

Cambridgeshire and Peterborough County Wildlife Sites

Selection Guidelines

VERSION 7.1

October 2020

**CAMBRIDGESHIRE & PETERBOROUGH
COUNTY WILDLIFE SITES PANEL**

CAMBRIDGESHIRE & PETERBOROUGH COUNTY WILDLIFE SITES PANEL

The panel includes suitably qualified and experienced representatives from The Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire; Natural England; County, District and City Councils within Cambridgeshire; District Councils within Cambridgeshire, Cambridgeshire and Peterborough Environmental Records Centre, Farming and Wildlife Advisory Group East and amateur recorders and recording groups including the Cambridgeshire Geological Society and the Cambridgeshire Flora Group. Its aim is to agree the basis for site selection, reviewing and amending them as necessary based on the best available biological information concerning the county.

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CAMBRIDGESHIRE AND NORTHAMPTONSHIRE 2020

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INTRODUCTION

The Selection Criteria are substantially based on *Guidelines for selection of biological SSSIs* published by the Nature Conservancy Council (succeeded by English Nature) in 1989. Appropriate modifications have been made to accommodate the aim of selecting a lower tier of sites, i.e. those sites of county and regional rather than national importance. Modifications have also been made to reflect the views of the numerous authorities consulted during the preparation of the Criteria. From time to time it has been necessary to update or modify the criteria to reflect increased scientific knowledge and the changing status of species and habitats within the country and the county.

The Criteria seek to apply concrete definitions and local thresholds to standard concepts of ecological evaluation such as diversity, rarity, size and typicalness. It should not be supposed that the selection of County Wildlife Sites is then a simple matter of rigid comparison between the site and the Criteria. The number of variables that go to make up the ecological value of a site is large and diverse in quality. Best professional judgment must be employed in the assessment of the merits of each individual site. The Criteria help to ensure that subjectivity in assessment is minimised and that a consistent approach to CWS selection is maintained. In some cases sites that do not meet the letter of the Criteria may be proposed for CWS status and, conversely, sites that do qualify on paper will not be proposed. A site will not be de-selected if it has suffered willful neglect or malicious damage and there is the potential to restore ecological features that would enable qualification against the Criteria.

For a number of less well known taxonomic groups, such as invertebrates, stoneworts, lichens and fungi, the Criteria are either not well developed or are completely lacking. In many cases it will be necessary to select sites using the knowledge and data of local experts in these groups. It is hoped that as the Cambridgeshire & Peterborough Environmental Records Centre builds up its database of biological information for the county, sufficient information will be available to develop Criteria to encompass these groups in a suitably detailed and rigorous way.

The Local Site System (including Local Geological and Local Wildlife Sites) in Cambridgeshire and Peterborough is operated by the County Wildlife Sites Panel. The *Cambridgeshire and Peterborough County Wildlife Site System Handbook* sets out how the County Wildlife Site system operates in this area. It is aimed at all people who deal with CWSs such as land owners and managers, local government officers and officers within statutory agencies. It should be read in conjunction with the CWS Criteria and details management and operation of the system, including the processes of site selection and monitoring, data handling and ratification through the CWS Panel.

Unless stated otherwise all uses of the term 'Cambridgeshire' refer to both the current administrative county of Cambridgeshire and Peterborough City Council.

CRITERIA FOR SELECTION OF COUNTY WILDLIFE SITES

1. WOODLAND, TREES and HEDGES

Appendix 2A - ancient woodland indicators, woodland plants & woody species for determining scrub and hedgerow value

Appendix 2B - guidelines for assessing veteran trees

Appendix 2C - fruit and nut species included in traditional orchards in

Cambridgeshire and Peterborough

Appendix 2D- rare or scarce fruit varieties and varieties of local significance

Appendix 2E - local traditional management practices

- a **All ancient semi-natural woodlands** included in Cambridgeshire Inventory of Ancient Woodlands which retain over 25% semi-natural cover.
- b **Ancient woodlands over 75% replanted** included in Cambridgeshire Inventory of Ancient Woodlands and containing one of the following:
 - (i) more than 10 ancient woodland indicator species
 - (ii) more than 40 woodland plants
- c **Ancient semi-natural woods under 2ha** with one of the following:
 - (i) more than 5 ancient woodland indicator species
 - (ii) more than 30 woodland plants
 - (iii) good example of NVC W8 (ash - field maple - dog's mercury woodland)
 - (iv) good example of NVC W10 (pedunculate oak - bracken - bramble woodland)
- d **Good examples of the following wet woodlands which are more than 0.5ha. in size:**
 - (i) NVC W1 (grey willow - marsh bedstraw)
 - (ii) NVC W2 (grey willow - downy birch - common reed)
 - (iii) NVC W6 (alder - stinging nettle)
- e **Areas of scrub more than 0.5ha in extent** with NVC W21 (common hawthorn - ivy) with more than 8 woody species.
- f **Hedges:** hedgerow systems at least 500m. in length and more than 2m. in width, with 5 or more woody species, and with at least part of the hedgerow allowed to flower and fruit. (Normal hedgerow management of coppicing or laying may mean that at least part of the system will not be at the optimum size or condition for wildlife at all times).
- g **Pasture woodland and Parkland** with either:
 - (i) an average of more than 5 mature trees per hectare
 - (ii) groups of 5-19 **veteran trees** when in association with other semi-natural features such as grassland, hedgerows or woodlands
 - (iii) groups of 20 or more **veteran trees**, even in an arable setting

h Pollard willows:

- (i) groups of 5-19 mature pollard willows when in association with other semi-natural features such as grassland, ditches and rivers
- (ii) groups of 20 or more mature pollard willows, even in an arable setting

i Traditional Orchards:

Traditional orchards will be selected as CWS if they contain

1. A group of 5 or more top fruit¹ or nut trees² (see appendix 2c for a list of species)

AND satisfy two or more of the following

Biological criteria

2. Contain at least **20% of veteran trees** as defined in *Cambridgeshire and Peterborough CWS Selection Criteria Appendix 2b - Guidelines for assessing Veteran Trees*
3. The presence of a nationally rare or scarce species or species rare in the county
4. Associated natural or semi-natural habitat, within or adjacent to the site (e.g. woodland, unimproved grassland, ponds, hedgerows)

Cultural and aesthetic criteria

5. The presence of rare or scarce fruit varieties, or of varieties of local significance³
6. Continuing traditional orchard management practices that are sympathetic with biodiversity objectives and reflect local cultural traditions. See appendix 2e for examples of local traditional orchard management practices.

Some sites, even if not accessible to the public, can be important visually or be reservoirs for wildlife in an intensively managed landscape. People's contact with wildlife and wildlife habitats in their home and work environments is important for promoting quality of life and well-being. Educational use and community involvement in management may also be important.

¹ Any fruit that grows or hangs from a tree.

² A tree that bears edible nuts.

³ Conserving genetic diversity is important as a social and economic resource and to preserve particular varieties that are now not common. See list in appendix 2d.

2. GRASSLANDS

Appendix 3A - Cambridgeshire neutral and calcareous grassland indicator species

Appendix 3B - Cambridgeshire grassland species

Appendix 3C - Cambridgeshire indicator species for dry and wet acidic grasslands and open communities on sandy or acidic substrates

- a **Neutral grasslands** supporting at least 0.05 ha. (either in a block or as a number of smaller areas) of one or more of the following NVC communities:
- (i) MG4 (meadow foxtail - greater burnet flood meadow)
 - (ii) MG5 (crested dog's-tail - common knapweed meadow and pasture)
 - (iii) MG8 (crested dog's-tail - marsh marigold flood pasture)
 - (iv) MG11 (red fescue - creeping bent - silverweed inundation pasture)
 - (v) MG13 (creeping bent - marsh foxtail inundation grassland)
- b **Calcareous grasslands** supporting at least 0.05 ha. (either in a block or as a number of smaller areas) of one or more of the following NVC communities:
- (i) CG2 (sheep's fescue - meadow oat-grass grassland)
 - (ii) CG3 (upright brome grassland)
 - (iii) CG4 (tor grass grassland)
 - (iv) CG5 (upright brome - tor grass grassland)
 - (v) CG7 (sheep's fescue - mouse-ear hawkweed - wild thyme grassland)
- c **Sites supporting frequent numbers of either:**
- (i) **three or more strong neutral grassland indicator species**
 - (ii) **six or more strong calcareous grassland indicator species**
- d Sites supporting frequent numbers of either:
- (i) **eight or more neutral grassland indicator species (strong and weak)**
 - (ii) **sixteen or more calcareous grassland indicator species (strong and weak)**
- e Sites supporting frequent numbers of **more than 50 grassland species.**
- f **Acidic grasslands** supporting at least 0.05 ha. (either in a block or as a number of smaller areas) of NVC U1 (sheep's fescue - common bent - sheep's sorrel grassland).

(At present there is insufficient field evidence and testing to set definitive thresholds for the numbers of strong and weak acid grassland indicator species required to select a County Wildlife Site in Cambridgeshire. In practice any site with substantial numbers and good quality habitats is likely to be worthy of selection).

- g Long-established grassland over 1ha in size, which supports at least 8 neutral or calcareous grassland indicator species (of which at least 3 are strong) that have not been deliberately introduced.

3. FENS, SWAMPS AND MARSHES

- a Good examples of **topogenous fens supporting at least 0.05 ha.** (either in a block or as a number of smaller areas) of the following NVC communities:
- (i) S24 (common reed - milk parsley tall herb fen)
 - (ii) S2 (saw sedge swamp and sedge beds)
 - (iii) S3 (tussock sedge swamp)
 - (iv) S13 (lesser reed-mace swamp)
 - (v) S20 (grey club-rush swamp)
- b Good examples of **topogenous fens supporting at least 0.5 ha.** (either in a block or as a number of smaller areas) of the following NVC communities:
- (i) S25 (common reed - hemp agrimony tall herb fen)
 - (ii) S26 (common reed - stinging nettle tall herb fen)
 - (iii) S4 (common reed swamp and reed-beds)
 - (iv) S5 (reed sweet-grass swamp)
 - (v) S6 (greater pond-sedge swamp)
 - (vi) S7 (lesser pond-sedge swamp)
- c Good examples of **soligenous fens supporting NVC M13** (black bog-rush - blunt flowered rush).
- d Good examples of **fen meadow** supporting at least 0.05 ha. (either in a block or as a number of smaller areas) of the following NVC communities:
- (i) M22 (blunt-flowered rush - marsh thistle fen meadow)
 - (ii) M24 (purple moor-grass - meadow thistle fen meadow)
- e Good examples of **fen meadow** supporting at least 0.25 ha. of NVC community M27 (meadowsweet - wild angelica mire).
- f **Continuous area of fen** of any category over 2.5 ha which is not appreciably degraded.
- g Sites at least 0.5 ha in extent containing well developed **vegetation mosaics** which represent hydroseral zonation.
- h Sites at least 0.1 ha in extent which have a **combination of two or more fen types.**
- i Chalk or limestone grasslands containing **flushes, seepages or springs** which are not appreciably degraded.

4. FRESHWATER HABITATS

Appendix 4 - Classification of standing water types 10A and 10B

- a All **major rivers** together with adjacent semi-natural habitat (grassland, marsh, swamp, scrub, trees and woodland) unless the river has been grossly modified through canalization and/or poor water quality.
- b **Type 10A standing water bodies** with one of the following:
 - (i) 5 submerged and floating species
 - (ii) 15 submerged, floating and emergent species(most ponds and gravel pits will fall into this vegetation type).
- c **Type 10B standing water bodies** with one of the following:
 - (i) 3 submerged and floating species
 - (ii) 10 submerged, floating and emergent species
 - (iii) beds of stoneworts(this type of community occurs in strongly calcareous water bodies, especially in flooded brickpits, chalkpits and in the chalk lodes).
- d Any water body with **three or more species of pondweed** (*Potamogeton spp.*).
- e **Ditches** with at least 5 submerged, floating and emergent species per 20m or at least 10 submerged, floating, emergent and wetbank species per 20m. (Normal ditch management will affect the apparent quality of a ditch, which is likely to reach its optimum state two to three years after slubbing out. This variation should be borne in mind when selecting sites.)

5. HABITAT MOSAICS

- a Sites of more than 10ha. in size which **support three or more of the following habitat features in close association:**
 - unimproved/semi-improved grassland
 - 'interesting' ruderal communities
 - mature trees
 - woodland (ancient and recent)
 - scrub
 - hedgerows
 - marshy grassland
 - swamp
 - open water including rivers, streams, ditches, ponds, pits and lakes

At least one habitat feature should either be of or closely approaching County Wildlife Site status in its own right. (Many of these sites will be of value for birds and/or invertebrates, and may qualify under these criteria if sufficient data are available for evaluation).

6. VASCULAR PLANTS

Appendix 5 - Nationally Rare, Nationally Scarce & red data list vascular plants found in Cambridgeshire & Peterborough

- a Sites supporting populations of **nationally rare, nationally scarce or red list species**. (Refer to Appendix 5)
- b Locations supporting populations of **species which are considered locally rare or scarce, are listed on at least one of the local vice-county Rare Plant Registers and are present at no more than 6 known sites in Cambridgeshire and Peterborough**.

Sites should only be selected where it is known that the Nationally Rare, Nationally Scarce or Locally Rare species have been established at the site for *at least* five years and are not the result of a recent human introduction.

Refer to latest BSBI rare plant registers for the appropriate vice-county; 29, 31, 32, available from <https://bsbi.org/rare-plant-registers>. Specialist advice will be needed to determine whether a site should be selected on the basis of a locally rare plant species, as not all plants on the BSBI rare plant registers are of County Wildlife Site interest (e.g. some might be non-native introductions).

7. NON-VASCULAR PLANTS

- a Sites supporting populations of **nationally rare or nationally scarce species**.
- b Sites listed as **important** in the Bryophyte Site Registers (NCC 1985) for Huntingdonshire and Cambridgeshire.

8. MAMMALS

- a **Breeding roosts of the following bats:**

- (i) Natterer's bat
- (ii) Daubenton's bat
- (iii) Brandt's bat
- (iv) Serotine bat
- (v) Noctule bat
- (vi) Leisler's bat
- (vii) Whiskered bat
- (viii) Barbastelle bat

All sites to include any nearby land regularly used for feeding.

