



British Red Data Books 1 Vascular plants

3rd edition

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7 Habitats of rare species in Britain

In Stewart *et al.* (1994), most of the Nationally Scarce species described in that volume were assigned to one of ten main habitat types, with a few species remaining unassigned. In order that direct comparisons can be made, nationally rare species have been assigned to the same habitat types in the present book. Attention is drawn to the excellent descriptions of habitats by C.D. Preston and D.A. Pearman in Stewart *et al.* (1994), and reference should be made to these for overviews of historical change, current state, threats, and land use and management. Many of the

remarks in these habitat descriptions are just as appropriate to our nationally rare species.

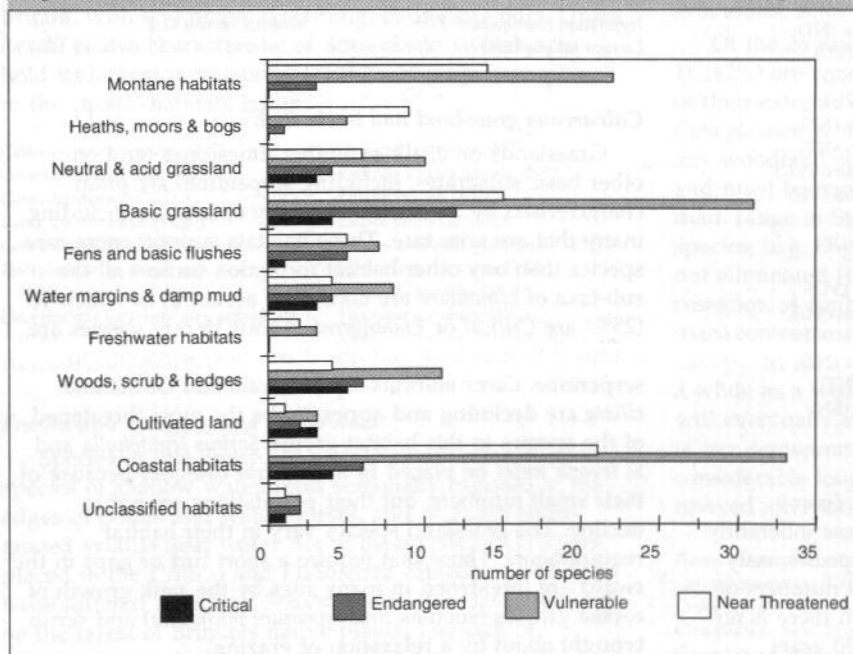
The representation of rare species in each of the 10 habitat types is shown below under the habitat sub-heads (six species could not easily be placed and remain unassigned). Table 7 shows the numbers of rare species in each of the threat categories in each habitat, and the data are graphically displayed in Figure 3.

Table 7 Occurrence of Threatened, Lower Risk (near threatened) and Data Deficient species in habitat formations

Habitat	CR	EN	VU	LR(nt)	Percentage CR + EN	Total Threatened and LR(nt)		Nationally Scarce **	
	No. of species	No. of species	No. of species	No. of species	%	No.	%	No.	%
Montane habitats	0	3	22	14	8	39	14	38	14
Heaths, moors & bogs	0	1	5	9	7	15	5	13	5
Neutral and acid grassland	3	4	10	6	30	23	8	10	4
Calcareous grassland and rock	4	12	31	15	26	62	22	44	17
Fens and basic flushes	1	5	7	5	33	18	6	17	6
Water margins and damp mud	3	4	8	4	37	19	7	8	3
Freshwater habitats	0	0	3	2	0	5	2	13	5
Woods, scrub and hedges	5	6	11	4	42	26	9	28	11
Cultivated land	3	2	3	1	56	9	3	13	5
Coastal habitats	4	6	33	21	15	64*	22*	61	23
Unclassified habitats	1	2	2	1	50	6	2	18	7
Total	24	45	134	83	24	286	-	263	-

Key: CR = Critically Endangered; EN = Endangered; VU = Vulnerable; LR (nt) = Lower Risk (near threatened); *55 species (19%) excluding subspecies of *Limonium*; **data from Stewart *et al.* (1994).

