariolla aurolla fi smaradula		
Carbonoa vorticosa		
Catapyranium cinoroum		
Catapyrenium doodoloum		
	V NC	
	N3	
	V	
	INS NO	Λ
Catapyrenium psoromoides		4
Catapyrenium psoromoides	CE	
Catapyrenium squamulosum	NS	
Catapyrenium waltheri	CE	
Catillaria alba	V	
Catillaria atomarioides	NS	
Catillaria contristans	NS	
Catillaria globulosa	NS	
Catillaria modesta	V	
Catillaria nigroclavata	NS	
Catillaria scotinodes	NS	
Catillaria subviridis	V	
Catinaria neuschildii	V	
Catolechia wahlenbergii	WC	4



Catolechia wahlenbergii	V
Cavernularia hultenii	NS
Cecidonia umbonella	NS
Cecidonia xenophana	NS
Celothelium ischnobelum	NS
Cetraria ericetorum	NS
Chaenotheca brachypoda	NS
Chaenotheca gracilenta	E
Chaenotheca hispidula	NS
Chaenotheca laevigata	E
Chaenotheca phaeocephala	CE
Chaenotheca stemonea	NS
Chaenotheca xyloxena	V
Chaenothecopsis nigra	NS
Chaenothecopsis pusilla	NS
Chromatochlamys larbalestieri	V
Chrysothrix chlorina	NS
Cladonia azorica	NS
Cladonia botrytis	CE
Cladonia callosa	NS
Cladonia cariosa	NS
Cladonia carneola	NS
Cladonia coccifera s. str.	NS
Cladonia convoluta	WCA
Cladonia convoluta	V
Cladonia cryptochlorophaea	NS
Cladonia cyathomorpha	NS
Cladonia firma	NS
Cladonia incrassata	NS
Cladonia macrophylla	NS
Cladonia maxima	V
Cladonia mediterranea	CE
Cladonia merochlorophaea	NS
Cladonia peziziformis	CE
Cladonia phyllophora	NS
Cladonia symphycarpia	NS
Cladonia trassii	WCA; V
Cladonia uncialis uncialis	V
Cladonia zopfii	NS
Claurouxia chalvbeioides	NS
Clauzadea metzleri	NS
Clauzadeana macula	NS
Cliostomum corrugatum	V
Coccotrema citrinescens	NS
Collema bachmanianum	NS
Collema ceraniscum	V
Collema dichotomum	NS: V: WCA
Collema fasciculare	NS



Collema fragile	V
Collema fragrans	NS; E
Collema glebulentum	NS
Collema latzelii	V
Collema limosum	NS
Collema multipartitum	NS
Collema nigrescens	NS
Collema occultatum	NS
Collema parvum	V
Collema polycarpon	NS
Cryptolechia carneolutea	NS; V
Cyphelium notarisii	NS
Cyphelium trachylioides	CE
Cyrtidula hippocastani	NS
Degelia ligulata	V
Dermatocarpon leptophyllodes	NS
Dermatocarpon meiophyllizum	NS
Diploschistes caesioplumbeus	NS
Diploschistes gypsaceus	NS
Diplotomma chlorophaeum	NS
Diplotomma venustum	NS
Dirina massiliensis f. massiliensis	NS
Eiglera flavida	NS
Endocarpon adscendens	E
Endocarpon pusillum	E
Enterographa elaborata	WCA, CE
Eopyrenula avellanae	NS
Eopyrenula grandicula	NS
Epigloea soleiformis	NS
Epilichen scabrosus	NS
Farnoldia jurana	NS
Fellhanera bouteillei	NS
Flavocetraria nivalis	NS
Frutidella caesioatra	NS
Fulgensia bracteata	V
Fulgensia fulgens	E
Fuscidea arboricola	NS
Fuscidea austere	NS
Fuscidea gothoburgensis	NS
Fuscidea intercincta	NS
Fuscidea praeruptorum	NS
Fuscopannaria ignobilis	V; WCA
Fuscopannaria mediterranea	NS
Fuscopannaria sampaiana	NS
Geocalyx graveolens	WCA
Gomphillus calycioides	NS
Graphina pauciloculata	V
Graphina ruiziana	NS



Gyalecta flotowiiNSGyalecta geoicaNSGyalecta ulmiE; WCAGyalidea roseolaCEGyalideopsis muscicolaNSGymnomitrion apiculatumWCAHalecania alpivagaVHalecania ralfsiiNSHalecania rifsiiNSHalecania rifsiiNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia epuloticaNSHymenelia beteromorphaV
Gyalecta geoicaNSGyalecta ulmiE; WCAGyalidea roseolaCEGyalideopsis muscicolaNSGymnomitrion apiculatumWCAHalecania alpivagaVHalecania ralfsiiNSHalecania rhypodizaVHalecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia epuloticaNS
Gyalecta ulmiE; WCAGyalidea roseolaCEGyalideopsis muscicolaNSGymnomitrion apiculatumWCAHalecania alpivagaVHalecania ralfsiiNSHalecania ralfsiiNSHalecania viridescensVHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNS
Gyalidea roseolaCEGyalideopsis muscicolaNSGymnomitrion apiculatumWCAHalecania alpivagaVHalecania ralfsiiNSHalecania rhypodizaVHalecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNS
Gyalideopsis muscicolaNSGymnomitrion apiculatumWCAHalecania alpivagaVHalecania ralfsiiNSHalecania rhypodizaVHalecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNS
Gymnomitrion apiculatumWCAHalecania alpivagaVHalecania ralfsiiNSHalecania rhypodizaVHalecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNS
Halecania alpivagaVHalecania ralfsiiNSHalecania rhypodizaVHalecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNS
Halecania ralfsiiNSHalecania rhypodizaVHalecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNS
Halecania rhypodizaVHalecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia heteromorphaV
Halecania viridescensNSHerteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia heteromorphaV/
Herteliana tayloriiNSHeterodermia leucomelaE; WCAHeterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia heteromorphaV
Heterodermia leucomelaE; WCAHeterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia heteromorphaV
Heterodermia propaguliferaWCAHeterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia heteromorphaV
Heterodermia speciosaCEHymenelia cyanocarpaNSHymenelia epuloticaNSHymenelia heteromorphaV
Hymenelia cyanocarpa   NS     Hymenelia epulotica   NS     Hymenelia beteromorpha   V
Hymenelia epulotica   NS     Hymenelia beteromorpha   V
Hymenelia heteromorpha
ע איז
Hymenelia melanocarpa V
Hymenelia prevostii NS
Hypocenomyce anthracophila E
Hypocenomyce friesii NS
Hypogymnia vittata V
Hypotrachyna endochlora NS
Immersaria athroocarpa NS
Ionaspis odora NS
Jamesoniella undulifolia WCA
Japewia tornoensis V
Japewiella tavaresiana NS
Koerberiella wimmeriana NS
Lauderlindsaya acroglypta NS
Lecanactis dilleniana NS
Lecanactis hemisphaerica NS; WCA
Lecania aipospila NS
Lecania atrynoides NS
Lecania baeomma NS
Lecania chlorotiza NS
Lecania cuprea NS
Lecania cyrtellina NS
Lecania hutchinsiae NS
Lecania inundata NS
Lecania rabenhorstii NS
Lecania subfuscula NS
Lecania sylvestris NS
Lecanographa abscondita NS
Lecanographa amylacea NS; V
Lecanographa grumulosa NS
Lecanora achariana CE; WCA