- b **Significant bat hibernation roosts**
- c Sites containing confirmed breeding populations of the **common dormouse**.

9. BIRDS

Appendix 6A - Estimated national numbers of birds breeding and wintering in Britain species relevant to Cambridgeshire

Appendix 6B - Breeding bird indices

Appendix 6C - Rare breeding birds in Cambridgeshire

In all cases a site should have qualified for four out of the last five years.

- a A site which regularly contains **0.5% or more of the total British non-breeding population** of any species during any period (e.g. wintering, non-breeding summer, moulting, passage).
- b A site which supports a **range of breeding birds** with a value equal to or exceeding the following indices:
 - (i) Lowland damp grassland: 11
 - (ii) Lowland fen without open water: 13
 - (iii) Lowland open water and margins: 24
 - (iv) Scrub: 10
 - (v) Woodland: 26
- c Breeding sites of a **county rarity**.
- d The five largest colonies of **breeding colonial seabirds, sand martins or herons**, provided the colony contains more than ten pairs.
- e Wet meadows containing more than three species and/or six pairs of **breeding wader**.
- f Localities with one of the following recorded in the last five years:
 - (i) 50 breeding species
 - (ii) 60 wintering species
 - (iii) 100 passage species

10. AMPHIBIANS AND REPTILES

Appendix 7 - Scoring system for the selection of sites with assemblages of amphibians

Sites identified under this schedule should exclude gardens, swimming pools and any known introduced populations.

- a Sites supporting populations of **adder**.
- b Sites containing water bodies where more than **50 individual great crested newts** can be counted at night or bottle-trapped during the breeding season.
- c Sites supporting good or exceptional populations of **palmate newt**.

- d Sites supporting at least **three amphibian species** and a minimum score of 6 using the table in Appendix 7.
- e) Ponds and lakes supporting **common toads** where more than 500 individuals can be counted in the water or where more than 2500 are estimated to breed.

11. INVERTEBRATES

Appendix 8A – Regionally Red-Listed species of butterflies in Great Britain

Appendix 8B – The Odonata Red Data List for Great Britain

Appendix 8C - Beetles indicative of continuity of saproxylic habitats, and the method of calculation of the index of ecological continuity

Appendix 8D – Invertebrate Index Scores

1. Butterflies

- a All sites supporting populations of **critically endangered, endangered or vulnerable species**.
- b Sites supporting one of the five strongest populations in the county of **near threatened species**.

2. Dragonflies

- a All sites supporting populations of **critically endangered, endangered or vulnerable species**.
- b Sites supporting one of the five strongest populations in the county of **near threatened species**.
- c Any site supporting **twelve or more species**.

For sections 1 and 2 above all records should have been made within 5 years of the selection date. Only confirmed breeding records should be considered. Recent deliberate introductions should not be included.

3. Saproxylic beetles

- a Sites with an **ecological continuity index greater than 8** should be considered for inclusion. Records must be post-1950 (in line with requirements for calculating the Index of Ecological Continuity).

4. Water beetles

- a Any site supporting **more than 35 species** should be considered for inclusion.

5. White-clawed Crayfish

- a Any site supporting **White-clawed Crayfish** should be considered for inclusion.

6. General

- a Any site with an **invertebrate index exceeding 500** (calculated as summation of scores per status using the table in Appendix 8D) should be considered for inclusion. Records should have been made within 20 years of the selection or review date.
- b* *Any site with an A, B or C grading in the JNCC **Invertebrate Site Register** unless re-survey shows that the site has been significantly degraded since the creation of the Register.*
*Note that this criterion is historical only and should not be used to select new sites. Existing sites with this criterion are being reviewed to see if they qualify under 11.6a instead.
- c Any site supporting significant populations of **Red Data Book or nationally scarce species**. (Butterflies and dragonflies are dealt with under sections 1 and 2 above).

Further advice

Invertebrate data needs to be interpreted carefully, not least because, more than in most groups, the apparent interest of a site can be greatly influenced by recording effort. Also, a site may score highly on a miscellany of species without these collectively indicating a site or habitat of very high quality. Specialist advice should be sought from the Wildlife Trust for all prospective sites.

Records should be within the dates specified, but where a site has not been subject to a specialist invertebrate re-survey, older records can still be used and a site should be retained as a CWS unless there is evidence that the integrity of habitats has changed (e.g. major change in tree cover on woodland sites, loss of pond features on wetland sites).

APPENDIX 1

TECHNIQUES TO ENSURE SURVEY CONFORMS TO NVC REQUIREMENTS

- 1) Within a site identify the boundaries of areas that are structurally and floristically homogeneous. This may include vertical boundaries as well as horizontal (eg. in woodland there may be a woodland canopy, tall woodland field layer and short woodland field layer.)
- 2) Within in each homogeneous area take random samples of the following size:
 - a) Woodland canopy and shrub layer 50x50m
Sparse scrub
 - b) Dense scrub 10x10m
Tall woodland field layer
Species poor herbaceous vegetation
 - c) Short woodland field layer 4x4m
Tall herbaceous vegetation
Heaths
Open vegetation
 - d) Short herbaceous vegetation 2x2m
Dwarf shrub heaths

All samples should be square where possible

Linear vegetation

Linear aquatic vegetation	10m strip
Wall vegetation	10m strip
Hedgerow woody vegetation	30m strip
Hedgerow field layer	10m strip

- 3) Within each sample record on the recording form each species present together with its dominance code using:

Code	% cover
10	91-100
9	76-90
8	51-75
7	34-50
6	26-33
5	11-25
4	4-10
3	<4 many individuals
2	<4 several individuals
1	<4 few individuals

- 4) Repeat up to 5 times within the homogeneous area
- 5) As an addition record any species which occur in the area but have not appeared within the samples.

APPENDIX 2A

ANCIENT WOODLAND INDICATORS, WOODLAND PLANTS, WOODY SPECIES FOR DETERMINING SCRUB AND HEDGEROW VALUE

Nomenclature follows *New Flora of the British Isles* 4th Edition, C.A. Stace, C&M Floristics, 2019 (names from the 1st Edition are included for reference)

List updated January 2013

Scientific name	Common name	AWI	Woodland plant	W21 scrub	Hedgerow value
<i>Acer campestre</i>	Field Maple		y	y	y
<i>Adoxa moschatellina</i>	Moschatel		y		
<i>Agrimonia procera</i>	Fragrant Agrimony		y		
<i>Ajuga reptans</i>	Bugle		y		
<i>Alliaria petiolata</i>	Garlic Mustard		y		
<i>Allium ursinum</i>	Ramsons	y			
<i>Alnus glutinosa</i>	Alder		y		
<i>Anemone nemorosa</i>	Wood Anemone	y			
<i>Aquilegia vulgaris</i>	Columbine		y		
<i>Arctium minus</i>	Lesser Burdock		y		
<i>Arum maculatum</i>	Cuckoo-pint		y		
<i>Athyrium filix-femina</i>	Lady-fern		y		
<i>Atropa belladonna</i>	Deadly Nightshade		y		
<i>Betonica (Stachys) officinalis</i>	Betony	y	y		
<i>Betula pendula</i>	Silver Birch		y	y	
<i>Betula pubescens</i>	Downy Birch		y		
<i>Blechnum spicant</i>	Hard-fern		y		
<i>Brachypodium sylvaticum</i>	Wood False-brome		y		
<i>Bromopsis ramosa</i>	Hairy Brome		y		
<i>Calamagrostis canescens</i>	Purple Small-reed	y			
<i>Calamagrostis epigejos</i>	Wood Small-reed		y		
<i>Campanula trachelium</i>	Nettle-leaved Bellflower	y			
<i>Cardamine flexuosa</i>	Wavy Bitter-cress		y		
<i>Carex pallescens</i>	Pale Sedge	y			
<i>Carex pendula</i>	Pendulous Sedge	y			
<i>Carex remota</i>	Remote Sedge	y			
<i>Carex sylvatica</i>	Wood-sedge	y			
<i>Carpinus betulus</i>	Hornbeam		y		y
<i>Chrysosplenium oppositifolium</i>	Opposite-leaved Golden-saxifrage		y		
<i>Circaea lutetiana</i>	Enchanter's-nightshade		y		
<i>Clematis vitalba</i>	Traveller's-joy		y		
<i>Conopodium majus</i>	Pignut	y			
<i>Convallaria majalis</i>	Lily-of-the-valley	y			
<i>Cornus sanguinea</i>	Dogwood		y	y	y
<i>Corylus avellana</i>	Hazel		y	y	y
<i>Crataegus laevigata</i>	Midland Hawthorn	y		y	y
<i>Crataegus monogyna</i>	Common Hawthorn		y	y	y
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid		y		
<i>Daphne laureola</i>	Spurge-laurel		y		y
<i>Deschampsia cespitosa</i>	Tufted Hair-grass		y		
<i>Digitalis purpurea</i>	Foxglove		y		

Scientific name	Common name	AWI	Woodland plant	W21 scrub	Hedgerow value
<i>Dipsacus pilosus</i>	Small Teasel		y		
<i>Dryopteris affinis</i> ssp. <i>affinis</i>	Golden-scaled Male-fern	y			
<i>Dryopteris affinis</i> ssp. <i>borreri</i>	Borrer's Male-fern	y			
<i>Dryopteris carthusiana</i>	Narrow Buckler-fern		y		
<i>Dryopteris dilatata</i>	Broad-leaved Buckler-fern		y		
<i>Dryopteris filix-mas</i>	Male-fern		y		
<i>Elymus caninus</i>	Bearded Couch		y		
<i>Epilobium montanum</i>	Broad-leaved Willowherb		y		
<i>Epipactis helleborine</i>	Broad-leaved Helleborine	y			
<i>Epipactis purpurata</i>	Violet Helleborine	y			
<i>Euonymus europaeus</i>	Spindle	y		y	y
<i>Euphorbia amygdaloides</i>	Wood Spurge	y			
<i>Euphorbia lathyris</i>	Caper Spurge		y		
<i>Ficaria verna</i> (<i>Ranunculus ficaria</i>)	Lesser Celandine		y		
<i>Filipendula ulmaria</i>	Meadowsweet		y		
<i>Fragaria vesca</i>	Wild Strawberry		y		
<i>Frangula alnus</i>	Alder Buckthorn		y		y
<i>Fraxinus excelsior</i>	Ash		y	y	y
<i>Gagea lutea</i>	Yellow Star-of-bethlehem	y			
<i>Galium odoratum</i>	Sweet Woodruff	y			
<i>Geranium robertianum</i>	Herb-robert		y		
<i>Geum rivale</i>	Water Avens	y			
<i>Geum urbanum</i>	Wood Avens		y		
<i>Glechoma hederacea</i>	Ground-ivy		y		
<i>Hedera helix</i> [mature, woody, 'flowering']	Ivy [mature, woody, 'flowering']		y	y	y
<i>Hedera helix</i> [young, unflowering]	Ivy [young, unflowering]		y		
<i>Helleborus viridis</i>	Green Hellebore		y		
<i>Holcus mollis</i>	Creeping Soft-grass	y			
<i>Hordelymus europaeus</i>	Wood Barley	y			
<i>Hyacinthoides non-scripta</i>	Bluebell		y		
<i>Hylotelephium</i> (<i>Sedum</i>) <i>telephium</i>	Orpine	y			
<i>Hypericum hirsutum</i>	Hairy St. John's-wort	y			
<i>Hypericum humifusum</i>	Trailing St. John's-wort	y			
<i>Ilex aquifolium</i>	Holly		y	y	y
<i>Iris foetidissima</i>	Stinking Iris		y		
<i>Lamiastrum galeobdolon</i> ssp. <i>montanum</i>	Yellow Archangel	y			
<i>Lapsana communis</i>	Nipplewort		y		
<i>Lathraea squamaria</i>	Toothwort		y		
<i>Lathyrus linifolius</i>	Bitter Vetch	y			
<i>Lathyrus sylvestris</i>	Narrow-leaved Everlasting Pea	y			
<i>Ligustrum vulgare</i>	Wild Privet		y	y	y
<i>Lithospermum officinale</i>	Common Gromwell		y		
<i>Lonicera periclymenum</i>	Honeysuckle		y		
<i>Luzula multiflora</i> [both spp.]	Heath Wood-rush		y		
<i>Luzula pilosa</i>	Hairy Wood-rush	y			
<i>Luzula sylvatica</i>	Great Wood-rush	y			
<i>Lysimachia nemorum</i>	Yellow Pimpernel	y			
<i>Lysimachia nummularia</i>	Creeping-jenny		y		

