

# **Cambridgeshire and Peterborough County Wildlife Sites**

## **Selection Guidelines**

**VERSION 6.2**

April 2014

**CAMBRIDGESHIRE & PETERBOROUGH  
COUNTY WILDLIFE SITES PANEL**

**CAMBRIDGESHIRE & PETERBOROUGH  
COUNTY WILDLIFE SITES PANEL**

operates under the umbrella of the Cambridgeshire and Peterborough Biodiversity Partnership. The panel includes suitably qualified and experienced representatives from The Wildlife Trust for Bedfordshire, Cambridgeshire, Northamptonshire; Natural England; The Environment Agency; Cambridgeshire County Council; Peterborough City Council; South Cambridgeshire District Council; Huntingdonshire District Council; East Cambridgeshire District Council; Fenland District Council; Cambridgeshire and Peterborough Environmental Records Centre and many amateur recorders and recording groups. 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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## 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. The initial draft has been altered to reflect the views of the numerous authorities consulted during the preparation of the Criteria and to incorporate the increased knowledge of the County's habitat resource gained by the Phase 1 Habitat Survey (1992-97) and other survey work in the past decade. From time to time it will be 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 in Cambridgeshire and Peterborough is operated by the County Wildlife Sites Panel. The CWS Panel is affiliated to the Cambridgeshire and Peterborough Biodiversity Partnership but operates under its own aim and objectives and is funded separately.

A handbook has been produced which is designed to be a complete guide to how the County Wildlife Site system operates. It is aimed at people who work with this system of non-statutory sites such as land owners and managers, local government officers and officers within statutory agencies and should be read in conjunction with the CWS Criteria.

## CRITERIA FOR SELECTION OF COUNTY WILDLIFE SITES

Unless stated otherwise all uses of the term 'Cambridgeshire' refer to the current administrative county of Cambridgeshire.

### 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 Cambridge 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 fruit<sup>1</sup> or nut trees<sup>2</sup> (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 significance<sup>3</sup>.
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.

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<sup>1</sup> Any fruit that grows or hangs from a tree.

<sup>2</sup> A tree that bears edible nuts.

<sup>3</sup> 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:  
**three or more strong neutral grassland indicator species**  
**six or more strong calcareous grassland indicator species.**
- d) Sites supporting frequent numbers of either:  
**eight or more neutral grassland indicator species (strong and weak)**  
**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).

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

*Appendix 5B - Vascular plants rare in old Cambridgeshire*

*Appendix 5C - Vascular plants rare in Huntingdon and Peterborough Districts*

- a) Sites supporting populations of **nationally rare** or **nationally scarce species**.
- b) Locations supporting populations of **species which occur in three or fewer sites in the county**. (A site is taken here as an area of a one kilometre square centred on the population).

Sites should only be selected where it is known/confidently assumed that the Nationally Rare, Nationally Scarce or Locally Rare species have long-standing populations at the site.

(Lists of locally rare species have been prepared for old Cambridgeshire and Huntingdonshire/Peterborough, but the basis for selecting the species differs in each. Until such time as the selection method is harmonised, all sites containing populations of rare species listed for either/both of the two vice-counties should be considered for County Wildlife Site status).

## 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) 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*

### 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.

### 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 nationally rare = 100 and nationally scarce = 50) should be considered for inclusion. Records should have been made since 1980.

- 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.
- 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).

## 7. **Further advice**

- a) 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.

## 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* 3rd Edition C.A.Stace CUP 2010 (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>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		
<i>Dipsacus pilosus</i>	small teasel		y		

Scientific name	Common name	AWI	woodland plant	W21 scrub	hedgerow value
<i>Dryopteris affinis</i> subsp. <i>affinis</i>	golden-scaled male-fern	y			
<i>Dryopteris borrieri</i>	borrier'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>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>	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 sspp]	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		
<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			