Figure 3 Occurrence of rare species in threat categories and habitat types



The habitat types are, for the most part, well differentiated ecologically, though because they have not been precisely defined (e.g. the ecological and altitudinal limits of the 'montane' region), the placing of some species is a matter of interpretation. Most species occur predominantly in a single broad habitat type. A few are found with similar or different frequencies in more than one habitat type (e.g. *Cystopteris dickieana* and *Oxytropis halleri* in both montane and coastal, and *Physospermum cornubiense* in woodland, grassland and heath), but each species has been assigned to only one group in the lists and tables. The analysis of the data should, therefore, be viewed in that light.

The proportions of species in the threat categories in each habitat type may reflect the degree of threat to the habitat and the effectiveness of conservation measures.

Montane habitats

Of the 39 rare species of montane habitats, almost all are placed in the *Vulnerable* and *Lower Risk (near threatened)* categories, with only three species (8%) qualifying as *Endangered*. Of these three, *Arabis alpina* and *Homogyne alpina* qualify on the basis of their small population size, and only *Woodsia ilvensis* on the basis of significant and continuing decline. This picture is not surprising since many montane species are relict species confined to few sites, with populations that have been fairly stable over many years, in habitats that are generally less subject to man's activities than are lowland ones. However, many potential threats are mentioned in the accounts of montane species, and of these, increased grazing by domestic stock and deer, and recreational activities, may be the most immediate. Changes in weather patterns brought on by global warming are likely to have an impact on our montane flora, though the outcomes are largely unpredictable.

<i>Arabis alpina</i> (EN)	<i>Helianthemum canum</i> ssp. <i>leovigatum</i> (VU)
<i>Arenaria norvegica</i> ssp. <i>norvegica</i> (NT)	<i>Homogyne alpina</i> (EN)
<i>Artemisia norvegica</i> (VU)	<i>Koenigia islandica</i> (NT)
<i>Astragalus alpinus</i> (VU)	<i>Lloydia serotina</i> (VU)
<i>Athyrium flexile</i> (VU)	<i>Luzula arcuata</i> (NT)
<i>Bartsia alpina</i> (NT)	<i>Lychmis alpina</i> (VU)
<i>Carex atrofusca</i> (NT)	<i>Minuartia rubella</i> (NT)
<i>Carex lachenalii</i> (NT)	<i>Myosotis alpestris</i> (NT)
<i>Carex microglochin</i> (VU)	<i>Oxytropis campestris</i> (VU)
<i>Carex norvegica</i> (VU)	<i>Phyllodoce caerulea</i> (VU)
<i>Carex rariflora</i> (NT)	<i>Poa flexuosa</i> (VU)
<i>Cerastium fontanum</i> ssp. <i>scoticum</i> (VU)	<i>Sagina nivalis</i> (VU)
<i>Cicerbita alpina</i> (VU)	<i>Salix lanata</i> (VU)
<i>Cystopteris dickieana</i> (VU)	<i>Saxifraga cernua</i> (VU)
<i>Cystopteris montana</i> (NT)	<i>Saxifraga cespitosa</i> (VU)
<i>Diapensia lapponica</i> (VU)	<i>Saxifraga rivularis</i> (NT)
<i>Erigeron borealis</i> (VU)	<i>Veronica fruticans</i> (NT)
<i>Euphrasia cambrica</i> (VU)	<i>Woodsia alpina</i> (NT)
<i>Euphrasia rivularis</i> (NT)	<i>Woodsia ilvensis</i> (EN)
<i>Gentiana nivalis</i> (VU)	

Heaths, moors and bogs

Relatively few *Threatened* and *Lower Risk (near threatened)* species have been assigned to these inherently rather species-poor habitats, and of the 15 species, only five are deemed to be threatened. The small numbers of *Minuartia stricta* render it *Endangered*, though there is no evidence of any overall decline in the past 20 years

(arguably this species could have been placed in the montane group). On the other hand, there seems to have been a considerable decline in populations of *Euphrasia vigursii*. *Scheuchzeria palustris* is assigned with doubt to the *Vulnerable* category because of possible future threats from afforestation and drainage, but it might better be regarded as *Lower Risk (near threatened)*.