Scientific name	Common name	AWI	Woodland plant	W21 scrub	Hedgerow value
<i>Malus sylvestris</i>	Crab Apple	y		y	y
<i>Melampyrum cristatum</i>	Crested Cow-wheat	y			
<i>Melampyrum pratense</i>	Common Cow-wheat	y			
<i>Melica nutans</i>	Mountain Melick	y			
<i>Melica uniflora</i>	Wood Melick	y			
<i>Mercurialis perennis</i>	Dog's Mercury		y		
<i>Milium effusum</i>	Wood Millet	y			
<i>Moehringia trinervia</i>	Three-veined Sandwort		y		
<i>Neottia nidus-avis</i>	Bird's-nest Orchid	y			
<i>Neottia (Listera) ovata</i>	Common Twayblade		y		
<i>Ophrys insectifera</i>	Fly Orchid		y		
<i>Orchis mascula</i>	Early-purple Orchid	y			
<i>Oxalis acetosella</i>	Wood-sorrel	y			
<i>Paris quadrifolia</i>	Herb-paris	y			
<i>Pimpinella major</i>	Greater Burnet-saxifrage	y			
<i>Platanthera chlorantha</i>	Greater Butterfly-orchid	y			
<i>Poa nemoralis</i>	Wood Meadow-grass		y		
<i>Polypodium interjectum</i>	Intermediate Polypody		y		
<i>Polypodium vulgare</i>	Polypody		y		
<i>Polystichum setiferum</i>	Soft Shield-fern		y		
<i>Populus tremula</i>	Aspen		y		y
<i>Potentilla anglica</i>	Trailing Tormentil		y		
<i>Potentilla sterilis</i>	Barren Strawberry		y		
<i>Primula elatior</i>	Oxlip	y			
<i>Primula vulgaris</i>	Primrose	y			
<i>Prunella vulgaris</i>	Selfheal		y		
<i>Prunus avium</i>	Wild cherry		y		
<i>Prunus spinosa</i>	Blackthorn		y	y	y
<i>Pteridium aquilinum</i>	Bracken		y		
<i>Pyrus pyraeaster</i>	Wild Pear	y			y
<i>Quercus petraea</i>	Sessile Oak	y			y
<i>Quercus robur</i>	Pedunculate Oak		y	y	y
<i>Ranunculus auricomus</i>	Goldilocks Buttercup	y			
<i>Rhamnus catharticus</i>	Purging Buckthorn		y	y	y
<i>Ribes rubrum</i>	Redcurrant		y		
<i>Rosa arvensis</i>	Field Rose		y	y	y
<i>Rosa caesia</i>	Northern Dog-rose		y		y
<i>Rosa canina</i> agg.	Dog rose		y	y	y
<i>Rosa obtusifolia</i>	Round-leaved Dog-rose		y		y
<i>Rosa stylosa</i>	Short-styled Field-rose		y		y
<i>Rosa tomentosa</i>	Harsh Downy-rose		y		y
<i>Rosa</i> sp.	Rose species or hybrid		y		y
<i>Rubus caesius</i>	Dewberry		y		
<i>Rubus fruticosus</i> agg.	Bramble		y		
<i>Rubus idaeus</i>	Raspberry		y		
<i>Rumex sanguineus</i>	Wood dock		y		
<i>Salix caprea</i>	Goat Willow		y		y
<i>Salix cinerea</i>	Grey Willow		y	y	y
<i>Sambucus nigra</i>	Elder		y	y	y
<i>Sanicula europaea</i>	Sanicle		y		
<i>Schedonorus (Festuca) giganteus</i>	Giant Fescue		y		
<i>Scrophularia nodosa</i>	Common Figwort		y		

Scientific name	Common name	AWI	Woodland plant	W21 scrub	Hedgerow value
<i>Silene dioica</i>	Red Campion		y		
<i>Silene (Lychnis) flos-cuculi</i>	Ragged-robin		y		
<i>Sorbus torminalis</i>	Wild Service-tree	y			y
<i>Stachys sylvatica</i>	Hedge Woundwort		y		
<i>Stellaria holostea</i>	Greater Stitchwort		y		
<i>Tamus communis</i>	Black Bryony		y		
<i>Teucrium scorodonia</i>	Wood Sage		y		
<i>Tilia cordata</i>	Small-leaved Lime	y			y
<i>Ulmus glabra</i>	Wych Elm		y	y	y
<i>Ulmus minor</i>	Small-leaved Elm		y	y	y
<i>Ulmus procera</i>	English Elm		y	y	y
<i>Ulmus sp</i>	Elm species		y	y	y
<i>Veronica chamaedrys</i>	Germander Speedwell		y		
<i>Veronica montana</i>	Wood Speedwell	y			
<i>Viburnum lantana</i>	Wayfaring-tree		y	y	y
<i>Viburnum opulus</i>	Guelder-rose		y		y
<i>Vicia sepium</i>	Bush Vetch		y		
<i>Viola odorata</i>	Sweet Violet		y		
<i>Viola reichenbachiana</i>	Early Dog-violet	y			
<i>Viola riviniana</i>	Common Dog-violet		y		
160		52	108	24	38

APPENDIX 2B

GUIDELINES FOR ASSESSING VETERAN TREES

These guidelines are intended to assist in the identification of trees that could be considered as 'veteran', whether they are native or non-native, singular or in groups. These guidelines will be useful when considering wood pasture and hedgerow county wildlife sites.

Veteran trees are important features in the English landscape and for a host of wildlife. The holes and hollows are suitable sites for roosting bats and nesting birds. Hundreds of different fungi, lichens and invertebrates depend on ancient trees. Rotten wood is an extremely valuable habitat especially if it is still standing.

The term '*veteran tree*' is not one of precise definition, but encompasses trees defined by three guiding principles (Read, H. English Nature 2000)

1. Trees of interest, biologically, aesthetically or culturally because of their age, size or condition (some of these are obvious others are not)
2. Trees in an ancient stage of their life
3. Trees that are old relative to others of the same species.

NB Girth is not a reliable criterion as different species and individuals have different life spans and growth rates. Age is also not an absolute indicator. It is the features of a tree which should and be used to assess if it is veteran or not. The more features the tree displays the stronger the indication it is veteran.

Features indicative of high value are shown in the table below (English Nature 2000):

Hollows	hollow areas on trunks or main branches (>150mm)
Holes	small holes in trunk or branches (<150mm)
Water pockets	water filled tree pools on tree or roots
Rot	Red, brown or white
Deadwood	large amounts of deadwood in crown or on ground
Bark	sap stains, loose old thick bark
Broken branch stubs	live branches which have broken with shattered ends
Splits in trunk or branch	wood fibre separation
Runs or sap/other stains	wet exudes from the surface of the bark, wounds or holes
Bore exit holes	from insect tunnelling with dry powdery residues
<i>Species which may be associated with veteran trees</i>	
Fungi	bracket fungi, toadstools with cap and stalk, skin like covering
Invertebrates	beetles, hoverflies, spiders, millipedes etc
Birds	large birds occupying cavities or nesting birds
Mammals	bats, rodents
Reptiles	snakes or lizards under loose bark
Plants and epiphytes	lichens, ferns, ivy, moss etc

APPENDIX 2C

FRUIT AND NUT SPECIES INCLUDED IN TRADITIONAL ORCHARDS IN CAMBRIDGESHIRE AND PETERBOROUGH

Malus – encompassing all varieties of apple

Pyrus – encompassing all varieties of pear

Prunus – encompassing all varieties of edible, cultivated prunus; plum, gage, quetsche, damson, myrobalan, cherries and hybrids thereof.

Also

quince

medlar

black mulberry

apricot

peaches

walnut

hazelnut (encompassing all varieties of hazel, filbert, cob and hybrids thereof)

APPENDIX 2D

LIST OF RARE OR SCARCE FRUIT VARIETIES AND VARIETIES OF LOCAL SIGNIFICANCE

The lists below contain the varieties and tree types of those varieties that are important in terms of top fruit conservation in Cambridgeshire. Tree types as well as varieties because:

- Any veteran tree that is not one of the listed exceptions is of interest. In reality, most veterans are one of a handful of known varieties and fruit identification will usually exclude the tree as a CWS criterion. However, if the tree cannot be identified, then it should be preserved if possible - at least until propagation material has been taken and successfully propagated.
- Clonal variety becomes more and more prevalent as time passes and more and more propagation is carried out. Mature trees of the listed varieties may often be closer to the original source than the clones present in the National Fruit Collection today. This is especially true of old trees close to the original source.
- It is desirable to exclude new plantings of local varieties as a CWS criterion - most of these will (usually) arise from a single clone held in the National Fruit Collection.

Varieties that are rare or are of local significance fall into 4 categories:

1. Any veteran fruit tree that cannot be identified by East of England Apples and Orchards Project (EEAOP), National Fruit Collections (NFC), Royal Horticultural Society RHS, or an organisation of similar standing.

Note: The majority of veteran fruit trees in Cambridgeshire will be of the following types and are readily identifiable.

Malus	Pyrus	Prunus
<ul style="list-style-type: none"> • Bramley's Seedling • Newton Wonder • Blenheim Orange 	<ul style="list-style-type: none"> • Conference • William's (aka Barton) • Comice 	<ul style="list-style-type: none"> • Myrobalan

2. Any named and verified top fruit variety that does not appear in the National Fruit Collections

"Named" being the name known to the orchard owners

"Verified" being agreed to match a varietal description by one of the organisations mentioned in 1.

3. Any mature trees of the following varieties

Malus	Prunus
Barnack Beauty Chiver's Delight Cockett's Red Cottenham Seedling Emneth Early Green Harvey Histon Favourite Hunter's Majestic Huntingdon Codlin Jolly Miller* Lord Peckover Lady Hollendale Morley's Seedling Murfitt's Seedling New Rock Pippin Perfection * Red Victoria St Everard Thoday's Quarrenden Wayside	Willingham Gage* Cambridge Gage Wallis's Wonder*

**These varieties are not currently held in the National Fruit Collections and have only been recorded in specific orchards in Cambs. They are of great local significance and considerably at risk until further propagation and distribution has occurred.*

4. Any of the 'Lost' Cambridgeshire apple varieties

There are more than 20 named varieties of apple documented as having Cambridgeshire origins. Some of these 'lost' varieties were last recorded just over fifty years ago, so it's quite likely that old trees still survive. If any of these names below are mentioned by orchard owners PLEASE CONTACT EEAOP IMMEDIATELY.

Area	Name	Description
Chatteris	Mrs. Ward	In existence 1884. First recorded 1872. Scarlet Nonpareil x ?. Raised by Lawrence, nurseryman, Size: small. Shape: intermediate, truncate-conic, convex, not ribbed. Skin: yellow or orange, flushed deep scarlet, occasional russet patches. Flesh: firm, pale yellow. Flavour: sub-acid. Season: mid – very late.
Cottenham area	John Norman	Last recorded 1946. Similar I shape to the Berkshire variety Charles Ross but duller in colour. Eye more open with long sepals and a thick short stalk.
	Queenholme Seedling	Exhibited 1898 RHS from Cottenham (only record). Size: medium. Shape: rectangular to truncate-conic, convex, ribbed. Skin: pale greenish yellow, flushed pale red. Flesh: dry. Season: very late.
Histon area	Colwell	Grown locally and only mentioned once in 1936. No description.
	Histon Cropper	First described in 1919 and raised by John Chivers of Histon. Last recorded in 1947 Size: large. Shape conic, convex, not ribbed. Skin: green flushed red. Season mid.
	Barton	In existence 1946. Resembles a Worcester Pearmain. Size medium. Shape: intermediate, truncate conic ribbed and convex. Season: mid., Skin: green flushed and striped red.
Huntingdon	Woodley's Favourite	Exhibited 1888 RHS from Huntingdon. First recorded 1883. Size: large. Shape: intermediate, rectangular, convex, ribbed. Skin: greenish yellow Season: mid.
Peterborough area	Jenny Brewster	Exhibited at RHS in 1894 (only record). Possibly raised by Rev. Brewster.
	Orton Favourite	Exhibited 1894 RHS from Orton Longville (only record). Size: :large. Skin: red. Season: early – mid.
	Paston	Exhibited 1905 RHS (only record) from P/borough Season: mid.
	Leyden Pippin	Exhibited 1883 RHS (only record) from P/borough Size: medium. Shape: conic, ribbed on body. Skin green flushed with bronze. Flavour: sweet.

	Scarlet Russet	Exhibited 1883 RHS from Orton Hall near Peterborough. First recorded 1831. Size: small. Shape: conical. Skin: yellow with russet, flushed red. Flesh: firm. Flavour: sweet. Season: mid.
	Triumph	Exhibited 1904 RHS (only record) from Peterborough.
	Wadlow Pride	Exhibited 1902. Only record. Season: mid.
	Pinder's Seedling	Exhibited 1900 RHS. Only record. Season: mid.
Wisbech area	James Kirk	Catalogued 1949. Award of Merit RHS 1905. Exhibited by Cross of Wisbech. Size: medium. Shape: truncate-conic, convex. Skin: greenish yellow striped red. Flesh: crisp. Flavour: acid. Season: late.
	Lord Kitchener	Exhibited 1899 RHS from Wisbech (only record). Size: large. Season: early.
	Scarlet Beauty	Exhibited at 1906 RHS from Wisbech (only record). No description.
Cambridge	Haggerstone Pippin	A late season dessert apple raised by Mr Haggerstone in about 1805 from the seed of an American apple variety
Cambridgeshire	Turbanks	Exhibited 1883 RHS from Cambridgeshire (only record). No description.

Local fruit identification contacts Email info@eeaop.org.uk or orchardbob@gmail.com

APPENDIX 2E

LOCAL TRADITIONAL MANAGEMENT PRACTICES

Local traditional management practices include the following:

- Growing soft⁴ fruit, vegetables or flowers between the trees, as long as this practice is not detrimental to the trees
- Continuing any cultural practice (e.g. cultivation programme) that has fostered the existence of a nationally rare or scarce or county rare species as listed within the Cambridgeshire and Peterborough Traditional Orchards Biodiversity Action Plan
- Pruning and training techniques that are considered traditional to the county, including the creation and maintenance of open centre trees with a short trunk

⁴ fruit that grows on bushes, such as gooseberry and currant.