Lecanora aitema var. aitema	NS
Lecanora albella	NS
Lecanora andrewii	NS
Lecanora argentata	NS
Lecanora atromarginata	V
Lecanora cadubriae	NS
Lecanora caesiosora	NS
Lecanora campestris dolomitica	NS
Lecanora chlorophaeodes	V
Lecanora cinereofusca	V
Lecanora compallens	NS
Lecanora ecorticata	NS
Lecanora epanora	NS
Lecanora epibryon	V
Lecanora farinaria	NS
Lecanora frustulosa	V
Lecanora handelii	NS
Lecanora horiza	NS
Lecanora leptacina	NS
Lecanora persimilis	NS
Lecanora piniperda	NS
Lecanora praepostera	NS
Lecanora pruinosa	NS
Lecanora quercicola	NS
Lecanora rupicola var. efflorens	NS
Lecanora sambuci	NS
Lecanora stenotropa	NS
Lecanora strobilina	V
Lecanora subaurea	NS
Lecanora subcarnea	NS
Lecanora sublivescens	NS
Lecanora xanthostoma	NS
Lecanora zosterae	NS
Lecidea ahlesii	NS
Lecidea antiloga	V
Lecidea auriculata	NS
Lecidea berengeriana	NS
Lecidea brachyspora	NS
Lecidea confluens	NS
Lecidea diducens	NS
Lecidea doliiformis	NS
Lecidea erythrophaea	V
Lecidea fuliginosa	NS
Lecidea hypnorum	NS
Lecidea hypopta	NS
Lecidea inops	E; WCA
Lecidea lichenicola	NS
Lecidea nylanderi	NS



Lecidea paupercula	NS
Lecidea plana	NS
Lecidea pycnocarpa f. pycnocarpa	NS
Lecidea pycnocarpa f. sorediata	NS
Lecidea sanguineoatra	NS
Lecidea sarcogynoides	V
Lecidea silacea	NS
Lecidea swartzioidea	NS
Lecidella anomaloides	NS
Lecidella meiococca	NS
Lecidella wulfenii	V
Lecidoma demissum	NS
Leiocolea rutheana	WCA
Lempholemma botryosum	NS
Lempholemma chalazanum	NS
Lempholemma polyanthes	NS
Lepraria atlantica	NS
Lepraria eburnean	NS
Lepraria elobata	NS
Lepraria neglecta	NS
Lepraria nivalis	NS
Lepraria umbricola	NS
Leproloma diffusum var. diffusum	NS
Leptogium biatorinum	NS
Leptogium brebissonii	NS
Leptogium britannicum	NS
Leptogium cochleatum	NS; V
Leptogium corniculatum	NS
Leptogium intermedium	NS
Leptogium saturninum	NS; V
Leptogium subtile	NS
Leptogium tenuissimum	NS
Leptorhaphis atomaria	NS
Leptorhaphis maggiana	NS
Lithographa tesserata	NS
Lopadium coralloideum	V
Lopadium disciforme	NS
Macentina stigonemoides	NS
Marsupella profunda	WCA
Megalaria laureri	E
Megalospora tuberculosa	NS
Megaspora verrucosa	NS
Melanelia commixta	NS
Melanelia disjuncta	NS
Melanelia hepatizon	NS
Melanelia septentrionalis	NS
Melanelia stygia	NS
Melanelia subargentifera	CE
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Melaspilea atroides	NS	
Melaspilea granitophila	NS	
Melaspilea ochrothalamia	NS	
Melaspilea proximella	NS	
Micarea adnata	NS	
Micarea assimilata	V	
Micarea coppinsii	NS	
Micarea crassipes	V	
Micarea elachista	E	
Micarea incrassata	NS	
Micarea lignaria var. endoleuca	NS	
Micarea lithinella	NS	
Micarea misella	NS	
Micarea mvriocarpa	NS	
Micarea prasina s. str.	NS	
Micarea pvcnidiophora	NS	
Micarea stipitata	NS	
Micarea subnigrata	NS	
Micarea svnotheoides	NS	
Micarea tuberculata	NS	
Micarea turfosa	NS	
Microcalicium ahlneri	NS	
Miriquidica atrofulva	NS	
Miriquidica complanata f. complanata	NS	
Miriguidica garovaglii	V	
Miriquidica griseoatra	NS	
Miriguidica nigroleprosa var.		
nigroleprosa	NS	
Moelleropsis nebulosa	NS	
Mycoblastus affinis	NS	
Mycocalicium subtile	NS	
Mycoglaena myricae	NS	
Neofuscelia delisei	NS	
Nephroma arcticum	E; WCA	
Ochrolechia inaequatula	NS	
Ochrolechia inverse	NS	
Ochrolechia microstictoides	NS	
Ochrolechia szatalaënsis	NS	
Omphalina pseudoandrosacea	NS	
Opegrapha corticola	NS	
Opegrapha demutata	NS	
Opegrapha dolomitica	NS	
Opegrapha fumosa	NS	
Opegrapha lithvrga	NS	
Opegrapha mougeotii	NS	
Opegrapha pertusariicola	NS	
Opegrapha prosodea	NS	
Opegrapha rupestris		



Opegrapha saxigena	NS
Opegrapha subelevata	E
Opegrapha thelotrematis	 NS
Opegrapha viridis	NS
Opegrapha xerica	NS
Orphniospora moriopsis var.	
moriopsis	NS
Pannaria hookeri	NS
Parmeliella testacea	NS
Parmelina quercina	NS; V
Parmelinopsis horrescens	NS
Parmelinopsis minarum	V; WCA
Parmentaria chilensis	WCA
Parmotrema arnoldii	NS
Parmotrema robustum	CE
Peltigera Britannica	NS
Peltigera degenii	NS
Peltigera lepidophora	CE: WCA
Peltigera malacea	E , E
Peltigera neckeri	NS
Peltigera polvdactvlon	NS
Peltigera scabrosa	V
Peltigera venosa	NS: V
Pertusaria borealis	NS
Pertusaria brvontha	CE: WCA
Pertusaria chiodectonoides	NS
Pertusaria coronata	NS
Pertusaria dactvlina	NS
Pertusaria excludens	NS
Pertusaria glomerata	V
Pertusaria lactescens	NS
Pertusaria melanochlora	E
Pertusaria monogona	NS
Pertusaria oculata	NS
Pertusaria ophthalmiza	NS
, Pertusaria pustulata	V
, Pertusaria velata	NS: V
Pertusaria xanthostoma	NS
Petalophyllum ralfsii	WCA
Phaeographis inusta	NS
Phaeographis Ivellii	NS
Phaeophyscia endococcina	V
Phaeophyscia endophoenicea	NS
Phaeophyscia sciastra	NS
Phlvctis agelaea	NS
Phyllopsora rosei	NS
Physcia clementei	NS
Physcia tribacioides	NS: V



Pilophorus strumaticus	NS
Placidiopsis custnani	NS
Placidiopsis pseudocinerea	CE
Placopsis gelida	NS
Placynthiella dasaea	NS
Placynthiella oligotropha	NS
Placynthium flabellosum	NS
Placynthium pannariellum	NS
Placynthium subradiatum	NS
Placynthium tantaleum	NS
Platismatia norvegica	NS
Poeltinula cerebrina	V
Polyblastia agraria	NS
Polyblastia albida	NS
Polyblastia cruenta	NS
Polyblastia cupularis	NS
Polyblastia deminuta	NS
Polyblastia dermatodes	NS
Polyblastia inumbrata	NS
Polyblastia melaspora	NS
Polyblastia sendtneri	V
Polyblastia theleodes	NS
Polyblastia wheldonii	NS
Polychidium dendriscum	V
Polychidium muscicola	NS
Polysporina lapponica	NS
Porina ahlesiana	NS
Porina atlantica	CE
Porina borreri var. borreri	NS
Porina coralloidea	NS
Porina guentheri var. guentheri	NS
Porina guentheri var. lucens	NS
Porina interjungens	NS
Porina rosei	NS
Porocyphus coccodes	NS
Porpidia contraponenda	NS
Porpidia flavocaerulescens	NS
Porpidia hydrophila	NS
Protoblastenia siebenhaariana	NS
Protomicarea limosa	NS
Protoparmelia atriseda	V
Protoparmelia ochrococca	NS
Protoparmelia oleagina	NS
Protothelenella corrosa	NS
Protothelenella sphinctrinoidella	NS
Pseudocyphellaria aurata	CE
Pseudocyphellaria intricata	NS
Pseudocyphellaria lacerata	V; WCA