Scientific name	Common name	AWI	woodland plant	W21 scrub	hedgerow value
Mercurialis perennis	dog's mercury		y		
Milium effusum	wood millet	y			
Moehringia trinervia	three-veined sandwort		y		
Neottia nidus-avis	bird's-nest orchid	y			
Neottia (Listera) ovata	common twayblade		y		
Ophrys insectifera	fly orchid		y		
Orchis mascula	early-purple orchid	y			
Oxalis acetosella	wood-sorrel	y			
Paris quadrifolia	herb-paris	y			
Pimpinella major	greater burnet-saxifrage	y			
Platanthera chlorantha	greater butterfly-orchid	y			
Poa nemoralis	wood meadow-grass		y		
Polypodium interjectum	intermediate polypody		y		
Polypodium vulgare	polypody		y		
Polystichum setiferum	soft shield-fern		y		
Populus tremula	aspen		y		y
Potentilla anglica	trailing tormentil		y		
Potentilla sterilis	barren strawberry		y		
Primula elatior	oxlip	y			
Primula vulgaris	primrose	y			
Prunella vulgaris	selfheal		y		
Prunus avium	wild cherry		y		
Prunus spinosa	blackthorn		y	y	y
Pteridium aquilinum	bracken		y		
Pyrus pyraeaster	wild pear	y			y
Quercus petraea	sessile oak	y			y
Quercus robur	pedunculate oak		y	y	y
Ranunculus auricomus	goldilocks buttercup	y			
Rhamnus catharticus	purging buckthorn		y	y	y
Ribes rubrum	redcurrant		y		
Rosa arvensis	field rose		y	y	y
Rosa caesia	northern dog-rose		y		y
Rosa canina agg.	dog rose		y	y	y
Rosa obtusifolia	round-leaved dog-rose		y		y
Rosa stylosa	short-styled field-rose		y		y
Rosa tomentosa	harsh downy-rose		y		y
Rosa sp.	rose species or hybrid		y		y
Rubus caesius	dewberry		y		
Rubus fruticosus agg.	bramble		y		
Rubus idaeus	raspberry		y		
Rumex sanguineus	wood dock		y		
Salix caprea	goat willow		y		y
Salix cinerea	grey willow		y	y	y
Sambucus nigra	elder		y	y	y
Sanicula europaea	sanicle		y		
Schedonorus (Festuca) giganteus	giant fescue		y		
Scrophularia nodosa	common figwort		y		
Sedum telephium	orpine	y			
Silene dioica	red campion		y		
Silene (Lychnis) flos-cuculi	ragged-robin		y		
Sorbus torminalis	wild service-tree	y			y
Stachys sylvatica	hedge woundwort		y		
Stellaria holostea	greater stitchwort		y		



Scientific name	Common name	AWI	woodland plant	W21 scrub	hedgerow value
Tamus communis	black bryony		y		
Teucrium scorodonia	wood sage		y		
Tilia cordata	small-leaved lime	y			y
Ulmus glabra	wych elm		y	y	y
Ulmus minor	small-leaved elm		y	y	y
Ulmus procera	english elm		y	y	y
Ulmus sp	elm species		y	y	y
Veronica chamaedrys	germander speedwell		y		
Veronica montana	wood speedwell	y			
Viburnum lantana	wayfaring-tree		y	y	y
Viburnum opulus	guelder-rose		y		y
Vicia sepium	bush vetch		y		
Viola odorata	sweet violet		y		
Viola reichenbachiana	early dog-violet	y			
Viola riviniana	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
<b><i>Species which may be associated with veteran trees</i></b>	
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"> <li>• Bramley's Seedling</li> <li>• Newton Wonder</li> <li>• Blenheim Orange</li> </ul>	<ul style="list-style-type: none"> <li>• Conference</li> <li>• William's (aka Barton)</li> <li>• Comice</li> </ul>	<ul style="list-style-type: none"> <li>• Myrobalan</li> </ul>

**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
<b>Chatteris</b>	<b>Mrs. Ward</b>	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.
<b>Cottenham area</b>	<b>John Norman</b>	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.
	<b>Queenholme Seedling</b>	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.
<b>Histon area</b>	<b>Colwell</b>	Grown locally and only mentioned once in 1936. No description.
	<b>Histon Cropper</b>	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.
	<b>Barton</b>	In existence 1946. Resembles a Worcester Pearmain. Size medium. Shape: intermediate, truncate conic ribbed and convex. Season: mid., Skin: green flushed and striped red.
<b>Huntingdon</b>	<b>Woodley's Favourite</b>	Exhibited 1888 RHS from Huntingdon. First recorded 1883. Size: large. Shape: intermediate, rectangular, convex, ribbed. Skin: greenish yellow Season: mid.
<b>Peterborough area</b>	<b>Jenny Brewster</b>	Exhibited at RHS in 1894 (only record). Possibly raised by Rev. Brewster.
	<b>Orton Favourite</b>	Exhibited 1894 RHS from Orton Longville (only record). Size: :large. Skin: red. Season: early – mid.
	<b>Paston</b>	Exhibited 1905 RHS (only record) from P/borough Season: mid.
	<b>Leyden Pippin</b>	Exhibited 1883 RHS (only record) from P/borough Size: medium. Shape: conic, ribbed on body. Skin: green flushed with bronze. Flavour: sweet.

	<b>Scarlet Russet</b>	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.
	<b>Triumph</b>	Exhibited 1904 RHS (only record) from Peterborough.
	<b>Wadlow Pride</b>	Exhibited 1902. Only record. Season: mid.
	<b>Pinder's Seedling</b>	Exhibited 1900 RHS. Only record. Season: mid.
<b>Wisbech area</b>	<b>James Kirk</b>	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.
	<b>Lord Kitchener</b>	Exhibited 1899 RHS from Wisbech (only record). Size: large. Season: early.
	<b>Scarlet Beauty</b>	Exhibited at 1906 RHS from Wisbech (only record). No description.
<b>Cambridge</b>	<b>Haggerstone Pippin</b>	A late season dessert apple raised by Mr Haggerstone in about 1805 from the seed of an American apple variety
<b>Cambridgeshire</b>	<b>Turbanks</b>	Exhibited 1883 RHS from Cambridgeshire (only record). No description.