APPENDIX 3A

CAMBRIDGESHIRE & PETERBOROUGH NEUTRAL & CALCAREOUS GRASSLAND INDICATORS

Nomenclature follows *New Flora of the British Isles* 4th Edition, C.A. Stace, C&M Floristics, 2019 (names from the 1st Edition are included for reference)

* signifies strong indicators

List updated October 2019

Scientific name	Common name	NG	NG*	CG	CG*
<i>Achillea ptarmica</i>	Sneezewort		y		
<i>Agrimonia eupatoria</i>	Agrimony	y		y	
<i>Ajuga reptans</i>	Bugle	y			
<i>Alchemilla filicaulis</i> ssp. <i>vestita</i>	Hairy Lady's-mantle		y		
<i>Anacamptis (Orchis) morio</i>	Green-winged Orchid		y		
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid				y
<i>Anthyllis vulneraria</i>	Kidney Vetch				y
<i>Asperula cynanchica</i>	Squinancywort				y
<i>Astragalus danicus</i>	Purple Milk-vetch				y
<i>Avenula (Helictotrichon) pubescens</i>	Downy Oat-grass		y		y
<i>Betonica (Stachys) officinalis</i>	Betony		y		
<i>Blackstonia perfoliata</i>	Yellow-wort				y
<i>Brachypodium rupestre</i>	Tor-grass				y
<i>Briza media</i>	Quaking-grass		y		y
<i>Bromopsis erecta</i>	Upright Brome				y
<i>Bromus racemosus / commutatus</i>	Smooth / Meadow Brome		y		
<i>Bunium bulbocastanum</i>	Great Pignut				y
<i>Caltha palustris</i>	Marsh-marigold		y		
<i>Campanula glomerata</i>	Clustered Bellflower				y
<i>Campanula rotundifolia</i>	Harebell				y
<i>Cardamine pratensis</i>	Cuckooflower	y			
<i>Carex caryophyllea</i>	Spring-sedge		y		y
<i>Carex disticha</i>	Brown Sedge		y		
<i>Carex ericetorum</i>	Rare Spring-sedge				y
<i>Carex flacca</i>	Glaucous Sedge		y		y
<i>Carex nigra</i>	Common Sedge		y		
<i>Carex panicea</i>	Carnation Sedge		y		
<i>Carex spicata</i>	Spiked Sedge		y		
<i>Carlina vulgaris</i>	Carlina Thistle				y
<i>Centaurea nigra / debeauxii</i>	Common / Chalk Knapweed	y		y	
<i>Centaurea scabiosa</i>	Greater Knapweed				y
<i>Centaureum erythraea</i>	Common Centaury	y		y	
<i>Cirsium acaule</i>	Dwarf Thistle		y		y
<i>Cirsium eriophorum</i>	Woolly Thistle				y
<i>Clinopodium acinos</i>	Basil-thyme				y
<i>Clinopodium vulgare</i>	Wild Basil				y
<i>Conopodium majus</i>	Pignut	y			
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid		y		y
<i>Dactylorhiza incarnata</i>	Early Marsh-orchid		y		
<i>Dactylorhiza praetermissa</i>	Southern Marsh-orchid		y		

Scientific name	Common name	NG	NG*	CG	CG*
<i>Danthonia decumbens</i>	Heath-grass		y		
<i>Eleocharis palustris</i>	Common Spike-rush	y			
<i>Euphrasia nemorosa</i>	Eyebright		y		y
<i>Euphrasia pseudokernerii</i>	Chalk Eyebright				y
<i>Festuca ovina</i>	Sheep's-fescue				y
<i>Ficaria verna (Ranunculus ficaria)</i>	Lesser Celandine	y			
<i>Filipendula vulgaris</i>	Dropwort		y		y
<i>Fritillaria meleagris</i>	Fritillary		y		
<i>Galium uliginosum</i>	Fen Bedstraw		y		
<i>Galium verum</i>	Lady's Bedstraw	y		y	
<i>Genista tinctoria</i>	Dyer's Greenweed		y		
<i>Gentianella amarella</i>	Autumn Gentian				y
<i>Geranium pratense</i>	Meadow Crane's-bill	y			
<i>Gymnadenia conopsea</i>	Fragrant Orchid				y
<i>Helianthemum nummularium</i>	Common Rock-rose				y
<i>Helictochloa (Helictotrichon) pratensis</i>	Meadow Oat-grass		y		y
<i>Himantoglossum hircinum</i>	Lizard Orchid				y
<i>Hippocrepis comosa</i>	Horseshoe Vetch				y
<i>Hordeum secalinum</i>	Meadow Barley	y			
<i>Hypericum perforatum</i>	Perforate St. John's-wort			y	
<i>Hypericum tetrapterum</i>	Square-stemmed St. John's-wort	y			
<i>Hypochaeris maculata</i>	Spotted Cat's-ear				y
<i>Inula conyzae</i>	Ploughman's-spikenard				y
<i>Jacobaea aquatica (Senecio aquaticus)</i>	Marsh Ragwort		y		
<i>Jacobaea erucifolia (Senecio erucifolius)</i>	Hoary Ragwort	y		y	
<i>Juncus compressus</i>	Round-fruited Rush	y			
<i>Knautia arvensis</i>	Field Scabious		y		y
<i>Koeleria macrantha</i>	Crested Hair-grass		y		y
<i>Lathyrus nissolia</i>	Grass Vetchling		y		
<i>Lathyrus pratensis</i>	Meadow Vetchling	y			
<i>Leontodon hispidus</i>	Rough Hawkbit		y		y
<i>Leontodon saxatilis</i>	Lesser Hawkbit		y		y
<i>Leucanthemum vulgare</i>	Oxeye Daisy	y		y	
<i>Linum catharticum</i>	Fairy Flax		y		y
<i>Linum perenne</i>	Perennial Flax				y
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	y		y	
<i>Lotus pedunculatus</i>	Greater Bird's-foot Trefoil	y			
<i>Luzula campestris</i>	Field Wood-rush	y			
<i>Lysimachia nummularia</i>	Creeping-Jenny	y			
<i>Neottia (Listera) ovata</i>	Common Twayblade	y			
<i>Oenanthe fistulosa</i>	Tubular Water-dropwort		y		
<i>Oenanthe lachenalii</i>	Parsley Water-dropwort		y		
<i>Oenanthe silaifolia</i>	Narrow-leaved Water-dropwort		y		
<i>Onobrychis vicifolia</i>	Sainfoin				y
<i>Ononis repens</i>	Common Restharrow		y		y
<i>Ononis spinosa</i>	Spiny Restharrow		y		y
<i>Ophioglossum vulgatum</i>	Adder's-tongue Fern		y		
<i>Orchis (Aceras) anthropophora</i>	Man Orchid				y
<i>Origanum vulgare</i>	Marjoram				y
<i>Orobancha elatior</i>	Knapweed Broomrape				y
<i>Pastinaca sativa</i>	Wild Parsnip			y	
<i>Picris hieracioides</i>	Hawkweed Ox-tongue				y
<i>Pilosella officinarum</i>	Mouse-ear Hawkweed				y

Scientific name	Common name	NG	NG*	CG	CG*
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	y		y	
<i>Plantago media</i>	Hoary Plantain	y		y	
<i>Polygala vulgaris</i>	Common Milkwort		y		y
<i>Potentilla erecta</i>	Tormentil		y		
<i>Potentilla sterilis</i>	Barren Strawberry		y		
<i>Poterium sanguisorba ssp. sanguisorba</i> (<i>Sanguisorba minor ssp. minor</i>)	Salad Burnet		y		y
<i>Primula veris</i>	Cowslip	y		y	
<i>Primula vulgaris</i>	Primrose	y			
<i>Pulicaria dysenterica</i>	Common Fleabane	y			
<i>Pulsatilla vulgaris</i>	Pasqueflower				y
<i>Ranunculus auricomus</i>	Goldilocks Buttercup	y			
<i>Ranunculus flammula</i>	Lesser Spearwort		y		
<i>Rhinanthus minor</i>	Yellow Rattle		y		y
<i>Rumex acetosa</i>	Common Sorrel	y			
<i>Sanguisorba officinalis</i>	Great Burnet		y		
<i>Saxifraga granulata</i>	Meadow Saxifrage		y		
<i>Scabiosa columbaria</i>	Small Scabious				y
<i>Serratula tinctoria</i>	Saw-wort		y		y
<i>Seseli libanotis</i>	Moon Carrot				y
<i>Silaum silaus</i>	Pepper-saxifrage		y		
<i>Silene (Lychnis) flos-cuculi</i>	Ragged-Robin		y		
<i>Stellaria graminea</i>	Lesser Stitchwort	y			
<i>Succisa pratensis</i>	Devil's-bit Scabious		y		y
<i>Tephrosia integrifolia</i>	Field Fleawort				y
<i>Thalictrum flavum</i>	Common Meadow-rue		y		
<i>Thalictrum minus</i>	Lesser Meadow-rue				y
<i>Thesium humifusum</i>	Bastard-toadflax				y
<i>Thymus polytrichus</i>	Wild Thyme				y
<i>Thymus pulegioides</i>	Large Thyme				y
<i>Trifolium fragiferum</i>	Strawberry Clover	y			
<i>Trifolium ochroleucon</i>	Sulphur Clover		y		
<i>Triglochin palustris</i>	Marsh Arrow-grass		y		
<i>Trisetum flavescens</i>	Yellow Oat-grass	y		y	
<i>Valeriana dioica</i>	Marsh Valerian		y		
<i>Viola canina</i>	Heath Dog-violet		y		
<i>Viola hirta</i>	Hairy Violet		y		y

31 56 13 64

APPENDIX 3B

GRASSLAND SPECIES

Nomenclature follows *New Flora of the British Isles* 4th Edition, C. A. Stace, C&M Floristics, 2019 (names from the 1st Edition are included for reference)

List produced January 2013, updated October 2019

Scientific name	Common name
<i>Achillea millefolium</i>	Yarrow
<i>Achillea ptarmica</i>	Sneezewort
<i>Agrimonia eupatoria</i>	Agrimony
<i>Agrimonia procera</i>	Fragrant Agrimony
<i>Agrostis canina</i>	Velvet Bent
<i>Agrostis capillaris</i>	Common Bent
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Agrostis vinealis</i>	Brown Bent
<i>Aira caryophylla</i>	Silver Hair-grass
<i>Aira praecox</i>	Early Hair-grass
<i>Ajuga reptans</i>	Bugle
<i>Alchemilla filicaulis</i> ssp. <i>vestita</i>	Hairy Lady's-mantle
<i>Allium oleraceum</i>	Field Garlic
<i>Allium vineale</i>	Crow Garlic
<i>Alopecurus geniculatus</i>	Marsh Foxtail
<i>Alopecurus pratensis</i>	Meadow Foxtail
<i>Anacamptis (Orchis) morio</i>	Green-winged Orchid
<i>Anacamptis pyramidalis</i>	Pyramidal Orchid
<i>Angelica sylvestris</i>	Wild Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
<i>Anthriscus caucalis</i>	Bur Chervil
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Anthyllis vulneraria</i>	Kidney Vetch
<i>Aphanes arvensis</i>	Parsley-piert
<i>Aphanes australis (inexpectata)</i>	Slender Parsley-piert
<i>Arabidopsis thaliana</i>	Thale Cress
<i>Arabis hirsuta</i>	Hairy Rock-cress
<i>Arenaria serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme-leaved Sandwort
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asperula cynanchica</i>	Squinancywort
<i>Astragalus danicus</i>	Purple Milk-vetch
<i>Astragalus glycyphyllos</i>	Wild Liquorice
<i>Avenella (Deschampsia) flexuosa</i>	Wavy Hair-grass
<i>Avenula (Helictotrichon) pubescens</i>	Downy Oat-grass
<i>Bellis perennis</i>	Common Daisy
<i>Betonica (Stachys) officinalis</i>	Betony
<i>Bistorta officinalis (Persicaria bistorta)</i>	Common Bistort
<i>Blackstonia perfoliata</i>	Yellow-wort
<i>Blysmus compressus</i>	Flat-sedge
<i>Brachypodium pinnatum</i>	Tor-grass
<i>Brachypodium rupestre</i>	Heath False-brome
<i>Briza media</i>	Quaking-grass
<i>Bromopsis erecta</i>	Upright Brome
<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	Common Soft-brome

Scientific name	Common name
<i>Bromus racemosus / commutatus</i>	Smooth / Meadow Brome
<i>Bunium bulbocastanum</i>	Great Pignut
<i>Bupleurum tenuissimum</i>	Slender Hare's-ear
<i>Calamagrostis epigejos</i>	Wood Small-reed
<i>Calluna vulgaris</i>	Heather
<i>Caltha palustris</i>	Marsh-marigold
<i>Campanula glomerata</i>	Clustered Bellflower
<i>Campanula rotundifolia</i>	Harebell
<i>Cardamine flexuosa</i>	Wavy Bitter-cress
<i>Cardamine hirsuta</i>	Hairy Bitter-cress
<i>Cardamine pratensis</i>	Cuckooflower
<i>Carduus crispus</i>	Wetted Thistle
<i>Carduus nutans</i>	Musk Thistle
<i>Carex acuta</i>	Slender Tufted-sedge
<i>Carex acutiformis</i>	Lesser Pond-sedge
<i>Carex arenaria</i>	Sand Sedge
<i>Carex binervis</i>	Green-ribbed Sedge
<i>Carex caryophylla</i>	Spring-sedge
<i>Carex distans</i>	Distant Sedge
<i>Carex disticha</i>	Brown Sedge
<i>Carex divulsa s.l.</i>	Grey/Many-leaved Sedge
<i>Carex echinata</i>	Star Sedge
<i>Carex ericetorum</i>	Rare Spring-sedge
<i>Carex flacca</i>	Glaucous Sedge
<i>Carex hirta</i>	Hairy Sedge
<i>Carex leporina (ovalis)</i>	Oval Sedge
<i>Carex muricata ssp. pairae (lamprocarpa)</i>	Small-fruited Prickly-sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex otrubae</i>	False Fox-sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex pilulifera</i>	Pill Sedge
<i>Carex spicata</i>	Spiked Sedge
<i>Carlina vulgaris</i>	Carlina Thistle
<i>Catapodium rigidum</i>	Fern-grass
<i>Centaurea nigra / debeauxii</i>	Common / Chalk Knapweed
<i>Centaurea scabiosa</i>	Greater Knapweed
<i>Centaureum erythraea</i>	Common Centaury
<i>Centaureum pulchellum</i>	Lesser Centaury
<i>Cerastium arvense</i>	Field Mouse-ear
<i>Cerastium fontanum</i>	Common Mouse-ear
<i>Cerastium glomeratum</i>	Sticky Mouse-ear
<i>Cerastium semidecandrum</i>	Little Mouse-ear
<i>Cirsium acaule</i>	Dwarf Thistle
<i>Cirsium eriophorum</i>	Woolly Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Clinopodium acinos</i>	Basil-thyme
<i>Clinopodium ascendens</i>	Common Calamint
<i>Clinopodium calamintha</i>	Lesser Calamint
<i>Clinopodium vulgare</i>	Wild Basil
<i>Coeloglossum viride</i>	Frog Orchid
<i>Conopodium majus</i>	Pignut
<i>Crepis biennis</i>	Rough Hawk's-beard
<i>Crepis capillaris</i>	Smooth Hawk's-beard
<i>Cruciata laevipes</i>	Crosswort