Pseudocyphellaria norvegica		NS
Psilolechia clavulifera		NS
Psora decipiens		NS
Psora globifera		CE
Psora lurida		NS
Psora rubiformis		V; WCA
Psoroma hypnorum		NS
Psorotichia schaereri		NS
Pterygiopsis coracodiza		NS
Ptychographa xylographoides		NS
Punctelia ulophylla		NS
Pycnora xanthococca		V
Pyrenocollema elegans		NS
Pyrenocollema monense		NS
Pyrenocollema orustense		NS
Pyrenocollema strontianense		NS
Pyrenocollema sublitorale		NS
Pyrenopsis subareolata		NS
Pyrenula dermatodes		CE
Pyrenula hibernica		V
Pyrenula laevigata		NS
Pyrenula nitida		V
Pyrenula occidentalis		NS
Ramalina chondrina		V
Ramalina pollinaria		NS
Ramalina polymorpha		NS
Ramalina portuensis		NS
Ramonia chrysophaea		NS
Ramonia interjecta		NS
Ramonia nigra		CE
Rhaphidicyrtis trichosporella		NS
Rhizocarpon alpicola		NS
Rhizocarpon badioatrum		NS
Rhizocarpon expallescens		NS
Rhizocarpon furfurosum		NS
Rhizocarpon geminatum		NS
Rhizocarpon infernulum f. sylvaticum		NS
Rhizocarpon polycarpum		NS
Rhizocarpon subgeminatum		NS
Rhizocarpon viridiatrum		NS
Riccia bifurca		WCA
Rimularia badioatra		NS
Rimularia gyrizans		NS
Rimularia insularis		NS
Rimularia intercedens		NS
Rimularia limborina		NS
Rimularia mullensis		NS
Rimularia sphacelata		CE
	1	1