<i>Diphysastrum issleri</i> (NT)	<i>Juncus capitatus</i> (NT)
<i>Erica ciliaris</i> (NT)	<i>Minuartia stricta</i> (EN)
<i>Erica vagans</i> (NT)	<i>Ophioglossum lusitanicum</i> (VU)
<i>Eriophorum gracile</i> (VU)	<i>Ornithopus pinnatus</i> (NT)
<i>Euphrasia vigursii</i> (VU)	<i>Saxifraga hirculus</i> (VU)
<i>Genista pilosa</i> (NT)	<i>Scheuchzeria palustris</i> (VU)
<i>Herniaria ciliolata</i> ssp. <i>ciliolata</i> (NT)	<i>Thymus serpyllum</i> (NT)
<i>Isaetes histrix</i> (NT)	

Neutral and acid grassland, and acid rock

The 23 species in this group grow in a wide diversity of habitats. Eleven occur in neutral grasslands, including hay-meadows (e.g. *Alchemilla* spp.), flood-meadows (e.g. *Lythrum hyssopifolia*) and grazed pasture (e.g. *Apium repens*, *Lactuca saligna*), and the remainder on acid substrates. Seven species (30%) are regarded as *Critical* or *Endangered*, and of these, all but one require an open community or bare soil for maintaining their populations. Many of the sites for species in this group are not specially protected and are all too vulnerable to agricultural improvement, cultivation, or drainage. For example, the rare *Alchemilla* species depend on extensive management of their upland hay-meadows, and the survival of *Lactuca saligna* in Essex on trampling and grazing of grassy banks by cattle.

<i>Alchemilla acutiloba</i> (NT)	<i>Lobelia urens</i> (VU)
<i>Alchemilla monticola</i> (NT)	<i>Lythrum hyssopifolia</i> (VU)
<i>Alchemilla subcrenata</i> (EN)	<i>Orobanche reticulata</i> (NT)
<i>Apium repens</i> (CR)	<i>Petrorhagia prolifera</i> (CR)
<i>Armeria maritima</i> ssp. <i>elongata</i> (VU)	<i>Scleranthus perennis</i> ssp. <i>perennis</i> (CR)
<i>Eryngium campestre</i> (VU)	<i>Scleranthus perennis</i> ssp. <i>prostratus</i> (EN)
<i>Festuca longifolia</i> (VU)	<i>Scorzonera humilis</i> (VU)
<i>Gagea bohemica</i> (VU)	<i>Sorbus arranensis</i> (VU)
<i>Gladiolus illyricus</i> (NT)	<i>Sorbus pseudofemica</i> (VU)
<i>Herniaria glabra</i> (NT)	<i>Tordylium maximum</i> (EN)
<i>Hypericum linariifolium</i> (NT)	<i>Veronica verna</i> (VU)
<i>Lactuca saligna</i> (EN)	

Calcareous grassland and basic rock

Grasslands on chalk and other limestones (and on other basic substrates, including serpentine) are often characterised by their great diversity of species, including many that are now rare. These habitats support more rare species than any other habitat formation (unless all the sub-taxa of *Limonium* are taken into account), of which 16 (25%) are *Critical* or *Endangered*. About 13 rare species are confined to the chalk and one (*Cerastium nigrescens*) to serpentine. *Carex muricata* ssp. *muricata* and *Gentianella ciliata* are declining and appear to be the most threatened of the species in this habitat group. *Sorbus leptophylla* and *S. leyana* must be placed in the *Critical* category because of their small numbers, but their populations are not in decline. The grassland species vary in their habitat requirements. Those that require a short turf or gaps in the sward are threatened in many sites by the rank growth of robust grasses (such as *Brachypodium pinnatum*) and scrub, brought about by a relaxation of grazing.