Scientific name	Common name
<i>Cynoglossum officinale</i>	Hound's-tongue
<i>Cynosurus cristatus</i>	Crested Dog's-tail
<i>Dactylis glomerata</i>	Cock's-foot
<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid
<i>Dactylorhiza incarnata</i>	Early Marsh-orchid
<i>Dactylorhiza maculata</i>	Heath Spotted-orchid
<i>Dactylorhiza praetermissa</i>	Southern Marsh-orchid
<i>Danthonia decumbens</i>	Heath-grass
<i>Daucus carota</i>	Wild Carrot
<i>Deschampsia cespitosa</i>	Tufted Hair-grass
<i>Dianthus armeria</i>	Deptford Pink
<i>Dianthus deltoides</i>	Maiden Pink
<i>Dipsacus fullonum</i>	Wild Teasel
<i>Echium vulgare</i>	Viper's-bugloss
<i>Eleocharis palustris</i>	Common Spike-rush
<i>Epilobium palustre</i>	Marsh Willowherb
<i>Equisetum palustre</i>	Marsh Horsetail
<i>Erica tetralix</i>	Cross-leaved Heath
<i>Erodium cicutarium</i>	Common Stork's-bill
<i>Erophila verna</i>	Common Whitlowgrass
<i>Ervilla hirsuta (Vicia hirsuta)</i>	Hairy Tare
<i>Ervum gracile (Vicia parviflora)</i>	Slender Tare
<i>Ervum tetraspermum (Vicia tetrasperma)</i>	Smooth Tare
<i>Eupatorium cannabinum</i>	Hemp-agrimony
<i>Euphorbia cyparissias</i>	Cypress Spurge
<i>Euphrasia nemorosa</i>	Eyebright
<i>Euphrasia pseudokernerii</i>	Chalk Eyebright
<i>Festuca ovina agg.</i>	Sheep's Fescue [agg.]
<i>Festuca rubra</i>	Red Fescue
<i>Ficaria verna (Ranunculus ficaria)</i>	Lesser Celandine
<i>Filago lutescens</i>	Red-tipped Cudweed
<i>Filago germanica (vulgaris)</i>	Common Cudweed
<i>Filago minima</i>	Small Cudweed
<i>Filago pyramidata</i>	Broad-leaved Cudweed
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Filipendula vulgaris</i>	Dropwort
<i>Fragaria vesca</i>	Wild Strawberry
<i>Fritillaria meleagris</i>	Fritillary
<i>Galium album (mollugo)</i>	Hedge Bedstraw
<i>Galium palustre</i>	Marsh-bedstraw
<i>Galium parisiense</i>	Wall Bedstraw
<i>Galium saxatile</i>	Heath Bedstraw
<i>Galium uliginosum</i>	Fen Bedstraw
<i>Galium verum</i>	Lady's Bedstraw
<i>Genista tinctoria</i>	Dyer's Greenweed
<i>Gentianella amarella</i>	Autumn Gentian
<i>Geranium columbinum</i>	Long-stalked Crane's-bill
<i>Geranium dissectum</i>	Cut-leaved Crane's-bill
<i>Geranium molle</i>	Dove's-foot Crane's-bill
<i>Geranium pratense</i>	Meadow Crane's-bill
<i>Geranium pusillum</i>	Small-flowered Crane's-bill
<i>Geranium sanguineum</i>	Bloody Crane's-bill
<i>Glechoma hederacea</i>	Ground-ivy
<i>Gnaphalium sylvaticum</i>	Heath Cudweed

Scientific name	Common name
<i>Gymnadenia conopsea</i>	Fragrant Orchid
<i>Helianthemum nummularium</i>	Common Rock-rose
<i>Helictochloa (Helictotrichon) pratensis</i>	Meadow Oat-grass
<i>Heracleum sphondylium</i>	Hogweed
<i>Herniaria glabra</i>	Smooth Rupturewort
<i>Hieracium</i> agg.	hawkweeds
<i>Himantoglossum hircinum</i>	Lizard Orchid
<i>Hippocrepis comosa</i>	Horseshoe Vetch
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Hordeum secalinum</i>	Meadow Barley
<i>Hypericum hirsutum</i>	Hairy St John's-wort
<i>Hypericum humifusum</i>	Trailing St John's-wort
<i>Hypericum maculatum</i>	Imperforate St John's-wort
<i>Hypericum perforatum</i>	Perforate St John's-wort
<i>Hypericum pulchrum</i>	Slender St John's-wort
<i>Hypericum tetrapterum</i>	Square-stemmed St John's-wort
<i>Hypochaeris glabra</i>	Smooth Cat's-ear
<i>Hypochaeris maculata</i>	Spotted Cat's-ear
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Iberis amara</i>	Wild Candytuft
<i>Inula conyzae</i>	Ploughman's-spikenard
<i>Isolepis setacea</i>	Bristle Club-rush
<i>Jacobaea aquatica (Senecio aquaticus)</i>	Marsh Ragwort
<i>Jacobaea erucifolia (Senecio erucifolius)</i>	Hoary Ragwort
<i>Juncus acutiflorus</i>	Sharp-flowered Rush
<i>Juncus articulatus</i>	Jointed Rush
<i>Juncus bulbosus</i>	Bulbous Rush
<i>Juncus compressus</i>	Round-fruited Rush
<i>Juncus conglomeratus</i>	Compact Rush
<i>Juncus effusus</i>	Soft-rush
<i>Juncus inflexus</i>	Hard Rush
<i>Juncus subnodulosus</i>	Blunt-flowered Rush
<i>Knautia arvensis</i>	Field Scabious
<i>Koeleria macrantha</i>	Crested Hair-grass
<i>Lathyrus aphaca</i>	Yellow Vetchling
<i>Lathyrus nissolia</i>	Grass Vetchling
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leontodon hispidus</i>	Rough Hawkbit
<i>Leontodon saxatilis</i>	Lesser Hawkbit
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Linaria vulgaris</i>	Common Toadflax
<i>Linum catharticum</i>	Fairy Flax
<i>Linum perenne</i>	Perennial Flax
<i>Lithospermum officinale</i>	Common Gromwell
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil
<i>Lotus tenuis (glaber)</i>	Narrow-leaved Bird's-foot-trefoil
<i>Luzula campestris</i>	Field Wood-rush
<i>Luzula multiflora</i>	Heath Wood-rush
<i>Lycopus europaeus</i>	Gypsywort
<i>Lysimachia nummularia</i>	Creeping-Jenny
<i>Malva moschata</i>	Musk-mallow
<i>Marrubium vulgare</i>	White Horehound

Scientific name	Common name
<i>Medicago arabica</i>	Spotted Medick
<i>Medicago lupulina</i>	Black Medick
<i>Medicago minima</i>	Bur Medick
<i>Medicago sativa ssp. falcata</i>	Sickle Medick
<i>Melilotus altissimus</i>	Tall Melilot
<i>Mentha aquatica</i>	Water Mint
<i>Mentha arvensis</i>	Corn Mint
<i>Minuartia hybrida</i>	Fine-leaved Sandwort
<i>Muscari neglectum</i>	Grape-hyacinth
<i>Myosotis discolor</i>	Changing Forget-me-not
<i>Myosotis ramosissima</i>	Early Forget-me-not
<i>Nardus stricta</i>	Mat-grass
<i>Neottia (Listera) ovata</i>	Common Twayblade
<i>Nepeta cataria</i>	Cat-mint
<i>Odontites vernus</i>	Red Bartsia
<i>Oenanthe fistulosa</i>	Tubular Water-dropwort
<i>Oenanthe lachenalii</i>	Parsley Water-dropwort
<i>Oenanthe pimpinelloides</i>	Corky-fruited Water-dropwort
<i>Oenanthe silaifolia</i>	Narrow-leaved Water-dropwort
<i>Onobrychis viciifolia</i>	Sainfoin
<i>Ononis repens</i>	Common Restharrow
<i>Ononis spinosa</i>	Spiny Restharrow
<i>Ophioglossum vulgatum</i>	Adder's-tongue Fern
<i>Ophrys apifera</i>	Bee Orchid
<i>Ophrys insectifera</i>	Fly Orchid
<i>Orchis (Aceras) anthropophora</i>	Man Orchid
<i>Origanum vulgare</i>	Marjoram
<i>Ornithopus perpusillus</i>	Bird's-foot
<i>Orobanche elatior</i>	Knapweed Broomrape
<i>Orobanche minor</i>	Common Broomrape
<i>Pastinaca sativa</i>	Wild Parsnip
<i>Petroselinum segetum</i>	Corn Parsley
<i>Phleum bertolonii</i>	Smaller Cat's-tail
<i>Phleum phleoides</i>	Purple-stem Cat's-tail
<i>Phleum pratense</i>	Timothy
<i>Picris hieracioides</i>	Hawkweed Ox-tongue
<i>Pilosella officinarum</i>	Mouse-ear Hawkweed
<i>Pimpinella major</i>	Greater Burnet-saxifrage
<i>Pimpinella saxifraga</i>	Burnet-saxifrage
<i>Plantago coronopus</i>	Buck's-horn Plantain
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago media</i>	Hoary Plantain
<i>Poa angustifolia</i>	Narrow-leaved Meadow-grass
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa compressa</i>	Flattened Meadow-grass
<i>Poa humilis</i>	Spreading Meadow-grass
<i>Poa pratensis</i>	Smooth Meadow-grass
<i>Poa trivialis</i>	Rough Meadow-grass
<i>Polygala serpyllifolia</i>	Heath Milkwort
<i>Polygala vulgaris</i>	Common Milkwort
<i>Potentilla anglica</i>	Trailing Tormentil
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla argentea</i>	Hoary Cinquefoil
<i>Potentilla erecta</i>	Tormentil

Scientific name	Common name
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Potentilla tabernaemontani (neumanniana)</i>	Spring Cinquefoil
<i>Poterium sanguisorba ssp. sanguisorba</i> (<i>Sanguisorba minor ssp. minor</i>)	Salad Burnet
<i>Primula veris</i>	Cowslip
<i>Primula vulgaris</i>	Primrose
<i>Prunella vulgaris</i>	Self-heal
<i>Pteridium aquilinum</i>	Bracken
<i>Pulicaria dysenterica</i>	Common Fleabane
<i>Pulsatilla vulgaris</i>	Pasqueflower
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus auricomus</i>	Goldilocks Buttercup
<i>Ranunculus bulbosus</i>	Bulbous Buttercup
<i>Ranunculus flammula</i>	Lesser Spearwort
<i>Ranunculus parviflorus</i>	Small-flowered Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Reseda lutea</i>	Wild Mignonette
<i>Rhinanthus minor</i>	Yellow Rattle
<i>Rumex acetosa</i>	Common Sorrel
<i>Rumex acetosella</i>	Sheep's Sorrel
<i>Rumex pulcher</i>	Fiddle Dock
<i>Sagina apetala (apetala ssp. apetala)</i>	Annual Pearlwort
<i>Sagina nodosa</i>	Knotted Pearlwort
<i>Salvia verbenaca</i>	Wild Clary
<i>Samolus valerandi</i>	Brookweed
<i>Sanguisorba officinalis</i>	Great Burnet
<i>Saxifraga granulata</i>	Meadow Saxifrage
<i>Saxifraga tridactylites</i>	Rue-leaved Saxifrage
<i>Scabiosa columbaria</i>	Small Scabious
<i>x Schedolium (Festulolium) loliaceum</i>	Hybrid Fescue
<i>Schedonorus (Festuca) arundinaceus</i>	Tall Fescue
<i>Schedonorus (Festuca) pratensis</i>	Meadow Fescue
<i>Scleranthus annuus</i>	Annual Knawel
<i>Scorzoneroides (Leontodon) autumnalis</i>	Autumn Hawkbit
<i>Scrophularia nodosa</i>	Common Figwort
<i>Sedum acre</i>	Biting Stonecrop
<i>Senecio sylvaticus</i>	Heath Groundsel
<i>Serratula tinctoria</i>	Saw-wort
<i>Seseli libanotis</i>	Moon Carrot
<i>Sherardia arvensis</i>	Field Madder
<i>Silaum silaus</i>	Pepper-saxifrage
<i>Silene (Lychnis) flos-cuculi</i>	Ragged-Robin
<i>Silene conica</i>	Sand Catchfly
<i>Silene otites</i>	Spanish Catchfly
<i>Silene vulgaris</i>	Bladder Champion
<i>Sison amomum</i>	Stone Parsley
<i>Spergula arvensis</i>	Corn Spurrey
<i>Spergularia rubra</i>	Sand Spurrey
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stellaria alsine (uliginosa)</i>	Bog Stitchwort
<i>Stellaria graminea</i>	Lesser Stitchwort
<i>Stellaria pallida</i>	Lesser Chickweed
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Teesdalia nudicaulis</i>	Shepherd's Cress

Scientific name	Common name
<i>Tephrosia integrifolia</i>	Field Fleawort
<i>Teucrium scorodonia</i>	Wood Sage
<i>Thalictrum flavum</i>	Common Meadow-rue
<i>Thalictrum minus</i>	Lesser Meadow-rue
<i>Thesium humifusum</i>	Bastard-toadflax
<i>Thymus polytrichus</i>	Wild Thyme
<i>Thymus pulegioides</i>	Large Thyme
<i>Torilis nodosa</i>	Knotted Hedge-parsley
<i>Tragopogon pratensis</i>	Goat's-beard
<i>Trifolium arvense</i>	Hare's-foot Clover
<i>Trifolium campestre</i>	Hop Trefoil
<i>Trifolium dubium</i>	Lesser Trefoil
<i>Trifolium fragiferum</i>	Strawberry Clover
<i>Trifolium glomeratum</i>	Clustered Clover
<i>Trifolium medium</i>	Zigzag Clover
<i>Trifolium micranthum</i>	Slender Trefoil
<i>Trifolium ochroleucon</i>	Sulphur Clover
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Trifolium scabrum</i>	Rough Clover
<i>Trifolium striatum</i>	Knotted Clover
<i>Trifolium subterraneum</i>	Subterranean Clover
<i>Triglochin palustris</i>	Marsh Arrow-grass
<i>Trisetum flavescens</i>	Yellow Oat-grass
<i>Turritis (Arabis) glabra</i>	Tower Mustard
<i>Tussilago farfara</i>	Colt's-foot
<i>Valeriana dioica</i>	Marsh Valerian
<i>Valeriana officinalis</i>	Common Valerian
<i>Valerianella locusta</i>	Common Cornsalad
<i>Verbascum nigrum</i>	Dark Mullein
<i>Verbascum pulverulentum</i>	Hoary Mullein
<i>Verbascum thapsus</i>	Great Mullein
<i>Verbena officinalis</i>	Vervain
<i>Veronica arvensis</i>	Wall Speedwell
<i>Veronica chamaedrys</i>	Germander Speedwell
<i>Veronica officinalis</i>	Heath Speedwell
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell
<i>Veronica spicata ssp spicata</i>	Spiked Speedwell
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia lathyroides</i>	Spring Vetch
<i>Vicia sativa ssp. nigra</i>	Common Vetch
<i>Viola canina</i>	Heath Dog-violet
<i>Viola hirta</i>	Hairy Violet
<i>Viola odorata</i>	Sweet Violet
<i>Viola riviniana</i>	Common Dog-violet
<i>Viola tricolor</i>	Wild Pansy
<i>Vulpia bromoides</i>	Squirrel-tail Fescue
<i>Vulpia ciliata ssp ambigua</i>	Bearded Fescue
<i>Vulpia myuros</i>	Rat's-tail Fescue