Rinodina colobinoides   V     Rinodina colobinoides   V     Rinodina confragosa   NS     Rinodina conradii   NS     Rinodina conradii   NS     Rinodina fibrescens   NS     Rinodina fibrescens   NS     Rinodina difforescens   NS     Rinodina fibrescens   NS     Rinodina isdidoides   NS     Rinodina isdidoides   NS     Rinodina oxydata   NS     Rinodina oxydata   NS     Roccella phycopsis   NS     Roccella phycopsis   NS     Roccella phycopsis   NS     Sarcosgjum campestre var.   NS     campestre   NS     Schadonia fecunda   V     Scheropora pallida   NS     Sclerophora perionella   NS     Solenopsora holophaea   NS     Solorina spongiosa   NS     Solorina spongiosa   NS     Solorina spongiosa   NS     Staurothele areolata   V     Staurothele rufa   NS     Staurothele rufa   E     Staurothele ruf	Rinodina beccariana	NS
Rinodina confragosa     NS       Rinodina conradii     NS       Rinodina conradii     NS       Rinodina degeliana     V       Rinodina degeliana     V       Rinodina finbriata     NS       Rinodina imbriata     NS       Rinodina indinbriata     NS       Rinodina minbriata     NS       Rinodina minbriata     NS       Rinodina minarea var. cinnamomea     E       Rinodina orculariopsis     NS       Rinodina minarea var. cinnamomea     E       Rinodina oxydata     NS       Roccela luciformis     NS       Roccela luciformis     NS       Sarcogyne clavus     NS       Sarcogyne privigna     NS       Sarcogyne privigna     NS       Schadonia fecunda     V       Schadonia fecunda     V       Scherophora perionella     NS       Sclerophora perionella     NS       Sclerophora perionella     NS       Solenopsora holophaea     NS       Solorina crocea     NS       Solorina spongiosa     NS       Staurothele rupata     V	Rinodina bischoffii	NS
Rinodina confragosa     NS       Rinodina conradii     NS       Rinodina degeliana     V       Rinodina degeliana     NS       Rinodina fimbriata     NS       Rinodina griseosoralifera     NS       Rinodina griseosoralifera     NS       Rinodina risidioides     NS       Rinodina oculariopsis     NS       Rinodina oculariopsis     NS       Rinodina oculariopsis     NS       Rinodina oculariopsis     NS       Roccella fucitormis     NS       Roccella phycopsis     NS       Roccella phycopsis     NS       Sarcogyne clavus     NS       Sarcospe privigna     NS       Sarcospe privigna     NS       Sarcospa privigna     NS       Schaonia fecunda     V       Schismatomma graphidioides     V       Scherophora pallida     NS       Solenopsora holophaea     NS       Solenopsora holophaea     NS       Solorina spongiosa     NS       Solorina spongiosa     NS       Staurothele areolata     V       Staurothele rufa     E	Rinodina colobinoides	V
Rinodina conradii     NS       Rinodina diflorescens     NS       Rinodina filtorescens     NS       Rinodina filtorescens     NS       Rinodina filtorescens     NS       Rinodina filtorescens     NS       Rinodina isidoides     NS       Rinodina isidoides     NS       Rinodina orculariopsis     NS       Rinodina oxydata     NS       Roccella fuciformis     NS       Roccella fuciformis     NS       Ropalospora viridis     NS       Sarcogyne clavus     NS       Sarcogyne privigna     NS       Sarcosque privigna     NS       Schadonia fecunda     V       Schismatorma umbrinum     NS       Sclerophora palidia     NS       Solenopsora holophaea     NS       Solorina spongiosa     NS       Solurina corcea     NS       Solurina rocea     NS       Solurina lentigera     CE; WCA       Solurina spongiosa     NS       Solurina spongiosa     NS       Staurothele hymenogonia     NS       Staurothele hymenogonia     NS       <	Rinodina confragosa	NS
Rinodina degeliana     V       Rinodina filorescens     NS       Rinodina finbriata     NS       Rinodina griseosoralifera     NS       Rinodina griseosoralifera     NS       Rinodina sidioides     NS       Rinodina orculariopsis     NS       Rinodina orculariopsis     NS       Rinodina oxydata     NS       Roccella furitormis     NS       Roccella phycopsis     NS       Roccella phycopsis     NS       Sarcogyne clavus     NS       Sarcogyne privigna     NS       Sarcosyne privigna     NS       Schadonia fecunda     V       Schadonia fecunda     V       Scherophora perionella     NS       Sclerophora perionella     NS       Soleropsora hlophaea     NS       Solorina crocea     NS       Solorina spongiosa     NS       Squamarina lentigera     CE; WCA       Solorina spongiosa     NS       Squamarina lentigera     CE; WCA       Staurothele rufa     E       Staurothele rufa     E       Staurothele rupifraga     NS	Rinodina conradii	NS
Rinodina efflorescens   NS     Rinodina fimbriata   NS     Rinodina griseosoralifera   NS     Rinodina nisidioides   NS     Rinodina orgiseosoralifera   NS     Rinodina orgiseosoralifera   NS     Rinodina orgiseosoralifera   NS     Rinodina oxydata   NS     Rinodina oxydata   NS     Roccella phycopsis   NS     Roccella phycopsis   NS     Roccella phycopsis   NS     Sarcogyne clavus   NS     Sarcosquin campestre var.   S     campestre   NS     Schadonia fecunda   V     Schismatorma graphidioides   V     Scherophora peronella   NS     Soleropsora hlophaea   NS     Solenopsora liparina   V; WCA     Solorina spongiosa   NS     Soluthya nigrella   WCA     Sphinctrina turbinate   NS     Squamina lentigera   CE; WCA     Staurothele nymenogonia   NS     Stereocaulon condensatum   NS     Stereocaulon condensatum   NS  <	Rinodina degeliana	V
Rinodina fimbriata     NS       Rinodina griseosoralifera     NS       Rinodina isidioides     NS       Rinodina mniaraea var. cinnamomea     E       Rinodina oculariopsis     NS       Rinodina oxulatiopsis     NS       Rinodina oxulatiopsis     NS       Rinodina oxydata     NS       Roccella fuciformis     NS       Sarcogne clavus     NS       Sarcogne clavus     NS       Sarcosagium campestre var.     S       campestre     NS       Schadonia fecunda     V       Schadonia fecunda     V       Scherophora pallida     NS       Sclerophora pallida     NS       Solenopsora hiophaea     NS       Solorina crocea     NS       Solorina spongiosa     NS       Southbya nigrella     WCA       Squamarina lentigera     CE; WCA       Staurothele caceia     NS	Rinodina efflorescens	NS
Rinodina griseosoralifera     NS       Rinodina isidioides     NS       Rinodina orculariopsis     NS       Rinodina oxydata     NS       Rinodina oxydata     NS       Rinodina oxydata     NS       Roccella fuciformis     NS       Roccella phycopsis     NS       Roccella phycopsis     NS       Roccella phycopsis     NS       Roccella phycopsis     NS       Sarcogyne clavus     NS       Sarcosgium campestre var.     S       campestre     NS       Schadonia fecunda     V       Schismatorma umbrinum     NS       Sclerophora palida     NS       Solenopsora holophaea     NS       Solenopsora holophaea     NS       Solorina crocea     NS       Solorina spongiosa     NS       Southbya nigrella     WCA       Sphinctrina turbinate     NS       Staurothele rupfa     NS       Staurothele rupfa     E       Staurothele rupfa     E       Staurothele rupfa     NS       Staurothele rupfa     NS       Sterocaulon condensatum </td <td>Rinodina fimbriata</td> <td>NS</td>	Rinodina fimbriata	NS
Rinodina isidioides   NS     Rinodina orculariopsis   NS     Rinodina oxulatiopsis   NS     Rinodina oxydata   NS     Roccella fuciformis   NS     Roccella fuciformis   NS     Roccella phycopsis   NS     Ropalospora viridis   NS     Sarcogyne clavus   NS     Sarcogyne privigna   NS     Sarcosqum campestre var.	Rinodina griseosoralifera	NS
Rinodina mniaraea var. cinnamomea   E     Rinodina orculariopsis   NS     Rinodina oxydata   NS     Roccella fuciformis   NS     Roccella phycopsis   NS     Roccella phycopsis   NS     Sarcogyne clavus   NS     Sarcosyne privigna   NS     Sarcosagium campestre var.   NS     campestre   NS     Schadonia fecunda   V     Schismatomma graphidioides   V     Schismatomma graphidioides   V     Sclerophora perinella   NS     Solenopsora liparina   V;     Solenopsora holophaea   NS     Solenopsora liparina   V;     Solorina spongiosa   NS     Soluthbya nigrella   WCA     Squamarina lentigera   CE; WCA     Staurothele areolata   V     Staurothele rufa   E     Staurothele rupifraga   NS     Staurothele rupifraga   NS     Staurothele rupifraga   NS     Stereocaulon condensatum   NS <t< td=""><td>Rinodina isidioides</td><td>NS</td></t<>	Rinodina isidioides	NS
Rinodina orculariopsis     NS       Rinodina oxydata     NS       Roccella fuctormis     NS       Roccella phycopsis     NS       Sarcogyne clavus     NS       Sarcosgyine clavus     NS       Sarcosagium campestre var.	Rinodina mniaraea var. cinnamomea	E
Rinodina oxydata   NS     Roccella fuciformis   NS     Roccella fuciformis   NS     Ropalospora viridis   NS     Sarcogyne clavus   NS     Sarcogyne privigna   NS     Sarcogyne privigna   NS     Sarcosagium campestre var.      campestre   NS     Schadonia fecunda   V     Schismatomma graphidioides   V     Schismatomma graphidioides   V     Sclerophora pallida   NS     Sclerophora peronella   NS     Solenopsora holophaea   NS     Solenopsora liparina   V; WCA     Solorina crocea   NS     Solorina spongiosa   NS     Soluthya nigrella   WCA     Sphinctrina turbinate   NS     Staurothele areolata   V     Staurothele nupifraga   NS     Staurothele nupifraga   NS     Staurothele nupifraga   NS     Staurothele nupifraga   NS     Stereocaulon condensatum   NS     Stereocaulon condensatum   NS     Stereocaulon condensatum   NS     Stereocaulon delisei   NS     Stereocaulon delisei   NS     Stereocaulon nanodes   NS     Stereocaulon saxat	Rinodina orculariopsis	NS
Roccella fuciformis   NS     Roccella phycopsis   NS     Ropalospora viridis   NS     Sarcogyne clavus   NS     Sarcogyne privigna   NS     Sarcosagium campestre var.   NS     campestre   NS     Schadonia facunda   V     Schadonia facunda   V     Schatonia facunda   V     Schatonia facunda   NS     Sclerophora pallida   NS     Sclerophora peronella   NS     Solenopsora holophaea   NS     Solenopsora liparina   V; WCA     Solorina crocea   NS     Solorina rocea   NS     Solorina rocea   NS     Solorina rocea   NS     Solorina rocea   NS     Soluthya nigrella   WCA     Sphinctrina turbinate   NS     Staurothele areolata   V     Staurothele rufa   E     Staurothele rufa   E     Staurothele rufa   NS     Stereocaulon condensatum   NS     Stereocaulon delisei   NS     Stereocaulon delisei   NS     Stereocaulon delisei   NS     Stereocaulon leucophaeopsis   NS     Stereocaulon saxatile   NS     Stereoc	Rinodina oxydata	NS
Roccella phycopsis   NS     Ropalospora viridis   NS     Sarcogyne clavus   NS     Sarcogyne privigna   NS     Sarcosagium campestre var.   NS     campestre   NS     Schadonia fecunda   V     Schismatomma graphidioides   V     Schismatomma graphidioides   V     Scherophora pallida   NS; V     Sclerophora peronella   NS     Solenopsora hlophaea   NS     Solorina spongiosa   NS     Solorina spongiosa   NS     Solumbya nigrella   WCA     Sphinctrina turbinate   NS     Staurothele areolata   V     Staurothele rufa   E     Staurothele rufa   E     Staurothele nymenogonia   NS     Staurothele succedens   NS     Stereocaulon condensatum   NS     Stereocaulon delisei   NS     Stereocaulon delisei   NS     Stereocaulon saxatile   NS     Stereocaulon saxatile   NS     Stereocaulon vesuvianum var.   E     Stereocaulon vesuvianum var.   NS	Roccella fuciformis	NS
Ropalospora viridis     NS       Sarcogyne clavus     NS       Sarcogyne privigna     NS       Sarcosagium campestre var.     Campestre       campestre     NS       Schadonia fecunda     V       Schismatomma graphidioides     V       Schismatomma graphidioides     V       Schismatomma graphidioides     V       Schismatomma graphidioides     V       Sclerophora pallida     NS       Sclerophora peronella     NS       Solenopsora holophaea     NS       Solenopsora liparina     V; WCA       Solorina spongiosa     NS       Soluthya nigrella     WCA       Spuinctrina turbinate     NS       Squamarina lentigera     CE; WCA       Staurothele areolata     V       Staurothele rupifraga     NS       Staurothele rupifraga     NS       Staurothele rupifraga     NS       Staurothele rupifraga     NS       Stereocaulon condensatum     NS       Stereocaulon condensatum     NS       Stereocaulon delisei     NS       Stereocaulon nanodes     NS       Stereococaulon	Roccella phycopsis	NS
Sarcogyne clavus   NS     Sarcosagium campestre var.	Ropalospora viridis	NS
Sarcogyne privigna     NS       Sarcosagium campestre var.     NS       campestre     NS       Schadonia fecunda     V       Schismatomma graphidioides     V       Schismatomma umbrinum     NS       Sclerophora pallida     NS; V       Sclerophora pallida     NS       Sclerophora pallida     NS       Solenopsora holophaea     NS       Solenopsora liparina     V; WCA       Solorina crocea     NS       Solorina spongiosa     NS       Solorina spongiosa     NS       Soluthbya nigrella     WCA       Sphinctrina turbinate     NS       Squamarina lentigera     CE; WCA       Staurothele areolata     V       Staurothele rupifraga     NS       Staurothele rupifraga     NS       Staurothele rupifraga     NS       Staurothele succedens     NS       Sterocaulon condensatum     NS       Sterocaulon delisei     NS       Sterocaulon delisei     NS       Sterocaulon saxatile     NS       Sterocaulon saxatile     NS       Sterococaulon saxatile     NS <td>Sarcogyne clavus</td> <td>NS</td>	Sarcogyne clavus	NS
Sarcosagium campestre var. campestreNSSchadonia fecundaVSchismatomma graphidioidesVSchismatomma graphidioidesVSchismatomma graphidioidesVSchismatomma graphidioidesNSSclerophora pallidaNSSclerophora peronellaNSSolenopsora holophaeaNSSolenopsora liparinaV; WCASolorina croceaNSSolorina croceaNSSolorina spongiosaNSSouthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele caesiaNSStaurothele rufaEStaurothele nymenogoniaNSStaurothele nymenogoniaNSStaurothele nupifragaNSStereocaulon condensatumNSStereocaulon condensatumNSStereocaulon leucophaeopsisNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon vesuvianum var. nodulosumNSNolosumNS	Sarcogyne privigna	NS
campestreNSSchadonia fecundaVSchismatomma graphidioidesVSchismatomma graphidioidesVSchismatomma umbrinumNSSclerophora pallidaNS, VSclerophora peronellaNSSolenopsora holophaeaNSSolenopsora liparinaV; WCASolorina croceaNSSolorina croceaNSSolorina spongiosaNSSolorina spongiosaNSSouthya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele nufaEStaurothele rufaEStaurothele succedensNSStereocaulon condensatumNSStereocaulon deliseiNSStereocaulon leucophaeopsisNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon vesuvianum var. nodulosumNSStereocaulon vesuvianum var. nodulosumNS	Sarcosagium campestre var.	
Schadonia fecundaVSchismatomma graphidioidesVSchismatomma umbrinumNSSclerophora pallidaNS; VSclerophora peronellaNSSolenopsora holophaeaNSSolenopsora liparinaV; WCASolorina croceaNSSolorina spongiosaNSSoluthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele rufaEStaurothele rufaNSStaurothele succedensNSStereocaulon condensatumNSStereocaulon deliseiNSStereocaulon nanodesNSStereocaulon nanodesNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon symphycheilumEStereocaulon vesuvianum var. nodulosumNSNSStereocaulon vesuvianum var. nodulosumNS	campestre	NS
Schismatomma graphidioidesVSchismatomma umbrinumNSSclerophora pallidaNS; VSclerophora peronellaNSSolenopsora holophaeaNSSolenopsora holophaeaNSSoleropsora iparinaV; WCASolorina croceaNSSolorina spongiosaNSSouthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele rufaEStaurothele rufaNSStaurothele succedensNSStereocaulon condensatumNSStereocaulon leucophaeopsisNSStereocaulon leucophaeopsisNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon vesuvianum var. nodulosumNSNSStereocaulon vesuvianum var. nodulosumNS	Schadonia fecunda	V
Schismatomma umbrinumNSSclerophora pallidaNS; VSclerophora peronellaNSSolenopsora holophaeaNSSolenopsora holophaeaV; WCASolorina croceaNSSolorina spongiosaNSSolorina spongiosaNSSouthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele rufaEStaurothele rufaNSStaurothele succedensNSStereocaulon condensatumNSStereocaulon leucophaeopsisNSStereocaulon nanodesNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NS	Schismatomma graphidioides	V
Sclerophora pallidaNS; VSclerophora peronellaNSSolenopsora holophaeaNSSolenopsora liparinaV; WCASolorina croceaNSSolorina spongiosaNSSouthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele rufaEStaurothele rufaEStaurothele succedensNSStereocaulon condensatumNSStereocaulon deliseiNSStereocaulon saxatileNSStereocaulon saxatileNSStereocaulon vesuvianum var. nodulosumNSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NS	Schismatomma umbrinum	NS
Sclerophora peronellaNSSolenopsora holophaeaNSSolenopsora liparinaV; WCASolorina croceaNSSolorina spongiosaNSSouthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele rufaEStaurothele rufaEStaurothele rupifragaNSSteinia geophanaNSStereocaulon condensatumNSStereocaulon condensatumNSStereocaulon nanodesNSStereocaulon saxatileNSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NSNSStereocaulon vesuvianum var.NodulosumNSNSStereocaulon vesuvianum var.NodulosumNS	Sclerophora pallida	NS; V
Solenopsora holophaeaNSSolenopsora liparinaV; WCASolorina croceaNSSolorina spongiosaNSSolorina spongiosaNSSouthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele rufaEStaurothele rufaEStaurothele rupifragaNSStaurothele succedensNSSteinia geophanaNSStereocaulon condensatumNSStereocaulon deliseiNSStereocaulon saxatileNSStereocaulon symphycheilumEStereocaulon vesuvianum var. nodulosumNSNSStereocaulon vesuvianum var.NodulosumNS	Sclerophora peronella	NS
Solenopsora liparinaV; WCASolorina croceaNSSolorina spongiosaNSSolorina spongiosaNSSouthbya nigrellaWCASphinctrina turbinateNSSquamarina lentigeraCE; WCAStaurothele areolataVStaurothele caesiaNSStaurothele caesiaNSStaurothele rufaEStaurothele rupifragaNSStaurothele succedensNSSteinia geophanaNSStereocaulon condensatumNSStereocaulon deliseiNSStereocaulon nanodesNSStereocaulon sxatileNSStereocaulon vesuvianum var. nodulosumNSNSNSStereocaulon vesuvianum var. nodulosumNSNSNSStereocaulon vesuvianum var.NSNSNSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NSStereocaulon vesuvianum var.NS	Solenopsora holophaea	NS
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Stereocaulon nanodesNSStereocaulon saxatileNSStereocaulon symphycheilumEStereocaulon vesuvianum var.NSnodulosumNS	Stereocaulon leucophaeopsis	NS
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Stereocaulon vesuvianum var. NS	Stereocaulon symphycheilum	E
nodulosum NS	Stereocaulon vesuvianum var.	
	nodulosum	NS