<i>Ajuga chamaepitys</i> (VU)	<i>Melampyrum arvense</i> (EN)
<i>Alchemilla glaucescens</i> (NT)	<i>Muscari neglectum</i> (VU)
<i>Alchemilla gracilis</i> (VU)	<i>Ophrys fuciflora</i> (VU)
<i>Alchemilla minima</i> (VU)	<i>Ophrys sphegodes</i> (NT)
<i>Allium sphaerocephalon</i> (EN)	<i>Orchis militaris</i> (VU)
<i>Althaea hirsuta</i> (EN)	<i>Orchis simia</i> (VU)
<i>Antisantha madritensis</i> (VU)	<i>Orobanche artemisiae-campestris</i> (EN)
<i>Arabis glabra</i> (VU)	<i>Orobanche caryophylla</i> (VU)
<i>Arabis scabra</i> (VU)	<i>Orobanche purpurea</i> (VU)
<i>Arenaria norvegica</i> ssp. <i>anglica</i> (VU)	<i>Phleum phleoides</i> (NT)
<i>Artemisia campestris</i> (EN)	<i>Pilosella flagellaris</i> ssp. <i>bicipitata</i> (VU)
<i>Bunium bulbocastanum</i> (NT)	<i>Pilosella peleteriana</i> (VU)
<i>Carex filiformis</i> (NT)	<i>Potentilla fruticosa</i> (NT)
<i>Carex muricata</i> ssp. <i>muricata</i> (CR)	<i>Potentilla rupestris</i> (VU)
<i>Carex ornithopoda</i> (NT)	<i>Polemonium caeruleum</i> (NT)
<i>Cerastium brachypetalum</i> (EN)	<i>Polygala amarella</i> (VU)
<i>Cerastium nigrescens</i> (VU)	<i>Rhinanthus angustifolius</i> (VU)
<i>Cirsium tuberosum</i> (VU)	<i>Seseli libanotis</i> (VU)
<i>Cotoneaster integerrimus</i> (EN)	<i>Silene otites</i> (NT)
<i>Crepis praemorsa</i> (EN)	<i>Sorbus anglica</i> (NT)
<i>Cypripedium calceolus</i> (CR)	<i>Sorbus eminens</i> (VU)
<i>Dianthus armeria</i> (VU)	<i>Sorbus leptophylla</i> (EN)
<i>Dianthus gratianopolitanus</i> (VU)	<i>Sorbus leyana</i> (CR)
<i>Filago pyramidata</i> (EN)	<i>Sorbus minima</i> (VU)
<i>Gentiana verna</i> (NT)	<i>Stachys germanica</i> (EN)
<i>Gentianella ciliata</i> (CR)	<i>Teucrium botrys</i> (VU)
<i>Helianthemum apenninum</i> (NT)	<i>Teucrium chamaedrys</i> (EN)
<i>Himantoglossum hircinum</i> (VU)	<i>Thlaspi perfoliatum</i> (VU)
<i>Hypochaeris maculata</i> (VU)	<i>Trinia glauca</i> (NT)
<i>Koeleria vallesiana</i> (NT)	<i>Veronica spicata</i> ssp. <i>spicata</i> (VU)
<i>Lychnis viscaria</i> (VU)	<i>Viola rupestris</i> (NT)

Fen, marsh and lowland calcareous flushes

The 18 species in this group, of which 13 are considered threatened, occupy a range of mesotrophic and basic, mainly lowland, mire habitats. There has been a long history of drainage of lowland mires, and few large areas remain. The consequent loss of species has been particularly marked in East Anglia, where some species (e.g. *Teucrium scordium* and *Viola persicifolia*) are now highly restricted. Whilst many sites for rare fenland species seem secure within specially protected areas, the lowering of water tables resulting from the drainage of adjacent areas, or drought, is an ever present threat. *Dactylorhiza incarnata* ssp. *ochroleuca* may be one of the most threatened taxa in Britain, with few plants remaining, in one site only. *Liparis loeselii* is also characteristic of dune-slacks (which now hold its largest populations), and could have been placed in the coastal habitats group.