APPENDIX 3C

Vascular plant and lichen indicator species for dry and wet acidic grasslands and open communities on sandy or acidic substrates

The following list includes indicator species for various grassland and more open communities:

- dry acid grassland communities such as U1 (*Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella*)
- the acid/calcareous open communities of the Breck sands (Chippenham & Kennett) and glacial sand/gravel deposits (as exemplified by Hildersham Furze Hills)
- communities grading into the acid end of MG5 (MG5c, *Cynosurus cristatus* - *Centaurea nigra* grassland, *Danthonia decumbens* sub-community)
- wet, mineral or slightly peaty ± acid communities (but not including mires)

Nomenclature follows *New Flora of the British Isles* 4th Edition, C. A. Stace, C&M Floristics, 2019 (names from the 1st Edition are included for reference)

List updated October 2019

Scientific name	Common name	Indicator value
<i>Agrostis canina</i>	Velvet Bent	strong
<i>Agrostis vinealis</i>	Brown Bent	strong
<i>Aira caryophyllaea</i>	Silver Hair-grass	strong
<i>Aira praecox</i>	Early Hair-grass	strong
<i>Anthriscus caucalis</i>	Bur Parsley	weak
<i>Aphanes arvensis</i>	Parsley-piert	weak
<i>Aphanes australis (inexpectata)</i>	Slender Parsley-piert	weak
<i>Arenaria serpyllifolia ssp. serpyllifolia</i>	Thyme-leaved Sandwort	weak
<i>Betonica (Stachys) officinalis</i>	Betony	weak
<i>Calluna vulgaris</i>	Heather	strong
<i>Campanula rotundifolia</i>	Harebell	strong
<i>Carex arenaria</i>	Sand Sedge	strong
<i>Carex echinata</i>	Star Sedge	strong
<i>Carex leporina (ovalis)</i>	Oval Sedge	weak
<i>Carex muricata ssp. pairae (lamprocarpa)</i>	Prickly Sedge	weak
<i>Carex pilulifera</i>	Pill Sedge	strong
<i>Cerastium arvense</i>	Field Mouse-ear	strong
<i>Cerastium semidecandrum</i>	Little Mouse-ear	strong
<i>Cladonia spp</i>	(Pixie) Cup-lichens	strong
<i>Conopodium majus</i>	Pignut	weak
<i>Dactylorhiza maculata</i>	Heath Spotted-orchid	strong
<i>Danthonia decumbens</i>	Heath-grass	strong
<i>Deschampsia flexuosa</i>	Wavy Hair-grass	strong
<i>Dianthus deltoides</i>	Maiden Pink	strong
<i>Echium vulgare</i>	Viper's Bugloss	weak
<i>Epilobium palustre</i>	Marsh Willowherb	weak
<i>Erica tetralix</i>	Cross-leaved Heath	strong
<i>Erodium cicutarium agg</i>	Common Stork's-bill	weak
<i>Erophila verna</i>	Common Whitlow-grass	weak
<i>Festuca ovina agg.</i>	Sheep's Fescue [agg.]	strong
<i>Filago germanica (vulgaris)</i>	Common Cudweed	weak
<i>Filago lutescens</i>	Red-tipped Cudweed	strong

Scientific name	Common name	Indicator value
<i>Filago minima</i>	Small Cudweed	strong
<i>Filago pyramidata</i>	Broad-leaved Cudweed	weak
<i>Galium parisiense</i>	Wall Bedstraw	strong
<i>Galium saxatile</i>	Heath Bedstraw	strong
<i>Galium verum</i>	Lady's Bedstraw	weak
<i>Gnaphalium sylvaticum</i>	Heath Cudweed	strong
<i>Herniaria glabra</i>	Smooth Rupturewort	strong
<i>Hypericum humifusum</i>	Trailing St. John's-wort	weak
<i>Hypericum pulchrum</i>	Slender St. John's-wort	strong
<i>Hypochaeris glabra</i>	Smooth Cat's-ear	strong
<i>Hypochaeris radicata</i>	Common Cat's-ear	weak
<i>Isolepis setacea</i>	Bristle Club-rush	weak
<i>Juncus bulbosus</i>	Bulbous Rush	strong
<i>Lotus corniculatus</i>	Common Bird's-foot-trefoil	weak
<i>Luzula campestris</i>	Field Wood-rush	weak
<i>Luzula multiflora</i>	Heath Wood-rush	strong
<i>Medicago minima</i>	Bur Medick	strong
<i>Medicago sativa ssp. falcata</i>	Sickle Medick	strong
<i>Minuartia hybrida</i>	Fine-leaved Sandwort	strong
<i>Myosotis discolor</i>	Changing Forget-me-not	weak
<i>Myosotis ramossissima</i>	Early Forget-me-not	weak
<i>Nardus stricta</i>	Mat-grass	strong
<i>Ornithopus perpusillus</i>	Bird's-foot	strong
<i>Peltigera spp</i>	Dog-lichens	weak
<i>Phleum phleoides</i>	Purple-stem Cat's-tail	strong
<i>Pilosella officinarum</i>	Mouse-ear Hawkweed	strong
<i>Plantago coronopus</i>	Buck's-horn Plantain	weak
<i>Polygala serpyllifolia</i>	Heath Milkwort	strong
<i>Potentilla argentea</i>	Hoary Cinquefoil	strong
<i>Potentilla erecta</i>	Tormentil	strong
<i>Pteridium aquilinum</i>	Bracken	weak
<i>Rumex acetosa</i>	Common Sorrel	weak
<i>Rumex acetosella</i>	Sheep's Sorrel	strong
<i>Sagina apetala (apetala ssp. apetala)</i>	Annual Pearlwort	weak
<i>Sagina nodosa</i>	Knotted Pearlwort	weak
<i>Saxifraga granulata</i>	Meadow Saxifrage	weak
<i>Saxifraga tridactylites</i>	Rue-leaved Saxifrage	weak
<i>Scleranthus annuus</i>	Annual Knawel	strong
<i>Sedum acre</i>	Biting Stonecrop	weak
<i>Senecio sylvaticus</i>	Heath Groundsel	weak
<i>Silene conica</i>	Sand Catchfly	strong
<i>Silene otites</i>	Spanish Catchfly	strong
<i>Spergula arvensis</i>	Corn Spurrey	strong
<i>Spergularia rubra</i>	Sand Spurrey	strong
<i>Stellaria alsine (uliginosa)</i>	Bog Stitchwort	strong
<i>Stellaria graminea</i>	Lesser Stitchwort	weak
<i>Stellaria pallida</i>	Lesser Chickweed	weak
<i>Succisa pratensis</i>	Devil's-bit Scabious	weak
<i>Teesdalia nudicaulis</i>	Shepherd's Cress	strong
<i>Teucrium scorodonia</i>	Wood Sage	strong
<i>Trifolium arvense</i>	Hare's-foot Clover	weak
<i>Trifolium glomeratum</i>	Clustered Clover	strong
<i>Trifolium scabrum</i>	Rough Clover	strong
<i>Trifolium striatum</i>	Soft Clover	strong

Scientific name	Common name	Indicator value
<i>Trifolium subterraneum</i>	Subterranean Clover	strong
<i>Turritis (Arabis) glabra</i>	Tower Mustard	strong
<i>Veronica arvensis</i>	Wall Speedwell	weak
<i>Veronica officinalis</i>	Heath Speedwell	strong
<i>Veronica spicata ssp. spicata</i>	Spiked Speedwell	strong
<i>Vicia lathyroides</i>	Spring Vetch	strong
<i>Viola canina</i>	Heath Dog-violet	strong
<i>Vulpia ciliata ssp. ambigua</i>	Bearded Fescue	strong

APPENDIX 4

CLASSIFICATION OF STANDING WATER TYPES 10A AND 10B - SUBMERGED AND FLOATING VEGETATION

Classification taken from *Research & survey in nature conservation No. 19: A botanical classification of standing waters in Great Britain*. Margaret Palmer JNCC 1992.

Nomenclature follows *New Flora of the British Isles* 4th Edition, C.A. Stace, C&M Floristics, 2019

	10A	10B
<i>Potamogeton natans</i>	III	
<i>Potamogeton perfoliatus</i>	II	
<i>Potamogeton obtusifolius</i>	II	
<i>Potamogeton berchtoldii</i>	III	
<i>Callitriche stagnalis</i>	II	
<i>Elodea canadensis</i>	IV*	
<i>Nuphar lutea</i>	II	
<i>Lemna minor</i>	IV	
<i>Lemna trisulca</i>	II	
<i>Elodea nuttallii</i>		III
<i>Potamogeton lucens</i>		II
<i>Sparganium emersum</i>	II	II
<i>Persicaria amphibia</i>	III	II
<i>Enteromorpha spp.</i>	II	
<i>Myriophyllum spicatum</i>	III	III
<i>Potamogeton crispus</i>	III	
<i>Stuckenia (Potamogeton) pectinatus</i>	III	IV
<i>Potamogeton pusillus</i>	II	III
<i>Chara spp.</i>	II	IV
Average number of species per site (submerged and floating)	10	6
Average number of species per site (submerged, floating and emergent)	22	15

KEY

Constancy classes

V = 80-100%

IV = 60-80%

III = 40-60%

II = 20-40%

* = cover value high

APPENDIX 5

NATIONALLY RARE, NATIONALLY SCARCE & RED DATA LIST VASCULAR PLANTS FOUND IN CAMBRIDGESHIRE & PETERBOROUGH

Species have been included in this appendix if they are:

- Nationally Rare, NR (occur in 15 or fewer 10km squares in Britain)
- Nationally Scarce, NS (occur in 100-16 10km squares in Britain)
- given an English or GB Red Data List status of Near Threatened or higher **and** are close to being NS **and** are scarce or declining in Cambridgeshire and Peterborough (excluding still widespread arable weeds)

NR & NS status based on the *Taxon Designations_20180725* spreadsheet downloaded from the JNCC website, 28/10/2019

Red data list status is taken from *The Vascular Plant Red Data List for Great Britain*, C.Cheffings & L.Farrell (eds.), JNCC, 2005, with minor updates from the Taxon Designations spreadsheet (2019) and/or the English Red List (Stroh et al., 2014).

Species that occur solely as casuals/introductions/escapes or which are not considered native in Cambridgeshire and Peterborough, even if native elsewhere in Britain, are not included in the appendix

Species are included only if there are local records from 2000 or later. Data provided by BSBI vice-county recorders for Huntingdonshire, Cambridgeshire, Peterborough and Northamptonshire.

Scientific names follow *New Flora of the British Isles* 4th Edition, C. A. Stace, C&M Floristics, 2019 (names from the 1st Edition are included for reference)

List updated October 2019

Scientific name	Common name	English RDL status	GB RDL status	NR/NS
<i>Adonis annua</i> *	Pheasant's Eye	EN	EN	NS
<i>Ajuga chamaepitys</i> *	Ground-pine	EN	EN	NR
<i>Alisma gramineum</i>	Ribbon-leaved Water-plantain	CR	CR	NR
<i>Bromus secalinus</i>	Rye Brome	NT	VU	NS
<i>Bunium bulbocastanum</i>	Great Pignut	LC	LC	NR
<i>Bupleurum tenuissimum</i>	Slender Hare's-ear	VU	VU	NS
<i>Carex appropinquata</i>	Fibrous Tussock-sedge	LC	NT	NS
<i>Carex ericetorum</i>	Rare Spring-sedge	VU	VU	NS
<i>Cirsium tuberosum</i>	Tuberous Thistle	NT	NT	NR
<i>Clinopodium calamintha</i>	Lesser Calamint	LC	VU	NS
<i>Cuscuta europaea</i>	Greater Dodder	LC	LC	NS
<i>Dactylorhiza incarnata</i> ssp. <i>ochroleuca</i> *	Early Marsh-orchid subspecies	CR	CR	NR
<i>Dactylorhiza praetermissima</i> subsp. <i>schoenophila</i> (<i>traunsteinerioides</i>)	Narrow-leaved Marsh-orchid	LC	LC	NS
<i>Dianthus armeria</i>	Deptford Pink	EN	EN	NS
<i>Dianthus deltoides</i>	Maiden Pink	VU	NT	NS