Local fruit identification contacts Email [info@eeaop.org.uk](mailto:info@eeaop.org.uk) or [orchardbob@gmail.com](mailto:orchardbob@gmail.com)

## APPENDIX 2E

### LOCAL TRADITIONAL MANAGEMENT PRACTICES

Local traditional management practices include the following:

- Growing soft<sup>4</sup> 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.

<sup>4</sup> 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* 3rd Edition C.A.Stace, CUP, 2010 (names from the 1st Edition are included for reference)

\* signifies strong indicators

List updated January 2013

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</i> (Orchis) <i>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</i> ( <i>Helictotrichon</i> ) <i>pratensis</i>	Meadow Oat-grass		y		y
<i>Avenula</i> ( <i>Helictotrichon</i> ) <i>pubescens</i>	Downy Oat-grass		y		y
<i>Betonica</i> ( <i>Stachys</i> ) <i>officinalis</i>	Betony		y		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</i> / <i>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</i> / <i>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		

Scientific name	Common name	NG	NG *	CG	CG *
<i>Dactylorhiza praetermissa</i>	Southern Marsh-orchid		y		
<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</i> ( <i>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		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>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>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</i> ( <i>Listera</i> ) <i>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 viciifolia</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</i> ( <i>Aceras</i> ) <i>anthropophora</i>	Man Orchid				y
<i>Origanum vulgare</i>	Marjoram				y
<i>Orobanche 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
<i>Pimpinella saxifraga</i>	Burnet-saxifrage	y		y	
<i>Plantago media</i>	Hoary Plantain	y		y	



Scientific name	Common name	NG	NG *	CG	CG *
<i>Polygala vulgaris</i>	Common Milkwort		y		y
<i>Potentilla erecta</i>	Tormentil		y		
<i>Potentilla sterilis</i>	Barren Strawberry		y		
<i>Poterium sanguisorba</i> ssp. <i>sanguisorba</i> ( <i>Sanguisorba minor</i> ssp. <i>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>Senecio aquaticus</i>	Marsh Ragwort		y		
<i>Senecio erucifolius</i>	Hoary Ragwort	y		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>Tephrosieris 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* 3rd Edition C.A.Stace CUP 2010 (names from the 1st Edition are included for reference)

List produced January 2013

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</i> (Orchis) <i>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</i> ( <i>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>Avenula</i> ( <i>Helictotrichon</i> ) <i>pratensis</i>	Meadow Oat-grass
<i>Avenula</i> ( <i>Helictotrichon</i> ) <i>pubescens</i>	Downy Oat-grass
<i>Bellis perennis</i>	Common Daisy
<i>Betonica</i> ( <i>Stachys</i> ) <i>officinalis</i>	Betony
<i>Blackstonia perfoliata</i>	Yellow-wort
<i>Blysmus compressus</i>	Flat-sedge
<i>Brachypodium pinnatum</i>	Heath False-brome
<i>Brachypodium rupestre</i>	Tor-grass
<i>Briza media</i>	Quaking-grass
<i>Bromopsis erecta</i>	Upright Brome
<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	Common Soft-brome
<i>Bromus racemosus</i> / <i>commutatus</i>	Smooth / Meadow Brome

Scientific name	Common name
<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</i> s.l.	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</i> ssp. <i>pairae</i> ( <i>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>Centaurium erythraea</i>	Common Centaury
<i>Centaurium 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
<i>Cynoglossum officinale</i>	Hound's-tongue

<b>Scientific name</b>	<b>Common name</b>
<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>Deschampsia flexuosa</i>	Wavy 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>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</i> agg.	Sheep's Fescue [agg.]
<i>Festuca rubra</i>	Red Fescue
<i>Ficaria verna</i> ( <i>Ranunculus ficaria</i> )	Lesser Celandine
<i>Filago lutescens</i>	Red-tipped Cudweed
<i>Filago minima</i>	Small Cudweed
<i>Filago pyramidata</i>	Broad-leaved Cudweed
<i>Filago vulgaris</i>	Common 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</i> ( <i>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
<i>Gymnadenia conopsea</i>	Fragrant Orchid
<i>Helianthemum nummularium</i>	Common Rock-rose
<i>Heracleum sphondylium</i>	Hogweed

Scientific name	Common name
<i>Herniaria glabra</i>	Smooth Rupturewort
<i>Hieracium</i> spp	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>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</i> (glaber)	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
<i>Medicago arabica</i>	Spotted Medick
<i>Medicago lupulina</i>	Black Medick
<i>Medicago minima</i>	Bur Medick
<i>Medicago sativa</i> ssp. <i>falcata</i>	Sickle Medick
<i>Melilotus altissimus</i>	Tall Melilot
<i>Mentha aquatica</i>	Water Mint

Scientific name	Common name
<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>Persicaria bistorta</i>	Common Bistort
<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
<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