<i>Calamagrostis purpurea</i> (NT)	<i>Dryopteris cristata</i> (NT)
<i>Calamagrostis stricta</i> (NT)	<i>Kobresia simpliciuscula</i> (NT)
<i>Carex buxbaumii</i> (VU)	<i>Liparis loeselii</i> (EN)
<i>Carex chordorrhiza</i> (VU)	<i>Luzula pallidula</i> (VU)
<i>Carex flava</i> (VU)	<i>Ranunculus ophioglossifolius</i> (EN)
<i>Dactylorhiza incarnata</i> ssp. <i>cruenta</i> (EN)	<i>Schoenus ferrugineus</i> (VU)
<i>Dactylorhiza incarnata</i> ssp. <i>ochroleuca</i> (CR)	<i>Selinum carvifolia</i> (VU)
<i>Dactylorhiza lapponica</i> (NT)	<i>Teucrium scordium</i> (VU)
	<i>Viola canina</i> ssp. <i>montana</i> (EN)
	<i>Viola persicifolia</i> (EN)

Freshwater margins and damp mud

Species in this group are mainly small, often annual, species of shallow water, mud seasonally exposed at the edges of ponds and watercourses, and of damp short-grazed swards near water. Six of these species (33%) are placed in the Critical and Endangered categories, and most have suffered a decline. *Schoenoplectus triquetus* may now be the rarest of Britain's native plants. The lack of

traditional management of ponds has long been recognised as a threat to many species of margins (e.g. *Cyperus fuscus*, *Damasonium alisma*, *Mentha pulegium*), though conservation management together with site protection has given them a greater degree of security in recent years. *Juncus pygmaeus* seems to have undergone a severe decline in recent years, though because of the long-persistence of its seed in the soil, many of its populations can probably be revived, given appropriate management of the habitat.

<i>Alisma gramineum</i> (CR)	<i>Leersia oryzoides</i> (EN)
<i>Calamagrostis scotica</i> (VU)	<i>Ludwigia palustris</i> (NT)
<i>Carex vulpina</i> (VU)	<i>Mentha pulegium</i> (VU)
<i>Crassula aquatica</i> (VU)	<i>Pulicaria vulgaris</i> (VU)
<i>Cyperus fuscus</i> (VU)	<i>Ranunculus reptans</i> (EN)
<i>Damasonium alisma</i> (EN)	<i>Ranunculus tripartitus</i> (VU)
<i>Eleocharis austriaca</i> (NT)	<i>Rumex aquaticus</i> (VU)
<i>Eriocaulon aquaticum</i> (NT)	<i>Schoenoplectus triquetus</i> (CR)
<i>Galium constrictum</i> (NT)	<i>Senecio paludosus</i> (CR)
<i>Juncus pygmaeus</i> (EN)	

Freshwater

Though there are few aquatic species that are nationally rare, many others have undergone a significant decline in recent years because of eutrophication, pollution, increased recreation, drainage of ditches and the canalisation of waterways. One species, *Potamogeton acutifolius*, has moved to the threatened category in the past 10 years, and if current trends continue, others may follow (e.g. *P. compressus*, which has shown a marked decline). *Najas flexilis*, regarded as rare in Perring & Farrell (1983) and Stewart *et al.* (1994), is now known in 19 hectads and is treated as *Nationally Scarce*. Only one aquatic species, *Hydrilla verticillata*, has become extinct (not seen after 1934) since botanical recording began, though it has been recorded from only one site, and the reasons for its loss are not known.