Scientific name	Common name	English RDL status	GB RDL status	NR/NS
<i>Epipactis phyllanthes</i>	Green-flowered Helleborine	LC	LC	NS
<i>Ervum gracile (Vicia parviflora)</i>	Slender Tare	VU	VU	NS
<i>Euphrasia pseudokernerii</i>	Chalk Eyebright	VU	EN	NS
<i>Filago lutescens</i>	Red-tipped Cudweed	EN	EN	NS
<i>Filago pyramidata</i>	Broad-leaved Cudweed	EN	EN	NS
<i>Fritillaria meleagris</i>	Fritillary	WL	Neophyte	NS
<i>Fumaria parviflora</i>	Fine-leaved Fumitory	NT	VU	NS
<i>Fumaria vaillantii</i>	Few-flowered Fumitory	EN	VU	NS
<i>Galeopsis angustifolia*</i>	Red Hemp-nettle	CR	CR	NS
<i>Galium parisiense</i>	Wall Bedstraw	VU	VU	NS
<i>Galium tricornutum*</i>	Corn Cleavers	CR	CR	NR
<i>Herniaria glabra</i>	Smooth Rupturewort	LC	LC	NR
<i>Himantoglossum hircinum</i>	Lizard Orchid	LC	NT	NS
<i>Hordelymus europaeus*</i>	Wood Barley	LC	LC	NS
<i>Hypochaeris glabra</i>	Smooth Cat's-ear	VU	VU	
<i>Hypochaeris maculata</i>	Spotted Cat's-ear	VU	NT	NR
<i>Iberis amara</i>	Wild Candytuft	VU	VU	NS
<i>Jacobaea paludosa (Senecio paludosus)</i>	Fen Ragwort	CR	CR	NR
<i>Lathyrus aphaca</i>	Yellow Vetchling	VU	VU	NS
<i>Lathyrus palustris</i>	Marsh Pea	NT	NT	NS
<i>Limosella aquatica*</i>	Mudwort	LC	LC	NS
<i>Linum perenne</i>	Perennial Flax	LC	VU	NS
<i>Luzula pallescens (pallidula)</i>	Fen Wood-rush	CR	CR	NR
<i>Lysimachia foemina (Anagallis arvensis ssp. foemina)</i>	Blue Pimpernel	DD	LC	NS
<i>Lythrum hyssopifolia</i>	Grass-poly	EN	EN	NR
<i>Medicago minima</i>	Bur Medick	VU	VU	NS
<i>Medicago sativa ssp. falcata</i>	Sickle Medick	LC	LC	NS
<i>Melampyrum cristatum</i>	Crested Cow-wheat	EN	VU	NR
<i>Muscari neglectum</i>	Grape-hyacinth	WL	Neophyte	NR
<i>Myosurus minimus</i>	Mousetail	VU	VU	
<i>Nymphoides peltata</i>	Fringed Water-lily	LC	LC	NS
<i>Oenanthe silaifolia</i>	Narrow-leaved Water-dropwort	LC	NT	NS
<i>Ophrys insectifera*</i>	Fly Orchid	VU	VU	
<i>Orchis (Aceras) anthropophora</i>	Man Orchid	EN	EN	NS
<i>Ornithogalum pyrenaicum*</i>	Spiked Star-of-Bethlehem	LC	LC	NS
<i>Oxybasis glauca (Chenopodium glaucum)</i>	Oak-leaved Goosefoot	VU	VU	NS
<i>Persicaria minor</i>	Small Water-pepper	LC	VU	
<i>Persicaria mitis (laxiflora)</i>	Tasteless Water-pepper	VU	VU	NS
<i>Phleum phleoides</i>	Purple-stem Cat's-tail	LC	LC	NR
<i>Poa infirma</i>	Early Meadow-grass	LC	LC	NS
<i>Potamogeton coloratus</i>	Fen Pondweed	LC	LC	NS
<i>Potamogeton compressus</i>	Grass-wrack Pondweed	EN	EN	NS
<i>Potamogeton friesii</i>	Flat-stalked Pondweed	VU	NT	NS
<i>Potamogeton praelongus</i>	Long-stalked Pondweed	EN	NT	
<i>Potentilla tabernaemontani (neumanniana)</i>	Spring Cinquefoil	LC	LC	NS

Scientific name	Common name	English RDL status	GB RDL status	NR/NS
<i>Primula elatior</i>	Oxlip	LC	NT	NS
<i>Pulsatilla vulgaris</i>	Pasqueflower	VU	VU	NS
<i>Rubus bucknallii</i>	A bramble			NR
<i>Sabulina tenuifolia (Minuartia hybrida)</i>	Fine-leaved Sandwort	EN	EN	NS
<i>Selinum carvifolia</i>	Cambridge Milk-parsley	EN	VU	NR
<i>Seseli libanotis</i>	Moon Carrot	NT	NT	NR
<i>Silene conica</i>	Sand Catchfly	EN	VU	NS
<i>Silene gallica</i>	Small-flowered Catchfly	EN	EN	NS
<i>Silene otites</i>	Spanish Catchfly	EN	EN	NR
<i>Sium latifolium</i>	Greater Water-parsnip	EN	EN	NS
<i>Sonchus palustris</i>	Marsh Sow-thistle	LC	LC	NS
<i>Tephrosieris integrifolia ssp. integrifolia</i>	Field Fleawort	VU	EN	NS
<i>Teucrium scordium</i>	Water Germander	EN	EN	NR
<i>Thelypteris palustris</i>	Marsh Fern	LC	LC	NS
<i>Thesium humifusum</i>	Bastard-toadflax	LC	LC	NS
<i>Thysselinum (Peucedanum, Thyseium) palustre</i>	Milk-parsley	VU	VU	NS
<i>Torilis arvensis</i>	Spreading Hedge-parsley	EN	EN	NS
<i>Trifolium glomeratum</i>	Clustered Clover	LC	LC	NS
<i>Trifolium ochroleucon</i>	Sulphur Clover	VU	NT	NS
<i>Turritis (Arabis) glabra</i>	Tower Mustard	EN	EN	NS
<i>Verbascum pulverulentum</i>	Hoary Mullein	LC	LC	NS
<i>Veronica spicata ssp. spicata</i>	Spiked Speedwell	LC	LC	NR
<i>Viola canina ssp. ruppii* (ssp. montana)</i>	Heath Dog-violet, fen subspecies	EN	EN	NR
<i>Viola stagnina (persicifolia)</i>	Fen Violet	CR	EN	NR
<i>Vulpia ciliata subsp. ambigua</i>	Bearded Fescue	LC	LC	NS
<i>Vulpia unilateralis</i>	Mat-grass Fescue	LC	LC	NS

* Thought likely to be extinct in Cambridgeshire and/or Peterborough

Red Data List status key:

EX – Extinct

EW – Extinct in the wild

CR – Critically endangered

EN – Endangered

VU – Vulnerable

NT – Near threatened

LC – Least concern

DD – Data deficient

NE – Not evaluated

APPENDIX 6A

ESTIMATED NATIONAL NUMBERS OF BIRDS BREEDING AND WINTERING IN BRITAIN - SPECIES RELEVANT TO CAMBRIDGESHIRE

	Breeding pairs	Wintering individuals
Little Grebe	9-14K	8K+
Great Crested Grebe	3-3.4K	5-15K
Red-necked Grebe	0-1k	100-170
Slavonian Grebe	70-80	400
Black-necked Grebe	<20	100
Cormorant	6.2K	15-20K
Bittern	47-51	50-150
Grey Heron	3.5-8.5K	25K
Mute Swan	3.1K	18K
Bewicks Swan	-	5K
Whooper Swan	0-1	4.5K
Greylag Goose	600-1000	100K
Canada Goose	10K	40K
Shelduck	15K	75K
Wigeon	300-500	200K
Gadwall	260	4K
Teal	3.5-6K	100K
Mallard	40K	500K
Pintail	16-41	25K
Garganey	<55	-
Shoveler	500	9K
Pochard	200	50K
Tufted Duck	1.5-2K	60K
Goldeneye	>40	15K
Red-breasted Merganser	1-2K	10K
Marsh Harrier	20-23	?
Hen Harrier	400	750
Montagu's Harrier	1-3	-
Sparrowhawk	15-20K	75-130K
Kestrel	30-40K	75K
Hobby	1K	-
Grey Partridge	100-200K	?
Water Rail	1.5-3K	?
Moorhen	200K	1M
Coot	40-80K	150K
Oystercatcher	33-43K	280K
Stone Curlew	150	-
Little Ringed Plover	475	-
Ringed Plover	8600	23K
Golden Plover	23K	200K
Lapwing	180K	1M

APPENDIX 6B

BREEDING BIRD INDICES

This list covers only those species which have bred or are likely to breed in Cambridgeshire; other species can be used from the relevant list if they occur.

	INDEX	A	B	C	D	E
Little Grebe	2.5		*	*		
Great Crested Grebe	3			*		
Bittern	5		*	*		
Grey Heron	3			*	*	
Mute Swan	3	*		*		
Shelduck	2	*		*		
Gadwall	4	*	*	*		
Teal	3	*	*	*		
Garganey	5	*	*	*		
Shoveler	4		*	*	*	
Pochard	4			*	*	
Tufted Duck	3			*		
Marsh Harrier	5	*	*	*		
Montagu's Harrier	6		*	*		
Sparrowhawk	2					*
Hobby	4					*
Quail	5	*				
Water Rail	3		*	*		
Woodcock	2					*
Lapwing	1		*			
Avocet	4			*		
Ruff	5	*				
Little Ringed Plover	4			*		
Ringed Plover	3			*		
Snipe	2	*	*	*		
Black-tailed Godwit	5	*				
Curlew	2	*				
Redshank	2	*		*		
Common Tern	3			*		
Turtle Dove	1.5				*	
Stock Dove	1					*
Cuckoo	2	*	*	*	*	*
Tawny Owl	2					*
Long-eared Owl	3				*	*
Short-eared Owl	3		*			
Nightjar	3				*	*
Green Woodpecker	2					*
Greater Spotted Woodpecker	2					*
Lesser Spotted Woodpecker	3					*
Kingfisher	3			*		
Yellow Wagtail	1	*		*		
Grey Wagtail	2			*		
Tree Pipit	1.5				*	*

APPENDIX 6B CONTINUED

	INDEX	A	B	C	D	E
Nightingale	3				*	*
Redstart	1					*
Whinchat	2	*	*		*	
Stonechat	2				*	
Cetti's Warbler	4		*	*		
Grasshopper Warbler	2	*	*	*	*	
Whitethroat	2				*	
Lesser Whitethroat	2				*	
Garden Warbler	1					*
Blackcap	1				*	*
Wood Warbler	2					*
Chiffchaff	1					*
Goldcrest	1					*
Savi's Warbler	5		*	*		
Sedge Warbler	1	*	*	*		
Reed Warbler	2		*	*		
Marsh Warbler	5		*	*		
Spotted Flycatcher	1					*
Pied Flycatcher	2					*
Long-tailed Tit	1					*
Marsh Tit	1					*
Willow Tit	2					*
Coal Tit	1					*
Red-backed Shrike	5				*	
Bearded Tit	4		*	*		
Nuthatch	2					*
Tree Creeper	1					*
Reed Bunting	1	*		*		
Linnet	1				*	
Golden Oriole	5					*
Jay	1					*
Siskin	2					*
Redpoll	1					*
Index		11	13	24	10	26

KEY

- A - Lowland Damp Grassland
- B - Lowland Fen Without Water
- C - Lowland Open Water and Margins
- D - Scrub
- E - Woodland

* indicates which species are relevant for that habitat

APPENDIX 6C

RARE BREEDING BIRDS IN CAMBRIDGESHIRE

Garganey
Pochard
Marsh Harrier
Hobby
Quail
Stone Curlew
Black-tailed Godwit
Long-eared Owl
Short-eared Owl
Tree Pipit
Grey Wagtail
Black Redstart
Redstart
Wheatear
Cetti's Warbler
Wood Warbler
Pied Flycatcher
Bearded Tit
Nuthatch
Golden Oriole
Hawfinch

APPENDIX 7

SCORING SYSTEM FOR THE SELECTION OF SITES WITH ASSEMBLAGES OF AMPHIBIANS

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

Scores must 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 50-100m and so on. To compute the total score for a site, add the scores for individual species and add one point for four species present and two points for five species.

APPENDIX 8A

REGIONAL RED LIST ASSESSMENT FOR BUTTERFLIES IN GREAT BRITAIN

From Fox, R., Warren, M.S., and Brereton, T.M. (2010). *A New Red List of British Butterflies*, Species Status 12; 1-32. Joint Nature Conservation Committee, Peterborough.

List edited to show only species present in Cambridgeshire and surrounding counties as of March 2014.

List produced March 2014.

Endangered

Wood White
White-letter Hairstreak
Black Hairstreak
Duke of Burgundy

Vulnerable

Dingy Skipper
Grizzled Skipper
Brown Hairstreak
White Admiral

Near Threatened

Silver-spotted Skipper
Swallowtail
Small Blue
Chalkhill Blue
Purple Emperor
Wall
Small Heath

APPENDIX 8B

THE ODONATA RED DATA LIST FOR GREAT BRITAIN

From Daguet, C.A., French, G.C. and Taylor, P. (2008). *The Odonata Red Data List for Great Britain*. Species Status 11; 1-34. Joint Nature Conservation Committee, Peterborough.

List edited to show only species present in Cambridgeshire and surrounding counties as of March 2014.

List produced March 2014.

Endangered

Aeshna isosceles (Norfolk Hawker)

Near Threatened

Lestes dryas (Scarce Emerald Damselfly)

Ischnura pumilio (Scarce Blue-tailed Damselfly)

Coenagrion pulchellum (Variable Damselfly)

Libellula fulva (Scarce Chaser)

APPENDIX 8C

BEETLES INDICATIVE OF CONTINUITY OF SAPROXYLIC HABITATS, AND THE METHOD OF CALCULATION OF THE INDEX OF ECOLOGICAL CONTINUITY

From Alexander, K.N.A., *Revision of the Index of Ecological Continuity as used for saproxylic beetles*, English Nature Research Report No. 574, 2004, Peterborough.

For detail on the derivation of this method, see:

- Harding P. and Rose F., *Pasture Woodlands in Lowland Britain*, Institute of Terrestrial Ecology, 1986
- Alexander, K.N.A., 1988. The development of an index of ecological continuity for deadwood associated beetles. *In*: R.C. Welch. Insect indicators of ancient woodland. *Antenna*, **12**, pp. 69-70
- Harding, P.T. & Alexander, K.N.A., 1994. The use of saproxylic invertebrates in the selection and evaluation of areas of relic forest in pasture-woodlands. *British Journal of Entomology and Natural History*, **7** (Suppl. 1), pp. 21-26

For information on rarity, see the JNCC spreadsheet “Conservation Designations for UK Taxa”. Available from <http://jncc.defra.gov.uk/> (12/06/2013).