Stereocaulon vesuvianum var.	
symphycheileoides	NS
Sticta canariensis independ.green	
morph	V
Strangospora moriformis	NS
Strangospora pinicola	NS
Strigula jamesii	NS
Strigula stigmatella var. alpestris	NS
Strigula stigmatella var. stigmatella	E
Strigula taylorii	NS
Synalissa symphorea	V
Teloschistes chrysophthalmus	CE
Teloschistes flavicans	NS; V; WCA
Thelenella modesta	CE
Thelidium impressum	NS
Thelidium minutulum	NS
Thelidium pluvium	NS
Thelidium pyrenophorum	NS
Thelidium zwackhii	NS
Thelocarpon epibolum var. epibolum	NS
Thelocarpon impressellum	NS
Thelocarpon laureri	NS
Thelomma ocellatum	NS
Thelotrema macrosporum	NS
Thrombium epigaeum	NS
Toninia coelestina	V
Toninia mesoidea	NS
Toninia physaroides	CE
Toninia rosulata	E
Toninia thiopsora	NS
Toninia verrucarioides	NS
Trapeliopsis glaucolepidea	NS
Trapeliopsis percrenata	NS
Tylothallia biformigera	NS
Umbilicaria crustulosa	V
Umbilicaria deusta	NS
Umbilicaria hyperborean	NS
Umbilicaria spodochroa	F
Usnea glabrescens	– NS
Usnea madeirensis	V
Usnea subscabrosa	V
Usnea wasmuthii	NS
Verrucaria amphibia	NS
Verrucaria bryoctona	NS
Verrucaria ditmarsica	NS
Verrucaria dufourii	NS
Verrucaria elaeina	NS
	NS
יטווטטמוום טומבטוווטומבוומ	



Verrucaria funckii	NS
Verrucaria halizoa	NS
Verrucaria internigrescens	NS
Verrucaria murina	NS
Verrucaria pinguicula	NS
Verrucaria prominula	NS
Verrucaria rheitrophila	NS
Verrucaria simplex	NS
Verrucaria xyloxena	CE
Vestergrenopsis elaeina	V
Vezdaea acicularis	NS
Vezdaea leprosa	NS
Vezdaea retigera	NS
Vezdaea rheocarpa	NS
Wadeana dendrographa	NS
Wadeana minuta	NS
Xanthoparmelia tinctina	V
Xanthoria ucrainica	NS
Xylographa trunciseda	NS

**Hornworts:** Listing based on the Bryophyte Red List British Bryological Society, 2005 + Preston, C.D. 2006. A revised list of nationally scarce bryophytes. Field Bryology 90: 22-30.

• NR Nationally Rare - Rare and scarce species occurring in 15 or fewer hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.

Scientific Name	Common Name	Status
Phaeoceros carolinianus		NR

**Quillworts:** Listings based on The Vascular Plant Red Data List for Great Britain - 2006 Cheffings, C. and Farrell, L. Editors and A tool for assessing the current conservation status of vascular plants on SSSIs in England: May 2006, ENRR 690 Leach & Rusbridge.