Scientific name	Common name
<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</i> ( <i>apetala</i> ssp. <i>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
x <i>Schedolium</i> ( <i>Festulolium</i> ) <i>loliaceum</i>	Hybrid Fescue
<i>Schedonorus</i> ( <i>Festuca</i> ) <i>arundinaceus</i>	Tall Fescue
<i>Schedonorus</i> ( <i>Festuca</i> ) <i>pratensis</i>	Meadow Fescue
<i>Scleranthus annuus</i>	Annual Knawel
<i>Scorzoneroides</i> ( <i>Leontodon</i> ) <i>autumnalis</i>	Autumn Hawkbit
<i>Scrophularia nodosa</i>	Common Figwort
<i>Sedum acre</i>	Biting Stonecrop
<i>Senecio aquaticus</i>	Marsh Ragwort
<i>Senecio erucifolius</i>	Hoary Ragwort
<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</i> ( <i>Lychnis</i> ) <i>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</i> ( <i>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
<i>Tephrosia integrifolia</i>	Field Fleawort
<i>Teucrium scorodonia</i>	Wood Sage
<i>Thalictrum flavum</i>	Common Meadow-rue

<b>Scientific name</b>	<b>Common name</b>
<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</i> ssp. <i>spicata</i>	Spiked Speedwell
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia hirsuta</i>	Hairy Tare
<i>Vicia lathyroides</i>	Spring Vetch
<i>Vicia parviflora</i>	Slender Tare
<i>Vicia sativa</i> ssp. <i>nigra</i>	Common Vetch
<i>Vicia tetrasperma</i>	Smooth Tare
<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</i> ssp. <i>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)

Scientific names follow *New Flora of the British Isles* 3rd Edition, C.A.Stace, CUP, 2010 (names from the 1st Edition are included for reference)

List updated May 2012

Scientific name	Common name	Indicator value
<i>Agrostis canina</i>	Velvet Bent	strong
<i>Agrostis vinealis</i>	Brown Bent	strong
<i>Aira caryophyllea</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</i> (inexpectata)	Slender Parsley-piert	weak
<i>Arenaria serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme-leaved Sandwort	weak
<i>Betonica</i> ( <i>Stachys</i> ) <i>officinalis</i>	Betony	strong
<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</i> (ovalis)	Oval Sedge	weak
<i>Carex muricata</i> ssp. <i>pairae</i> ( <i>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</i> spp	(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</i> agg	Common Stork's-bill	weak
<i>Erophila verna</i>	Common Whitlow-grass	weak
<i>Festuca ovina</i> agg.	Sheep's Fescue [agg.]	strong
<i>Filago lutescens</i>	Red-tipped Cudweed	strong
<i>Filago minima</i>	Small Cudweed	strong
<i>Filago pyramidata</i>	Broad-leaved Cudweed	weak
<i>Filago vulgaris</i>	Common Cudweed	weak
<i>Galium parisiense</i>	Wall Bedstraw	strong
<i>Galium saxatile</i>	Heath Bedstraw	strong
<i>Galium verum</i>	Lady's Bedstraw	weak

Scientific name	Common name	Indicator value
<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	weak
<i>Medicago minima</i>	Bur Medick	strong
<i>Medicago sativa</i> ssp. <i>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</i> spp	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	weak
<i>Sagina apetala</i> ( <i>apetala</i> ssp. <i>apetala</i> )	Annual Pearlwort	weak
<i>Sagina nodosa</i>	Knotted Pearlwort	weak
<i>Saxifraga granulata</i>	Meadow Saxifrage	strong
<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</i> ( <i>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	strong
<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
<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</i> ssp. <i>spicata</i>	Spiked Speedwell	strong

<b>Scientific name</b>	<b>Common name</b>	<b>Indicator value</b>
Vicia lathyroides	Spring Vetch	strong
Viola canina	Heath Dog-violet	strong
Vulpia ciliata ssp. ambigua	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* 1st Edition C.A.Stace CUP 1991.

	10A	10B	
Potamogeton natans		III	
Potamogeton perfoliatus	II		
Potamogeton obtusifolius	II		
Potamogeton berchtoldii	III		
Callitriche stagnalis	II		
Elodea canadensis	IV*		
Nuphar lutea	II		
Lemna minor	IV		
Lemna trisulca		II	
Elodea nuttallii		III	
Potamogeton lucens			II
Sparganium emersum		II	II
Persicaria amphibia	III	II	
Enteromorpha spp.	II		
Myriophyllum spicatum	III	III	
Potamogeton crispus		III	
Potamogeton pectinatus	III	IV	
Potamogeton pusillus		II	III
Chara spp.	II	IV	
Av. number of species per site (submerged and floating)	10	6	
Av. 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 5A

### 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) - 21 species
- Nationally Scarce, NS (occur in 100-16 10km squares in Britain) - 55 species
- given a 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) - 5 species

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 update from Taxon Designations spreadsheet