<i>Najas marina</i> (VU)	<i>Potamogeton nodosus</i> (NT)
<i>Potamogeton acutifolius</i> (VU)	<i>Potamogeton rutilus</i> (NT)
<i>Potamogeton ephedrus</i> (VU)	

Woodland, scrub and hedges

Of the 26 rare taxa of woodlands and related habitats, 11 (42%) are considered to be especially threatened because of their extreme geographical restriction or small numbers. *Cynoglossum germanicum* has shown the greatest decline of any woodland species: it has been lost from many sites, and must be regarded as extremely threatened outside its main range in Surrey. Many light-demanding woodland species, (e.g. *Euphorbia serrulata*, *Phyteuma spicatum*), even if not eliminated from sites, have declined because of the cessation of coppice rotation or the lack of other management regimes that had hitherto maintained an open canopy. In such circumstances, some plants may persist for a while as a weak form and without flowering, but most will eventually succumb. However, seed of some species (*Carex depauperata*, *Euphorbia serrulata*) is known to have considerable longevity, and populations may often be revived after long neglect of the habitat.

<i>Buxus sempervirens</i> (NT)	<i>Epipactis youngiana</i> (EN)
<i>Carex depauperata</i> (CR)	<i>Epipogium aphyllum</i> (EN)
<i>Cephalanthera rubra</i> (CR)	<i>Euphorbia hyberna</i> (VU)
<i>Clinopodium menthifolium</i> (EN)	<i>Euphorbia serrulata</i> (VU)
<i>Cynoglossum germanicum</i> (VU)	<i>Leucogonum aestivum</i> (NT)

<i>Lithospermum purpureocaeruleum</i> (NT)	<i>Pyrus cordata</i> (EN)
<i>Lonicera xylosteum</i> (EN)	<i>Sorbus bristoliensis</i> (EN)
<i>Maianthemum bifolium</i> (VU)	<i>Sorbus domestica</i> ((CR)
<i>Moneses uniflora</i> (VU)	<i>Sorbus lancastriensis</i> (NT)
<i>Physospermum cornubiense</i> (VU)	<i>Sorbus subcuneata</i> (VU)
<i>Phyteuma spicatum</i> (VU)	<i>Sorbus vaxans</i> (VU)
<i>Polygonatum verticillatum</i> (VU)	<i>Sorbus wilmottiana</i> (CR)
<i>Pulmonaria obscura</i> (VU)	<i>Stachys alpina</i> (EN)

Cultivated land

Changes in farming practice have had an enormous impact on the weed flora of arable land, and the effect on species is a measure of the threat to the habitat. Many species have become scarce or rare, and seven have become extinct in the wild since 1970 (only seven other species have become extinct this century - see Section 6.3). Of the nine species placed in this habitat group, five (56%) are regarded as *Critical* or *Endangered*, the largest percentage of species in any of the habitat groups. Of these, *Galium tricornerutum* may be amongst the most threatened plants in Britain. As mentioned in section 3.4, other declining species of arable fields (such as *Scandix pecten-veneris* and *Torilis arvensis*) might also have qualified as threatened, though this is uncertain because of the lack of recent data.

<i>Adonis annua</i> (VU)	<i>Galium tricornerutum</i> (CR)
<i>Centaurea cyanus</i> (EN)	<i>Lavatera cretica</i> (VU)
<i>Echium plantagineum</i> (EN)	<i>Polycarpon tetraphyllum</i> (NT)
<i>Filago gallica</i> (CR)	<i>Valerianella rimosa</i> (CR)
<i>Filago lutescens</i> (VU)	

Coastal habitats

A total of 65 rare taxa occur in coastal habitats (55 taxa if subspecies of *Limonium* are not listed separately), though only 10 (15%) are considered to be *Critical* or *Endangered*. Many coastal species are very localised geographically, or confined to very few sites, though some have been fairly stable in terms of geographical distribution and population size over many years. Several species (e.g. *Atriplex pedunculata*, *Crepis foetida*, *Corrigiola litoralis*, *Petrorhagia nanteuilii*, *Romulea columnae*) are confined to a single locality, though not all are severely threatened. Not unexpectedly, species of cliffs and cliff-top grassland are among the least threatened of our rare species, and those of low habitats (dune, shingle, foreshore) among the most threatened.