- NR Nationally Rare Rare and scarce species occurring in 15 or fewer hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- V Red Data Book 3 Vulnerable not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future. Red listing based on 2001 IUCN guidelines.

Scientific Name	Common Name	Status
Isoetes histrix		NR; V



**Clubmosses:** Listings based on The Vascular Plant Red Data List for Great Britain - 2006 Cheffings, C. and Farrell, L. Editors and A tool for assessing the current conservation status of vascular plants on SSSIs in England: May 2006, ENRR 690 Leach & Rusbridge

- NR Nationally Rare Rare and scarce species occurring in 15 or fewer hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- NS Nationally Scarce Rare and scarce species occurring in 16-100 hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- E Red Data Book 2 Endangered not Critically endangered but is facing a very high risk of extinction in the wild in the near future. Red listing based on 2001 IUCN guidelines.

Scientific Name	Common Name	Status
Diphasiastrum complanatum		NR
Lycopodiella inundata		NS, E
Lycopodium annotinum		NS

**Stoneworts:** Listings based on Review of the status of charophytes stoneworts - N Stewart unpublished.

- NS Nationally Scarce Rare and scarce species occurring in 16-100 hectads in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
- E Red Data Book 2 Endangered not Critically endangered but is facing a very high risk of extinction in the wild in the near future. Red listing based on 2001 IUCN guidelines.
- V Red Data Book 3 Vulnerable not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future. Red listing based on 2001 IUCN guidelines.
- Legally Protected: Wildlife and Countryside Act 1981 Schedule 8 Plants which are protected from: intentional picking, uprooting or destruction; selling, offering for sale, possessing or transporting for the purpose of sale; advertising for buying or selling.

Scientific Name	Common Name	Status
Chara aculeolata		NS
Chara curta		NS
Nitella flexilis		NS
Nitella mucronata		NS
Tolypella glomerata		NS
Chara canescens		E
Chara connivens		E
Chara intermedia		E
Nitella tenuissima		E
Tolypella intricate		E



Tolypella nidifica	E
Tolypella prolifera	E
Chara baltica	V
Chara fragifera	V
Nitella gracilis	V
Nitellopsis obtusa	V
Chara canescens	WCA
Lamprothamnium papulosum	WCA

**Legally Protected Fungi:** Wildlife and Countryside Act 1981 Schedule 8 Plants which are protected from: intentional picking, uprooting or destruction; selling, offering for sale, possessing or transporting for the purpose of sale; advertising for buying or selling.

Scientific Name	Common Name	Status
Battarraea phalloides		WCA
Boletus regius		WCA
Buglossoporus pulvinus		WCA
Catellaria laureri		WCA
Hericium erinaceum		WCA



Criterion	Indicator	Notes
5.1	Features which provide a seasonal	e.g. a carpet of bluebells, heather in bloom,
	high point	autumn colour, winter wetlands
5.2	Proportion of site covered by paths	Informal desire lines represent evidence
	and their level of use	equivalent to formal hard-core paths.
		Vegetation encroachment, very narrow paths
		and significant areas of the site with no paths
		indicate low usage
5.2	Number of formal and informal	
	access points.	
5.2	Ease of access for less able people	Positive features include low gradients; good
	or wheelchair users.	bound surfaces; absence of steps, kerbs, ruts
		and muddy patches; kissing gates or open
		access points; seating places; handrails
5.2	Evidence of use by children for	Positive features include signs of tree
	informal play using natural features	climbing; building dens; stream dams; swings
5.2	Proportion of site visible from	This indicator is applicable to sites such as
	adjacent land	lakes, reservoirs and sewage treatment works
		used by birdwatchers where physical access
		is not feasible
5.3	Level of use by schools and	High = regularly used for core curriculum
	education establishments for studying	Medium = irregularly used for core curriculum.
	wildlife and the environment	
5.3	Provision at the site of a ranger or	High = full-time rota of paid staff or volunteers
	warden service whose remit includes	Medium = part-time or voluntary service.
	helping the public to understand and	
5.0	appreciate the wildlife of the site	<b>F</b> a suisiter contra and intermediation leaflate
5.3	Facilities to help visitors understand	E.g. a visitor centre and interpretative learnets
	These facilities must be evaluable to	of panels on site of information provided
	all soctors of the community	High - frooly available on site for most of the
		time
		Medium – accessible at weekends or off site
53	Level of use for community	Links with BTCV Wildlife Trust RSPB Forest
0.0	development and training on an	Schools Youth groups Scouts etc
	environmental theme.	High = $3+$ events per vear
		Medium = 1+ events per vear
5.4	A group of people have been actively	e.g. voluntary wardening, species recording.
_	and voluntarily involved in the care	practical nature conservation management.
	and management of the wildlife of the	habitat creation, guided walks and organising
	site or actively campaigning for the	events.
	site for some time	
5.5	The site is associated with an historic	e.g. the site may have been featured in an
	event of significance to the study of	important publication, studied by a famous
	wildlife and the environment	naturalist or was a key site in the
		development of ecological understanding



Common name	Scientific name	UK Score	UK Status
Pheasant's-eye	Adonis annua	8	Endangered (RDB status) (234
			hectads, change index of -2.19)
Corncockle	Agrostemma githago	9	Critically Endangered (RDB status)
			(815 hectads, change index of -0.75)
Ground Pine	Ajuga chamaepitys	8	Endangered (RDB status) (43 hectads,
			change index of -0.62)
Hairy Mallow or Rough	Althaea hirsuta	6	Near Threatened (88 hectads, change
Marsh-mallow			index of 0.11)
Small Alison	Alyssum alyssoides	6	Nationally Scarce (0 hectads, change
			index of -1.24)
Blue Pimpernel	Anagallis arvensis ssp.	5	Nationally Scarce (no distribution data
	Foemina		available)
Small Bugloss	Anchusa arvensis	1	Least Concern (RDB status) (1514
			hectads, change index of -0.7)
Corn Chamomile	Anthemis arvensis	8	Endangered (RBD status)
Stinking Chamomile	Anthemis cotula	7	Vulnerable (RBB status)
Annual Vernal-grass	Anthoxanthum aristatum	6	Near Threatened (93 hectads, change
		-	index of -2.65)
Bur Chervil	Anthriscus caucalis	3	Least Concern (RDB status) (659
			hectads, change index of -0.16)
Dense Silky-bent	Apera interrupta	4	Nationally Scarce (104 hectads.
,	, and the second s		change index of 0.8)
Loose Silky-bent	Apera spica-venti	6	Near Threatened (RDB status) (326
		-	hectads, change index of -0.21)
Slender Parsley-piert	Aphanes australis	1	Least Concern (RDB status) (1549
		-	hectads, no change index)
Lamb's-succorv	Arnoseris minima	9	Extinct (RDB status) (83 hectads.
			change index of -3.72)
Bristle Oat	Avena strigosa	5	Nationally Scarce (No RBD status)
	i i i i i i i gi i i i gi i i i i gi i i i i i gi i i i i i i i i i i i i i i i i i i i	-	(270 hectads, change index of -3.01)
Black Mustard	Brassica nigra	2	Least Concern (RDB status) (1080
			hectads, change index of -0.02)
Lesser Quaking-grass	Briza minor	5	Nationally Scarce (RDB status) (92
33		-	hectads, change index of 0.28)
Field Brome	Bromus arvensis	6	Near Threatened (no distribution.
		-	change index of -3.15)
Interrupted Brome	Bromus interruptus	6	Nationally Scarce (no distribution.
·			change index of -1.73)
Rye Brome	Bromus secalinus	7	Vulnerable (RDB status) (403 hectads,
,			change index of -1.15)
Greater Pignut	Bunium bulbocastanum	6	Near Threatened (13 hectads, change
3		-	index of 0.14)
Thorow-wax	Bupleurum rotundifolium	9	Critically endangered (RDB status)
		-	(287 hectads, change index of -4.58)
False Flax	Camelina sativa	5	Nationally Scarce (RDB Status) (248
		-	hectads, no change index)
Small Bur-parslev	Caucalis platvcarpos	9	Extinct (RDB status) (no distribution
		-	information)
Cornflower	Centaurea cvanus	8	Endangered (884 hectads, change
_			index of -0.39)
Small Toadflax	Chaenorhinum minus	1	Least Concern (RBD status) (1468
			hectads, change index of -0.63)
Fig-leaved Goosefoot	Chenopodium ficifolium	2	Least Concern (RDB status) (745
			hectads, 1.9)