NR & NS status based on the *Taxon Designations\_20111020* spreadsheet downloaded from the JNCC website, 18/12/2012

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 1970 or later. Data provided by D.Broughton, T.C.E.Wells<sup>†</sup> (vc31, Hunts); G.Crompton, D.Wells<sup>†</sup>, N.Millar (vc29, old Cambs); R.Wilson, G.Gent (vc32, Peterborough and Northants)

Scientific names follow *New Flora of the British Isles* 3rd Edition, C.A.Stace, CUP, 2010 (names from the 1st Edition are included for reference)

List updated December 2012

Scientific name	Common name	Red Data List status	NR/NS
<i>Ajuga chamaepitys</i> *	Ground-pine	Endangered	NR
<i>Alisma gramineum</i> *	Ribbon-leaved Water-plantain	Critically Endangered	NR
<i>Bromus secalinus</i>	Rye Brome	Vulnerable	NS
<i>Bunium bulbocastanum</i>	Great Pignut	Least Concern	NR
<i>Bupleurum tenuissimum</i>	Slender Hare's-ear	Vulnerable	NS
<i>Carex appropinquata</i>	Fibrous Tussock-sedge	Near Threatened	NS
<i>Carex ericetorum</i>	Rare Spring-sedge	Vulnerable	NS
<i>Chenopodium glaucum</i>	Oak-leaved Goosefoot	Vulnerable	NS
<i>Cirsium tuberosum</i> *	Tuberous Thistle	Near Threatened	NR
<i>Clinopodium calamintha</i>	Lesser Calamint	Vulnerable	NS
<i>Cuscuta europaea</i>	Greater Dodder	Least Concern	NS
<i>Dactylorhiza incarnata</i> subsp. <i>ochroleuca</i>	Early Marsh-orchid subspecies	Critically Endangered	NR
<i>Dactylorhiza traunsteinerioides</i> ( <i>traunsteineri</i> )	Narrow-leaved Marsh-orchid	Least Concern	NS
<i>Dianthus armeria</i> *	Deptford Pink	Endangered	NS
<i>Dianthus deltoides</i>	Maiden Pink	Near Threatened	NS
<i>Epipactis phyllanthes</i>	Green-flowered Helleborine	Least Concern	NS

Scientific name	Common name	Red Data List status	NR/NS
<i>Euphrasia pseudokernerii</i>	Chalk Eyebright	Endangered	NS
<i>Filago lutescens</i>	Red-tipped Cudweed	Endangered	NS
<i>Filago pyramidata</i>	Broad-leaved Cudweed	Endangered	NS
<i>Fritillaria meleagris</i>	Fritillary	Vulnerable	NS
<i>Fumaria parviflora</i>	Fine-leaved Fumitory	Vulnerable	NS
<i>Fumaria vaillantii</i>	Few-flowered Fumitory	Vulnerable	NS
<i>Galeopsis angustifolia</i>	Red Hemp-nettle	Critically Endangered	NS
<i>Galium parisiense</i>	Wall Bedstraw	Vulnerable	NS
<i>Galium tricornutum</i>	Corn Cleavers	Critically Endangered	NR
<i>Herniaria glabra</i>	Smooth Rupturewort	Least Concern	NR
<i>Himantoglossum hircinum</i>	Lizard Orchid	Near Threatened	NS
<i>Hordelymus europaeus</i>	Wood Barley	Least Concern	NS
<i>Hypochaeris glabra</i>	Smooth Cat's-ear	Vulnerable	
<i>Hypochaeris maculata</i>	Spotted Cat's-ear	Near Threatened	NR
<i>Iberis amara</i>	Wild Candytuft	Vulnerable	NS
<i>Lathyrus aphaca</i>	Yellow Vetchling	Vulnerable	NS
<i>Lathyrus palustris</i>	Marsh Pea	Near Threatened	NS
<i>Linum perenne</i>	Perennial Flax	Least Concern	NS
<i>Luzula pallescens (pallidula)</i>	Fen Wood-rush	Critically Endangered	NR
<i>Lythrum hyssopifolia</i>	Grass-poly	Endangered	NR
<i>Medicago minima</i>	Bur Medick	Vulnerable	NS
<i>Medicago sativa subsp. falcata</i>	Sickle Medick	Least Concern	NS
<i>Melampyrum cristatum</i>	Crested Cow-wheat	Vulnerable	NR
<i>Minuartia hybrida</i>	Fine-leaved Sandwort	Endangered	NS
<i>Muscari neglectum</i>	Grape-hyacinth	Vulnerable	NR
<i>Myosurus minimus</i>	Mousetail	Vulnerable	
<i>Nymphoides peltata</i>	Fringed Water-lily	Least Concern	NS
<i>Oenanthe silaifolia</i>	Narrow-leaved Water-dropwort	Near Threatened	NS
<i>Ophrys insectifera</i>	Fly Orchid	Vulnerable	
<i>Orchis (Aceras) anthropophora</i>	Man Orchid	Endangered	NS
<i>Ornithogalum pyrenaicum</i>	Spiked Star-of-Bethlehem	Least Concern	NS
<i>Persicaria minor</i>	Small Water-pepper	Vulnerable	
<i>Persicaria mitis (laxiflora)</i>	Tasteless Water-pepper	Vulnerable	NS
<i>Phleum phleoides</i>	Purple-stem Cat's-tail	Least Concern	NR
<i>Poa infirma</i>	Early Meadow-grass	Least Concern	NS
<i>Potamogeton coloratus</i>	Fen Pondweed	Least Concern	NS
<i>Potamogeton compressus</i>	Grass-wrack Pondweed	Endangered	NS
<i>Potamogeton friesii</i>	Flat-stalked Pondweed	Near Threatened	NS
<i>Potamogeton praelongus</i>	Long-stalked Pondweed	Near Threatened	
<i>Potentilla tabernaemontani (neumanniana)</i>	Spring Cinquefoil	Least Concern	NS
<i>Primula elatior</i>	Oxlip	Near Threatened	NS
<i>Pulsatilla vulgaris</i>	Pasqueflower	Vulnerable	NS
<i>Selinum carvifolia</i>	Cambridge Milk-parsley	Vulnerable	NR
<i>Senecio paludosus</i>	Fen Ragwort	Critically Endangered	NR
<i>Seseli libanotis</i>	Moon Carrot	Near Threatened	NR
<i>Silene conica</i>	Sand Catchfly	Vulnerable	NS
<i>Silene gallica</i>	Small-flowered Catchfly	Endangered	NS
<i>Silene otites</i>	Spanish Catchfly	Endangered	NR
<i>Sium latifolium</i>	Greater Water-parsnip	Endangered	NS
<i>Sonchus palustris</i>	Marsh Sow-thistle	Least Concern	NS