Although much of the coastal region is protected and rare species are to some degree safeguarded within protected areas, coastal habitats and species remain vulnerable to a wide range of damaging activities, including commercial development, impacts of tourism, excavation of sand and shingle, construction of hard sea-defences, and estuary barrages. The reduction or lack of grazing of coastal grassland habitats in recent years poses an additional threat to species requiring short swards. Sea-level rise will lead to the steepening of coastal profiles on soft coasts and the loss of low habitats, and increased storminess (considered a possible product of global warming) would threaten dune and shingle habitats, which support several threatened species, including *Corrigiola litoralis* and *Petrorhagia nanteuilii*.

<i>Anthyllis vulneraria</i> ssp. <i>corbierei</i> (NT)	<i>Limonium britannicum</i> ssp. <i>coombense</i> (NT)
<i>Asparagus prostratus</i> (VU)	<i>Limonium britannicum</i> ssp. <i>transcanalis</i> (NT)
<i>Aster linosyris</i> (NT)	<i>Limonium dodartiforme</i> (VU)
<i>Atriplex pedunculata</i> (CR)	<i>Limonium loganicum</i> (VU)
<i>Bupleurum baldense</i> (EN)	<i>Limonium paradoxum</i> (VU)
<i>Carex recta</i> (VU)	<i>Limonium parvum</i> (VU)
<i>Centaureum scilloides</i> (VU)	<i>Limonium procerum</i> ssp. <i>cambrense</i> (VU)
<i>Centaureum tenuiflorum</i> (VU)	<i>Limonium procerum</i> ssp. <i>deconiense</i> (VU)
<i>Chenopodium chenopodioides</i> (NT)	<i>Limonium recurvum</i> ssp. <i>portlandicum</i> (VU)
<i>Chenopodium vulvaria</i> (VU)	<i>Limonium recurvum</i> ssp. <i>humile</i> (NT)
<i>Coincya wrightii</i> (VU)	<i>Limonium recurvum</i> ssp. <i>recurvum</i> (VU)
<i>Corrigiola litoralis</i> (CR)	<i>Limonium transwallianum</i> (VU)
<i>Corynephorus canescens</i> (NT)	<i>Limosella australis</i> (VU)
<i>Crepis foetida</i> (EN)	<i>Matthiola sinuata</i> (VU)
<i>Cynodon dactylon</i> (VU)	<i>Mibora minima</i> (NT)
<i>Cytisus scoparius</i> ssp. <i>maritimus</i> (VU)	<i>Ononis reclinata</i> (VU)
<i>Draba aizoides</i> (NT)	<i>Oxytropis halleri</i> (NT)
<i>Eleocharis parvula</i> (VU)	<i>Petrorhagia nanteuilii</i> (EN)
<i>Euphrasia campbelliae</i> (NT)	<i>Peucedanum officinale</i> (NT)
<i>Euphrasia heslop-harrisonii</i> (NT)	<i>Polygonum maritimum</i> (EN)
<i>Euphrasia marshallii</i> (NT)	<i>Romulea columnae</i> (VU)
<i>Euphrasia rotundifolia</i> (EN)	<i>Rumex rupestris</i> (EN)
<i>Gentianella uliginosa</i> (VU)	<i>Scirpoides holoschoenus</i> (VU)
<i>Gnaphalium luteoalbum</i> (CR)	<i>Spergularia bocconei</i> (CR)
<i>Hierochloa odorata</i> (NT)	<i>Tephrosia integrifolia</i> ssp. <i>maritima</i> (VU)
<i>Limonium bellidifolium</i> (NT)	<i>Trifolium bocconei</i> (VU)
<i>Limonium binervosum</i> ssp. <i>anglicum</i> (NT)	<i>Trifolium incarnatum</i> ssp. <i>molinerii</i> (VU)
<i>Limonium binervosum</i> ssp. <i>binervosum</i> (NT)	<i>Trifolium strictum</i> (VU)
<i>Limonium binervosum</i> ssp. <i>cantianum</i> (VU)	<i>Tuberaria guttata</i> (VU)
<i>Limonium binervosum</i> ssp. <i>mutatum</i> (VU)	<i>Viola kitaibeliana</i> (VU)
<i>Limonium binervosum</i> ssp. <i>saxonicum</i> (NT)	<i>Valerianella eriocarpa</i> (VU)
<i>Limonium britannicum</i> ssp. <i>britannicum</i> (NT)	
<i>Limonium britannicum</i> ssp. <i>celticum</i> (NT)	