Maple-leaved Goosefoot	Chenopodium hybridum	3	Least Concern (RDB status) (285 hectads, -0.32)
Nettle-leaved Goosefoot	Chenopodium murale	7	Vulnerable (RDB status) (412 hectads, -1.63)
Many-seeded Goosefoot	Chenopodium	2	Least Concern (RDB status) (998
	polyspermum		hectads, 0.62)
Upright Goosefoot	Chenopodium urbicum	9	Critically Endangered (RDB status)
		-	(239 hectads, -4.57)
Tansy Mustard or	Descurainia sophia	3	Least Concern (RDB status) (636
Flixweed		-	hectads, -0.29)
Purple Bugloss	Echium plantagineum	6	Near Threatened (79 hectads, 0.36)
Common Stork's-bill	Erodium cicutarium	1	Least Concern (RDB status) (no
			distribution, -0.11)
Musk Stork's-bill	Erodium moschatum	3	Least Concern (RDB status) (338
			hectads, 0.47)
Treacle Mustard	Erysimum cheiranthoides	2	Least Concern (RDB status) (929
	,		hectads, -0.65)
Dwarf Spurge	Euphorbia exigua	6	Near Threatened (RDB status) (1039
-1 - 3 -		-	hectads, -1.18)
Broad-leaved Spurge	Euphorbia platvphvllos	3	Least Concern (RDB status) (248
		-	hectads0.24)
Narrow-leaved	Filago gallica	9	Extinct (RDB status) (21 hectads.
Cudweed		-	0.01)
Red-tipped Cudweed	Filago lutescens	8	Endangered (RDB status) (85 hectads.
		Ū	-0.34)
Broad-leaved Cudweed	Filago pyramidata	8	Endangered (RDB status) (132
	r nago pyrannaata	Ũ	hectads, -1,14)
Common Cudweed	Filago vulgaris	6	Near Threatened (RDB status) (980
		-	hectads, -1.2)
Tall Ramping-fumitory	Fumaria bastardii	2	Least Concern (RDB status) (423
			hectads, 0.39)
White Ramping-fumitory	Fumaria capreolata	3	Least Concern (RDB status) (482
			hectads, 0.31)
Dense-flowered	Fumaria densiflora	3	Least Concern (RDB status) (307
Fumitory			hectads, -0.37)
Common Ramping-	Fumaria muralis ssp.	7	Vulnerable (RDB status) (no
fumitory	neglecta .		distribution data)
Western Fumitory	Fumaria occidentalis	5	Nationally Scarce (31 hectads, 0.04)
Fine-leaved Fumitory	Fumaria parviflora	7	Vulnerable (RDB status) (128 hectads,
5			-0.55)
Purple Ramping-	Fumaria purpurea	4	Least Concern (RDB status) (191
fumitory			hectads, 0.25)
Martin's Ramping-	Fumaria reuteri	6	Near Threatened (13 hectads, -0.62)
fumitory			
Few-flowered Fumitory	Fumaria vaillantii	7	Vulnerable (RDB status) (116 hectads,
			-0.51)
Red Hemp-nettle	Galeopsis angustifolia	9	Critically Endangered (RDB status)
			(616 hectads, -3.31)
Downy Hemp-nettle	Galeopsis segetum	9	Extinct (RDB status) (32 hectads, no
	, ,		index)
Large-flowered Hemp-	Galeopsis speciosa	7	Vulnerable (RDB status) (999 hectads,
nettle		1	-1.82)
False Cleavers	Galium spurium	6	Near Threatened (55 hectads, -1.87)
Corn Cleavers	Galium tricornutum	9	Critically Endangered (RDB status)
		1	(386 hectads, -4.78)
Nit-grass	Gastridium ventricosum	5	Least Concern (RDB status) (159



			hectads, -1.48)
Long-stalked Crane's- bill	Geranium columbinum	2	Least Concern (RDB status) (887 hectads, -0.34)
Small-flowered Crane's- bill	Geranium pusillum	2	Least Concern (RDB status) (1237 hectads, 0.16)
Corn Marigold	Glebionis segetum	7	Vulnerable (RDB status) (1682 hectads, -1.8)
Jagged Chickweed	Holosteum umbellatum	6	Near Threatened (no distribution data)
Henbane	Hyoscyamus niger	7	Vulnerable (RDB status) (796 hectads, -1.38)
Smooth Cat's-ear	Hypochaeris glabra	7	Vulnerable (RDB status) (272 hectads, -1.01)
Wild Candytuft	Iberis amara	7	Vulnerable (RDB status) (47 hectads, - 1.21)
Sharp-leaved Fluellen	Kickxia elatine	2	Least Concern (RDB status) (911 hectads, -0.18)
Round-leaved Fluellen	Kickxia spuria	3	Least Concern (RDB status) (622 hectads, -0.07)
Henbit Dead-nettle	Lamium amplexicaule	1	Least Concern (RDB status) (1485 hectads, -0.22)
Northern Dead-nettle	Lamium confertum	3	Least Concern (RDB status) (397 hectads, -0.4)
Yellow Vetchling	Lathyrus aphaca	7	Vulnerable (RDB status) (174 hectads, -1.38)
Small Tree-mallow	Lavatera cretica	3	Near Threatened (31 hectads, 0.15)
Venus's-looking-glass	Legousia hybrida	6	Least Concern (RDB status) (552 hectads, -0.6)
Greater Venus's- looking-glass	Legousia speculumveneris	3	Near Threatened (Only 1 site)
Field Pepperwort	Lepidium campestre	8	Least Concern (RDB status) (886 hectads, -0.7)
Corn Gromwell	Lithospermum arvense	9	Endangered (RDB status) (614 hectads, -1.91)
Darnel	Lolium temulentum	8	Critically Endangered (RDB status) (341 hectads, -4.05)
Grass-poly	Lythrum hyssopifolium	2	Endangered (RDB status) (112 hectads, -1.12)
Common Mallow	Malva neglecta	6	Least Concern (RDB status) (1196 hectads, -0.22)
Field Cow-wheat	Melampyrum arvense	6	Nationally Threatened (50 hectads, - 0.49)
Corn Mint	Mentha arvensis	1	Least Concern (RDB status) (1965 hectads, -1.3)
Annual Mercury	Mercurialis annua	2	Least Concern (RDB status) (793 hectads, 0.28)
Perfoliate Penny-cress or Cotswolds Pennycress	Microthlaspi perfoliatum	7	Vulnerable (RDB status) (9 hectads, - 0.94)
Weasel's-snout	Misopates orontium	7	Vulnerable (RDB status) (488 hectads, -0.89)
Mousetail	Myosurus minimus	7	Vulnerable (RDB status) (339 hectads, -0.66)
Cat-mint	Nepeta cataria	7	Vulnerable (RDB status) (478 hectads, -1.23)
Common Broomrape	Orobanche minor	2	Least Concern (RDB status) (800 hectads, -0.2)