Scientific name	Common name	Red Data List status	NR/NS
<i>Tephrosia integrifolia</i> subsp. <i>integrifolia</i>	Field Fleawort	Endangered	NS
<i>Teucrium scordium</i>	Water Germander	Endangered	NR
<i>Thelypteris palustris</i>	Marsh Fern	Least Concern	NS
<i>Thesium humifusum</i>	Bastard-toadflax	Least Concern	NS
<i>Thyselium (Peucedanum) palustre</i>	Milk-parsley	Vulnerable	NS
<i>Torilis arvensis</i>	Spreading Hedge-parsley	Endangered	NS
<i>Trifolium glomeratum</i>	Clustered Clover	Least Concern	NS
<i>Trifolium ochroleucon</i>	Sulphur Clover	Near Threatened	NS
<i>Turritis (Arabis) glabra</i>	Tower Mustard	Endangered	NS
<i>Verbascum pulverulentum</i>	Hoary Mullein	Least Concern	NS
<i>Veronica spicata</i> subsp. <i>spicata</i>	Spiked Speedwell	Least Concern	NR
<i>Vicia parviflora</i>	Slender Tare	Vulnerable	NS
<i>Viola canina</i> subsp. <i>montana</i>	Heath Dog-violet, fen subspecies	Endangered	NR
<i>Viola persicifolia</i>	Fen Violet	Endangered	NR
<i>Vulpia ciliata</i> subsp. <i>ambigua</i>	Bearded Fescue	Least Concern	NS

\* Thought likely to be extinct in Cambridgeshire & Peterborough

## APPENDIX 5B

### VASCULAR PLANTS RARE IN OLD CAMBRIDGESHIRE

Species recorded in 3 or fewer sites in the old county and which have been present at the site for 5 years or more since 1970. Nationally Rare and Scarce species not included. Data originally provided by G.Crompton and D.Wells, updated by N.Millar 2005.

Nomenclature follows *New Flora of the British Isles* 1st Edition, C.A. Stace, CUP, 1991

This list is subject to review and the advice of the County Recorder should be sought when applying these criteria.

Adoxa moschatellina	Epilobium obscurum
Agrostis canina	Epipactis palustris
Agrostis vinealis	Euphorbia amygdaloides
Allium oleraceum	Euphorbia cyparissias
Anagallis arvensis ssp. caerulea	Festuca brevipila
Aphanes inexpectata	Filago minima
Aster tripolium	Fumaria muralis ssp. boraei
Atriplex littoralis	Galium mollugo ssp. erectum
Atriplex portulacoides	Galium odoratum
Blysmus compressus	Galium saxatile
Bromus racemosus	Galium tricornutum
Calluna vulgaris	Geranium sanguineum
Cardamine amara	Glaux maritima
Carex arenaria	Gnaphalium sylvaticum
Carex lasiocarpa	Helleborus viridis
Carex ovalis	Hieracium cheriense
Carex pulicaris	Hieracium diaphanum
Carex vesicaria	Hieracium grandidens
Carex viridula ssp. viridula	Hieracium maculatum
Catabrosa aquatica	Hieracium oblongum
Ceratophyllum submersum	Hieracium rigens
Chrysosplenium oppositifolium	Hieracium salticola
Cirsium dissectum	Hieracium scotostictum
Cladium mariscus	Hieracium umbellatum
Cochlearia anglica	Hypericum humifusum
Coeloglossum viride	Hypericum maculatum ssp.
Convallaria majalis	obtusiusculum
Cuscuta epithymum	Hypericum pulchrum
Dactylorhiza incarnata ssp. ochroleuca	Hypochaeris glabra
Dactylorhiza incarnata ssp. pulchella	Juncus bulbosus
Deschampsia flexuosa	Juncus gerardii
Dipsacus pilosus	Juniperus communis
Dryopteris affinis ssp. affinis	Limonium vulgare
Dryopteris affinis ssp. borrieri	Luzula sylvatica
Dryopteris carthusiana	Lysimachia nemorum
Eleocharis quinqueflora	Menyanthes trifoliata
Elytrigia atherica	Myosotis discolor