To calculate the Index of Ecological Continuity: score 3 for Grade 1 species, score 2 for Grade 2 and 1 for Grade 3 and then add the scores. All admissible records for a site must be post-1950.

Family	Species	Continuity grade	Other names in common usage
Histeridae	<i>Plegaderus dissectus</i>	2	
Histeridae	<i>Abraeus granulum</i>	1	
Histeridae	<i>Aeletes atomarius</i>	1	
Ptiliidae	<i>Ptenidium gressneri</i>	2	
Ptiliidae	<i>Ptenidium turgidum</i>	2	
Ptiliidae	<i>Micridium halidaii</i>	1	
Ptiliidae	<i>Ptinella limbata</i>	2	
Scydmaenidae	<i>Eutheia formicetorum</i>	1	
Scydmaenidae	<i>Eutheia linearis</i>	1	
Scydmaenidae	<i>Stenichnus bicolor</i>	3	
Scydmaenidae	<i>Stenichnus godarti</i>	2	
Scydmaenidae	<i>Microscydmus minimus</i>	1	
Scydmaenidae	<i>Microscydmus nanus</i>	2	
Scydmaenidae	<i>Euconnus pragensis</i>	1	
Scydmaenidae	<i>Scydmaenus rufus</i>	3	
Omaliinae	<i>Phyllodrepa nigra</i>	1	
Staphylininae	<i>Xantholinus angularis</i>	2	
Staphylininae	<i>Velleius dilatatus</i>	1	
Staphylininae	<i>Quedius aetolicus</i>	3	
Staphylininae	<i>Quedius maurus</i>	3	
Staphylininae	<i>Quedius microps</i>	3	
Staphylininae	<i>Quedius scitus</i>	2	
Staphylininae	<i>Quedius truncicola</i>	3	<i>ventralis</i>
Staphylininae	<i>Quedius xanthopus</i>	3	
Aleocharinae	<i>Euryusa optabilis</i>	2	
Aleocharinae	<i>Euryusa sinuata</i>	2	
Aleocharinae	<i>Tachyusida gracilis</i>	1	

Family	Species	Continuity grade	Other names in common usage
Pselaphidae	<i>Bibloporus minutus</i>	2	
Pselaphidae	<i>Euplectus nanus</i>	1	
Pselaphidae	<i>Euplectus punctatus</i>	1	
Pselaphidae	<i>Plectophloeus nitidus</i>	1	
Pselaphidae	<i>Batrisodes adnexus</i>	1	<i>buqueti</i>
Pselaphidae	<i>Batrisodes delaporti</i>	1	
Pselaphidae	<i>Batrisodes venustus</i>	1	
Scirtidae	<i>Prionocyphon serricornis</i>	3	
Scarabaeidae	<i>Gnorimus nobilis</i>	1	
Scarabaeidae	<i>Gnorimus variabilis</i>	1	
Eucnemidae	<i>Melasis buprestoides</i>	3	
Eucnemidae	<i>Microrhagus pygmaeus</i>	3	
Eucnemidae	<i>Eucnemis capucina</i>	1	
Throscidae	<i>Aulonthroscus brevicollis</i>	1	
Elateridae	<i>Lacon querceus</i>	1	
Elateridae	<i>Calambus bipustulatus</i>	3	
Elateridae	<i>Limoniscus violaceus</i>	1	
Elateridae	<i>Stenagostus rhombeus</i>	3	<i>villosus</i>
Elateridae	<i>Ampedus cardinalis</i>	1	
Elateridae	<i>Ampedus cinnabarinus</i>	1	
Elateridae	<i>Ampedus elongantulus</i>	3	
Elateridae	<i>Ampedus nigerrimus</i>	1	
Elateridae	<i>Ampedus pomorum</i>	3	
Elateridae	<i>Ampedus quercicola</i>	1	<i>pomonae</i>
Elateridae	<i>Ampedus ruficeps</i>	1	
Elateridae	<i>Ampedus rufipennis</i>	1	
Elateridae	<i>Ischnodes sanguinicollis</i>	2	
Elateridae	<i>Megapenthes lugens</i>	1	
Elateridae	<i>Procræus tibialis</i>	1	
Elateridae	<i>Elater ferrugineus</i>	1	
Lycidae	<i>Pyropterus nigroruber</i>	3	
Lycidae	<i>Platycis cosnardi</i>	1	
Lycidae	<i>Platycis minutus</i>	3	
Cantharidae	<i>Malthodes crassicornis</i>	1	
Dermestidae	<i>Globicornis rufitarsis</i>	1	<i>nigripes</i>
Dermestidae	<i>Trinodes hirtus</i>	1	
Bostrichidae	<i>Lyctus brunneus</i>	3	
Anobiidae	<i>Xestobium rufovillosum</i>	3	
Anobiidae	<i>Gastrallus immarginatus</i>	1	
Anobiidae	<i>Dorcatoma ambjoerni</i>	2	
Anobiidae	<i>Dorcatoma chrysomelina</i>	3	
Anobiidae	<i>Dorcatoma dresdensis</i>	2	
Anobiidae	<i>Dorcatoma flavicornis</i>	3	
Anobiidae	<i>Dorcatoma serra</i>	2	
Anobiidae	<i>Anitys rubens</i>	1	
Ptininae	<i>Ptinus subpilosus</i>	2	
Lymexylidae	<i>Hylecoetus dermestoides</i>	3	
Lymexylidae	<i>Lymexylon navalis</i>	2	
Phloiophilidae	<i>Phloiophilus edwardsii</i>	3	
Trogossitidae	<i>Thymalus limbatus</i>	2	
Cleridae	<i>Tillus elongatus</i>	3	
Cleridae	<i>Opilo mollis</i>	3	
Cleridae	<i>Thanasimus formicarius</i>	3	

Family	Species	Continuity grade	Other names in common usage
Cleridae	<i>Korynetes caeruleus</i>	3	
Melyridae	<i>Aplocnemus impressus</i>	2	<i>pini</i>
Melyridae	<i>Aplocnemus nigricornis</i>	2	
Melyridae	<i>Hypebaeus flavipes</i>	1	
Nitidulidae	<i>Carpophilus sexpustulatus</i>	3	
Nitidulidae	<i>Epuraea angustula</i>	3	
Rhizophagidae	<i>Rhizophagus nitidulus</i>	3	
Rhizophagidae	<i>Rhizophagus oblongicollis</i>	1	
Silvanidae	<i>Silvanus bidentatus</i>	2	
Silvanidae	<i>Silvanus unidentatus</i>	3	
Silvanidae	<i>Uleiota planata</i>	2	
Cucujidae	<i>Pediacus depressus</i>	2	
Cucujidae	<i>Pediacus dermestoides</i>	3	
Laemophloeidae	<i>Notolaemus unifasciatus</i>	2	
Cryptophagidae	<i>Cryptophagus micaceus</i>	1	
Erotylidae	<i>Triplax lacordairii</i>	3	
Erotylidae	<i>Triplax russica</i>	3	
Erotylidae	<i>Triplax scutellaris</i>	3	
Erotylidae	<i>Tritoma bipustulata</i>	3	
Biphyllidae	<i>Biphyllus lunatus</i>	3	
Biphyllidae	<i>Diplocoelus fagi</i>	3	
Cerylonidae	<i>Cerylon fagi</i>	2	
Endomychidae	<i>Symbiotes latus</i>	3	
Lathridiidae	<i>Lathridius consimilis</i>	1	
Lathridiidae	<i>Enicmus brevicornis</i>	3	
Lathridiidae	<i>Enicmus rugosus</i>	2	
Lathridiidae	<i>Corticaria alleni</i>	1	
Mycetophagidae	<i>Pseudotriphyllus suturalis</i>	3	
Mycetophagidae	<i>Triphyllus bicolor</i>	2	
Mycetophagidae	<i>Mycetophagus atomarius</i>	3	
Mycetophagidae	<i>Mycetophagus piceus</i>	2	
Mycetophagidae	<i>Mycetophagus populi</i>	2	
Mycetophagidae	<i>Mycetophagus quadriguttatus</i>	2	
Ciidae	<i>Cis coluber</i>	2	
Tetratomidae	<i>Tetratoma ancora</i>	3	
Tetratomidae	<i>Tetratoma desmaresti</i>	3	
Melandryidae	<i>Hallomenus binotatus</i>	3	
Melandryidae	<i>Orchesia undulata</i>	3	
Melandryidae	<i>Anisoxya fuscula</i>	3	
Melandryidae	<i>Abdera biflexuosa</i>	3	
Melandryidae	<i>Abdera quadrifasciata</i>	1	
Melandryidae	<i>Phloiotrya vaudoueri</i>	2	
Melandryidae	<i>Hypulus quercinus</i>	1	
Melandryidae	<i>Melandrya barbata</i>	1	
Melandryidae	<i>Melandrya caraboides</i>	3	
Melandryidae	<i>Conopalpus testaceus</i>	3	
Mordellidae	<i>Tomoxia bucephala</i>	3	
Mordellidae	<i>Mordellistena neuwaldeggiana</i>	3	
Colydiidae	<i>Synchita humeralis</i>	3	
Colydiidae	<i>Synchita separanda</i>	3	
Colydiidae	<i>Cicones variegata</i>	2	
Colydiidae	<i>Bitoma crenata</i>	3	
Colydiidae	<i>Teredus cylindricus</i>	1	

Family	Species	Continuity grade	Other names in common usage
Colydiidae	<i>Oxylaemus variolosus</i>	2	
Tenebrionidae	<i>Eledona agricola</i>	3	
Tenebrionidae	<i>Corticeus unicolor</i>	2	
Tenebrionidae	<i>Prionychus ater</i>	3	
Tenebrionidae	<i>Prionychus melanarius</i>	1	
Tenebrionidae	<i>Pseudocistela ceramboides</i>	2	
Tenebrionidae	<i>Mycetochara humeralis</i>	2	
Oedemeridae	<i>Ischnomera caerulea</i>	1	
Oedemeridae	<i>Ischnomera cinerascens</i>	3	
Oedemeridae	<i>Ischnomera cyanea</i>	3	
Oedemeridae	<i>Ischnomera sanguinicollis</i>	1	
Pyrochroidae	<i>Pyrochroa coccinea</i>	3	
Aderidae	<i>Aderus brevicornis</i>	1	
Aderidae	<i>Aderus oculatus</i>	3	
Scraptiidae	<i>Scraptia fuscula</i>	1	
Scraptiidae	<i>Scraptia testacea</i>	1	
Scraptiidae	<i>Anaspis septentrionalis</i>	1	<i>schilskyana</i>
Cerambycidae	<i>Prionus coriarius</i>	3	
Cerambycidae	<i>Grammoptera ustulata</i>	1	
Cerambycidae	<i>Grammoptera variegata</i>	3	<i>abdominalis</i>
Cerambycidae	<i>Anoplodera scutellata</i>	1	
Cerambycidae	<i>Anoplodera sexguttata</i>	2	
Cerambycidae	<i>Leptura aurulenta</i>	3	
Cerambycidae	<i>Leptura quadrifasciata</i>	3	
Cerambycidae	<i>Leptura revestita</i>	2	
Cerambycidae	<i>Pyrrhidium sanguineum</i>	1	
Cerambycidae	<i>Phymatodes testaceus</i>	3	
Cerambycidae	<i>Mesosa nebulosa</i>	2	
Cerambycidae	<i>Saperda scalaris</i>	3	
Anthribidae	<i>Platyrhinus resinus</i>	3	
Anthribidae	<i>Tropideres sepicola</i>	1	
Anthribidae	<i>Tropideres niveirostris</i>	3	
Anthribidae	<i>Platystomos albinus</i>	3	
Rhynchophoridae	<i>Dryophthorus corticalis</i>	1	
Curculionidae	<i>Rhopalomesites tardyi</i>	3	
Curculionidae	<i>Cossonus parallelepipedus</i>	3	
Curculionidae	<i>Stereocorynes truncorum</i>	1	
Curculionidae	<i>Trachodes hispidus</i>	3	
Scolytinae	<i>Ernoporicus caucasicus</i>	2	
Scolytinae	<i>Ernoporicus fagi</i>	3	
Scolytinae	<i>Ernoporus tiliae</i>	2	
Scolytinae	<i>Xyleborinus saxeseni</i>	3	
Scolytinae	<i>Xyleborus dispar</i>	3	
Scolytinae	<i>Xyleborus dryographus</i>	3	
Scolytinae	<i>Trypodendron domesticum</i>	3	
Scolytinae	<i>Trypodendron signatum</i>	3	
Platypodidae	<i>Platypus cylindrus</i>	3	

APPENDIX 8D

INVERTEBRATE INDEX SCORES

The Invertebrate Index was developed internally in the old Nature Conservancy Council and appears in various limited circulation reports, such as county Invertebrate Site Register reports from at least the mid-1980s. It does not appear to have an official publication associated with it but is widely accepted and used by entomologists.

IUCN Status	National Rarity Status	Local Status	Score
none	Notable	n/a	50
none	Notable B	n/a	50
none	Notable A	n/a	50
none	Red Data Book 3 (Rare)	n/a	100
none	Red Data Book 2 (Vulnerable)	n/a	100
none	Red Data Book 1 (Endangered)	n/a	100
none	Red Data Book K (Unknown)	n/a	100
none	Red Data Book I (Indeterminate)	n/a	100
Critically Endangered	Nationally Scarce	n/a	100
Critically Endangered	Nationally Rare	n/a	100
Critically Endangered	none	n/a	100
Endangered	Nationally Scarce	n/a	100
Endangered	Nationally Rare	n/a	100
Endangered	none	n/a	100
Vulnerable	Nationally Scarce	n/a	100
Vulnerable	Nationally Rare	n/a	100
Vulnerable	none	n/a	100
Near Threatened	Nationally Scarce	n/a	100
Near Threatened	Nationally Rare	n/a	100
Near Threatened	none	n/a	50
Data Deficient	Nationally Scarce	n/a	50
Data Deficient	Nationally Rare	n/a	100
Data Deficient	none	n/a	0
Least Concern	Nationally Scarce	n/a	50
Least Concern	Nationally Rare	n/a	100
none	none	CPASI	50