Prickly Poppy	Papaver argemone	7	Vulnerable (RDB status) (874 hectads, -1.78)
Rough Poppy	Papaver hybridum	3	Least Concern (RDB status) (357 hectads, -0.35)
Yellow-juiced Poppy or Babington's Poppy	Papaver lecoqii	2	Least Concern (RDB status) (no distribution data)
Corn Parsley	Petroselinum segetum	3	Least Concern (RDB status) (482 hectads, 0.12)
Four-leaved Allseed	Polycarpon tetraphyllum	5	Nationally Scarce (16 hectads, -0.04)
Northern Knotgrass	Polygonum boreale	4	Nationally Scarce (RDB status) (109 hectads, no change index)
Cornfield Knotgrass	Polygonum rurivagum	3	Least Concern (RDB status) (274 hectads, no change index)
Corn Buttercup	Ranunculus arvensis	9	Critically Endangered (RDB status) (824 hectads, -3.77)
Rough-fruited Buttercup	Ranunculus muricatus	6	Near Threatened (18 hectads, no change index)
Small-flowered Buttercup	Ranunculus parviflorus	3	Least Concern (RDB status) (497 hectads, -0.08)
Hairy Buttercup	Ranunculus sardous	3	Least Concern (RDB status) (544 hectads, 0.24)
Wild Radish	Raphanus raphanistrum subsp. raphanistrum	1	Least Concern (RDB status) (no distribution data, -1.39)
Greater Yellow-rattle	Rhinanthus angustifolius	7	Nationally Threatened (90 hectads, - 0.1)
Shepherd's-needle	Scandix pecten-veneris	9	Critically Endangered (RDB status) (780 hectads, -3.65)
Annual Knawel	Scleranthus annuus	8	Endangered (RDB status) (983 hectads, -2.68)
Field Madder	Sherardia arvensis	1	Least Concern (RDB status) (1635 hectads, -0.94)
Small-flowered Catchfly	Silene gallica	8	Endangered (RDB status) (455 hectads, -2.78)
Night-flowering Catchfly	Silene noctiflora	7	Vulnerable (RDB status) (686 hectads, -2.04)
White Mustard	Sinapis alba	2	Least Concern (RDB status) (1082 hectads, -0.9)
Corn Spurrey	Spergula arvensis	7	Vulnerable (RDB status) (no distribution data, -2.3)
Field Woundwort	Stachys arvensis	6	Near Threatened (RDB status) (1418 hectads, -1.17)
Cut-leaved Germander	Teucrium botrys	6	Near Threatened (12 hectads, -0.42)
Spreading Hedge- parsley	Torilis arvensis	8	Endangered (RDB status) (389 hectads, -2.56)
Knotted Hedge-parsley	Torilis nodosa	3	Least Concern (RDB status) (708 hectads, -0.36)
Narrow-fruited Cornsalad	Valerianella dentata	8	Endangered (RDB status) (600 hectads, -1.86)
Hairy-fruited Cornsalad	Valerianella eriocarpa	6	Near Threatened (59 hectads, -0.69)
Broad-fruited Cornsalad	Valerianella rimosa	8	Endangered (RDB status) (181 hectads, -2.55)
Green Field-speedwell	Veronica agrestis	1	Least Concern (RDB status) (1715 hectads, -0.38)
Grey Field-speedwell	Veronica polita	2	Least Concern (1237 hectads, 0.07)
Breckland Speedwell	Veronica praecox	6	Near Threatened (6 hectads, no change index)



Fingered Speedwell	Veronica triphyllos	8	Endangered (RDB status) (33 hectads, -0.82)
Spring Speedwell	Veronica verna	8	Endangered (RDB status) (7 hectads, - 0.64)
Slender Tare	Vicia parviflora	7	Vulnerable (RDB status) (136 hectads, -1.05)
Smooth Tare	Vicia tetrasperma	2	Least Concern (RDB status) (1159 hectads, 0.45)
Wild Pansy	Viola tricolor ssp. tricolor	6	Near Threatened (RDB status) (no distribution data)



#### Definition: explanatory notes

The criteria are for guidance but cannot cover all potential scenarios and an element of expert judgement is therefore needed. It is assumed that the user will be able to recognise plant communities and the key component species.

1. The minimum size refers to the potential open mosaic habitat (OMH), which might be a part of a larger site containing other habitats such as woodland or developed land.

2. Disturbance refers to that resulting from major historical industrial use or development.

2.1 Extraneous materials refer to extensive additions of spoil rather than incidental dumping of litter, broken glass, etc.

2.2 There might be evidence of heavy metal contamination but extensive stands of Calaminarian grasslands are specifically excluded as that is a distinct Priority Habitat.

3. Brief descriptions of the early successional communities:

(a) Annual communities are those comprised mainly of stress tolerant ruderals, which are short in stature and suited to low nutrient availability. Typical examples would be *Arenaria serpyllifolia*, *Centaurium erythrea*, *Linum catharticum* or *Trifolium arvense*.

(b) Moss/liverwort communities can contain both acrocarpous (i.e. usually unbranched, tufted) and pleurocarpous (usually branched, carpeted) mosses and are usually relatively open and less luxuriant than in more mature habitats, often with bare ground present in a fine-grained mosaic. They can occur in discrete patches or interspersed in other communities such as open grassland or heathland. Common species are usually present such as the mosses *Brachythecium rutabulum*, *Dicranum scoparium* or *Hypnum cupressiforme*, and the liverworts *Lophocolea heterophylla* or *Ptilidium ciliare*.

(c) Lichen communities are likely to occur in extensive patches or interspersed with other communities such as open grassland or heathland. Species with a range of growth forms might be present, for example foliose (leaf-like), crustose (crust) or fruticose (shrubby and branched).

(d) Ruderal communities are those composed mainly of taller annuals, biennials or short-lived perennials and typical of slightly more nutrient-rich, or less disturbed conditions than the annual communities. Typical examples would be *Daucus carota*, *Linaria vulgaris*, *Medicago lupulina* or *Reseda luteola*.

(e) Inundation communities are comprised of species suited to periodic, often seasonal flooding. Vegetation is usually interspersed with bare areas of mud which can have a caked surface during dry periods and can result in annuals establishing. Typical species would be *Alopecurus geniculatus*, *Juncus bufonius*, *Persicaria maculosa* or *Ranunculus flammula*.

(f) Open grassland is comprised mainly of perennial, stress-tolerant species of short stature with patches of bare ground at very fine-grained scale and often with a significant number of annual species or lichens in the sward.

#### Appendix 16 - Guidance on UK Biodiversity Action Plan Priority Habitat Open mosaic habitats on previously developed land



Typical species would be *Festuca ovina*, *Hypochaeris radicata*, *Pilosella officinarum* or *Rumex acetosella*.

(g) Flower-rich grassland is a more typical, mature community with fewer gaps and characterised by more robust mesotrophic forbs such as *Centaurea nigra*, *Lotus corniculatus*, *Ranunculus acris* or *Trifolium pratense*.

(h) Heathland communities are composed mainly of dwarf shrubs, often interspersed or in mosaics with graminoids, bryophytes or lichens. On OMH they tend to have a more open structure with less plant litter and other organic matter build up on the substrate than in more typical heathlands. Typical species include *Calluna vulgaris*, *Deschampsia flexuosa*, *Festuca ovina* or *Nardus stricta*.

3.1 Annex I shows species of vascular plant known to be associated with, but not confined to, the habitat in certain areas and/or substrates. 3.2 Other plant species associated with the particular edaphic conditions might also be present, for example ericaceous species on acidic sites. Species composition will also vary with geographic location and site age. 3.3 One of the principal reasons for the habitat being a priority is its importance for invertebrates. Many have very precise requirements for habitat 'niches' within their landscape. As well as areas of bare ground and food plants, these may be for sheltered places at various times of the year, or for rough vegetation or cover at others. At any particular site, features such as scrub may be essential to maintain the invertebrate value of the main habitat. Therefore, scattered scrub (up to 10–15% cover) may be present and adds to the conservation value of the site. Other communities or habitats might also be present (e.g. reed swamp, open water), but early successional communities should comprise the majority of the area.

4. 'Loose bare' substrate is intended to separate substrate potentially colonisable by plants from large expanses of sealed surface (concrete, tarmac, etc) where vegetation could only establish if it is broken up or heavily weathered.

4.1 Bare substrate can occur at a range of spatial scales, from unvegetated patches easily seen from a distance, to small, open spaces between individual plants within a community. On some substrates, for example coal spoil, the patches of bare ground may be 10cm across or less. A site with a wide variety of patch sizes could also qualify.

4.2 Bare substrate also implies absence of organic matter accumulation.

5. A mosaic is defined as an area where a range of contiguous plant community types occur in transition with one another, usually with ecotone habitat gradients and repeated occurrences of each community, and often at a small scale.

5.1 The mosaic could comprise either:

- a mixture of one of the habitats (a)–(c) or (e)–(h) plus bare ground together forming a mosaic;
- a mixture of two or more of the habitats (a)–(h) in a mosaic, with adjacent bare ground;
- a mixture of two or more of the habitats (a)–(h) plus bare ground together forming a mosaic.



5.2 Continuous blocks of a closed plant community greater than 0.25ha would be classified as a habitat other than OMH, although those containing very fine-grained mosaics might qualify.