Myrica gale  
Nardus stricta  
Ophrys insectifera  
Ornithopus perpusillus  
Parapholis strigosa  
Parnassia palustris  
Pedicularis palustris  
Persicaria bistorta  
Persicaria minor  
Phleum arenarium  
Pinguicula vulgaris  
Plantago maritima  
Potamogeton alpinus  
Potamogeton gramineus  
Potamogeton praelongus  
Potentilla argentea  
Puccinellia distans  
Puccinellia maritima  
Quercus petraea  
Ranunculus sardous  
Rosa micrantha  
Rubus anglocandicans  
Rubus britannicus  
Rubus cardiophyllus  
Rubus criniger  
Rubus flexuosus  
Rubus insectifolius  
Rubus lindleianus  
Rubus nemorosus  
Rubus pedemontanus  
Rubus polyanthemus  
Rubus proiectus  
Rubus pruinosis  
Rubus pyramidalis  
Rubus rufescens  
Sagina apetala ssp. apetala  
Sagina maritima  
Sagina nodosa  
Salicornia ramosissima  
Salix aurita  
Salix myrsinifolia  
Salix repens  
Sambucus ebulus  
Schoenus nigricans  
Seriphidium maritimum  
Sorbus torminalis  
Sparganium natans  
Spergularia marina  
Spergularia media  
Spiranthes spiralis  
Stellaria uliginosa  
Suaeda maritima  
Teucrium scorodonia  
Tilia cordata  
Trifolium scabrum  
Trifolium striatum  
Trifolium subterraneum  
Valerianella carinata  
Vicia lathyroides  
Viola canina ssp. canina  
Viola canina ssp. montana

## APPENDIX 5C

### VASCULAR PLANTS RARE IN HUNTINGDON AND PETERBOROUGH DISTRICTS

Species recorded in 5 or fewer tetrads. Nationally Rare and Scarce species not included.

Data provided by T.C.E.Wells.

Nomenclature follows *New Flora of the British Isles* 1st Edition, C.A. Stace, CUP, 1991

This list is subject to review and the advice of the County Recorder should be sought when applying these criteria.

NAME	NUMBER OF TETRADS	NAME	NUMBER OF TETRADS
<i>Agrimonia procera</i>	3	<i>Coeloglossum viride</i>	1
<i>Aira caryophylla</i>	3	<i>Convallaria majalis</i>	2
<i>Alchemilla filicaulis</i> ssp. <i>vestita</i>	2	<i>Cuscuta epithymum</i>	3
<i>Alopecurus aequalis</i>	5	<i>Danthonia decumbens</i>	5
<i>Anagallis arvensis</i> ssp. <i>coerulea</i>	2	<i>Diplotaxis tenuifolia</i>	3
<i>Anagallis tenella</i>	3	<i>Dryopteris carthusiana</i>	5
<i>Antennaria dioica</i>	1	<i>Dryopteris affinis</i> ssp. <i>affinis</i>	3
<i>Anthriscus caucalis</i>	2	<i>Eleogiton fluitans</i>	1
<i>Anthyllis vulneraria</i>	5	<i>Epilobium palustre</i>	2
<i>Apium graveolens</i>	2	<i>Epilobium roseum</i>	1
<i>Apium inundatum</i>	1	<i>Epipactis helleborine</i>	1
<i>Asperula cynanchica</i>	3	<i>Epipactis purpurata</i>	2
<i>Asplenium trichomanes</i>	4	<i>Erica tetralix</i>	3
<i>Baldellia ranunculoides</i>	2	<i>Eriophorum angustifolium</i>	1
<i>Bidens cernua</i>	3	<i>Euphorbia platyphyllos</i>	5
<i>Blechnum spicant</i>	4	<i>Festuca lemanii/brevipila</i>	2
<i>Blysmus compressus</i>	1	<i>Frangula alnus</i>	3
<i>Campanula latifolia</i>	1	<i>Gagea lutea</i>	1
<i>Carex binervis</i>	4	<i>Galium mollugo</i> ssp. <i>erectum</i>	3
<i>Carex divulsa</i>	2	<i>Galium odoratum</i>	2
<i>Carex echinata</i>	1	<i>Genista tinctoria</i>	5
<i>Carex hostiana</i>	2	<i>Geranium columbinum</i>	3
<i>Carex lasiocarpa</i>	1	<i>Geranium lucidum</i>	5
<i>Carex pilulifera</i>	3	<i>Glyceria declinata</i>	1
<i>Carex pulicaris</i>	2	<i>Gnaphalium sylvaticum</i>	2
<i>Carex rostrata</i>	2	<i>Gymnadenia conopsea</i>	4
<i>Carex viridula</i> ssp. <i>viridula</i>	1	<i>Helleborus viridis</i>	3
<i>Catabrosa aquatica</i>	2	<i>Hieracium umbellatum</i>	3
<i>Ceratocapnos claviculata</i>	1	<i>Hippocrepis comosa</i>	5
<i>Ceratophyllum submersum</i>	1	<i>Hydrocharis morsus-ranae</i>	3
<i>Ceterach officinarum</i>	5	<i>Hypericum pulchrum</i>	1
<i>Cirsium dissectum</i>	2	<i>Juncus bulbosus</i>	1
<i>Cladium mariscus</i>	3	<i>Lathraea squamaria</i>	1
<i>Clinopodium acinos</i>	3	<i>Lepidium campestre</i>	4
<i>Clinopodium ascendens</i>	3	<i>Luzula sylvatica</i>	5

<i>Lysimachia nemorum</i>	2	<i>Vaccinium myrtillus</i>	1
<i>Lythrum portula</i>	1	<i>Veronica montana</i>	4
<i>Melica nutans</i>	4	<i>Veronica scutellata</i>	4
<i>Menyanthes trifoliata</i>	1	<i>Viola canina</i>	5
<i>Molinia caerulea</i>	4	<i>Viscum album</i>	3
<i>Montia fontana</i>	1		
<i>Mycelis muralis</i>	2		
<i>Myosotis sylvatica</i>	4		
<i>Myosurus minimus</i>	1		
<i>Myrica gale</i>	3		
<i>Myriophyllum alterniflorum</i>	2		
<i>Neottia nidus-avis</i>	4		
<i>Nepeta cataria</i>	4		
<i>Oenanthe fluviatilis</i>	3		
<i>Onobrychis viciifolia</i>	5		
<i>Ophrys insectifera</i>	2		
<i>Parapholis strigosa</i>	1		
<i>Paris quadrifolia</i>	3		
<i>Pedicularis palustris</i>	1		
<i>Persicaria laxiflora</i>	4		
<i>Petroselinum segetum</i>	1		
<i>Pinguicula vulgaris</i>	1		
<i>Poa humilis</i>	3		
<i>Polygala serpyllifolia</i>	1		
<i>Potamogeton friesii</i>	4		
<i>Potamogeton gramineus</i>	1		
<i>Potamogeton praelongus</i>	1		
<i>Potentilla anglica</i>	1		
<i>Potentilla argentea</i>	1		
<i>Potentilla palustris</i>	1		
<i>Quercus petraea</i>	2		
<i>Ranunculus hederaceus</i>	1		
<i>Ranunculus lingua</i>	3		
<i>Ranunculus parviflorus</i>	1		
<i>Ranunculus sardous</i>	2		
<i>Salix pentandra</i>	1		
<i>Salix repens</i>	2		
<i>Salvia verbenaca</i>	1		
<i>Sambucus ebulus</i>	3		
<i>Scandix pecten-veneris</i>	3		
<i>Schoenus nigricans</i>	1		
<i>Scleranthus annuus</i>	4		
<i>Sedum telephium</i>	3		
<i>Serratula tinctoria</i>	4		
<i>Spergularia rubra</i>	1		
<i>Stellaria neglecta</i>	1		
<i>Stellaria uliginosa</i>	5		
<i>Teucrium scorodonia</i>	2		
<i>Trifolium arvense</i>	5		
<i>Trifolium micranthum</i>	2		
<i>Trifolium striatum</i>	2		
<i>Triglochin palustris</i>	4		
<i>Utricularia vulgaris</i>	2		

## 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
<b>Great Crested Newt</b>	Seen or netted during the day	<5	5-50	>50
	Counted or bottle trapped at night	<10	10-100	>100
<b>Smooth Newt</b>	Netted in day	<10	10-100	>100
	Counted at night			
<b>Palmate Newt</b>	Netted in day	<10	10-100	>100
	Counted at night			
<b>Common Toad</b>	Estimated	<500	500-5000	>5000
	Counted	<100	100-1000	>1000
<b>Common Frog</b>	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	
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>

Family	Species	Continuity grade	Other names in common usage
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	
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	

Family	Species	Continuity grade	Other names in common usage
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>Phloiodya 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	
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	

<b>Family</b>	<b>Species</b>	<b>Continuity grade</b>	<b>Other names in common usage</b>
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>Platyrrhinus resinosus</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	