Ruderal and unclassified habitats

<i>Bupleurum falcatum</i> (CR)	<i>Senecio cambrensis</i> (NT)
<i>Centaurea calcitrapa</i> (VU)	<i>Trichomanes speciosum</i> (VU)
<i>Fumaria reuteri</i> (EN)	<i>Veronica triphyllus</i> (EN)

Appendix 1 The IUCN criteria for Critically Endangered, Endangered and Vulnerable species (IUCN 1994)

Critically Endangered (CR)

A taxon is *Critically Endangered* when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the following criteria (A to E):

A. Population reduction in the form of either of the following:

- 1 an observed, estimated, inferred or suspected reduction of at least 80% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
 - a. direct observation
 - b. an index of abundance appropriate for the taxon
 - c. a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - d. actual or potential levels of exploitation
 - e. the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites;
- 2 a reduction of at least 80%, projected or suspected to be met within the 10 years or three generations, whichever is the longer, based on (and specifying) any of b, c, d or e above.

B. Extent of occurrence estimated to be less than 100 km² or areas of occupancy estimated to be less than 10 km², and estimates indicating any two of the following:

- 1 severely fragmented or known to exist at only a single location;
- 2 continuing decline, observed, inferred or projected, in any of the following:
 - a. extent of occurrence
 - b. area of occupancy
 - c. area, extent and/or quality of habitat
 - d. number of locations or sub-populations
 - e. number of mature individuals;
- 3 extreme fluctuations in any of the following:
 - a. extent of occurrence
 - b. area of occupancy
 - c. number of locations or sub-populations
 - d. number of mature individuals.

C. Population estimated to number less than 250 mature individuals and either:

- 1 an estimated continuing decline of at least 25% within three years or one generation, whichever is longer, or
- 2 a continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure, in the form of either
 - a. severely fragmented (i.e. no sub-population estimated to contain more than 50 mature individuals), or
 - b. all individuals are in a single sub-population.

D. Population estimated to number less than 50 mature individuals.

- E. Quantitative analysis showing the probability of extinction in the wild at least 50% within 10 years or three generations, whichever is the longer.

Endangered (EN)

A taxon is *Endangered* when it is not *Critically Endangered* but is facing a very high risk of extinction in the wild in the near future, as defined by any of the following criteria (A to E):

A. Population reduction in the form of either of the following:

- 1 an observed, estimated, inferred or suspected reduction of at least 50% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
 - a. direct observation
 - b. an index of abundance appropriate for the taxon
 - c. a decline in area of occupancy, extent of occurrence and/or quality of habitat
 - d. actual or potential levels of exploitation
 - e. the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites;
- 2 a reduction of at least 50%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of b, c, d, or e above.

B. Extent of occurrence estimated to be less than 5,000 km² or area of occupancy estimated to be less than 500 km², and estimates indicating any two of the following:

- 1 severely fragmented or known to exist at no more than five locations;
- 2 continuing decline, inferred, observed or projected, in any of the following:
 - a. extent of occurrence
 - b. area of occupancy
 - c. area, extent and/or quality of habitat
 - d. number of locations or sub-populations
 - e. number of mature individuals;
- 3 extreme fluctuations in any of the following:
 - a. extent of occurrence
 - b. area of occupancy
 - c. number of locations or sub-populations
 - d. number of mature individuals.

C. Population estimated to number less than 2,500 mature individuals and either:

- 1 an estimated continuing decline of at least 20% within five years or two generations, whichever is longer, or
- 2 a continuing decline, observed, projected or inferred, in numbers of mature individuals and population structure in the form of either:

- a. severely fragmented (i.e. no sub-population estimated to contain more than 250 mature individuals)
 - b. all individuals are in a single sub-population.
- D. Population estimated to number less than 250 mature individuals.
- E. Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or five generations, whichever is the longer.

Vulnerable (VU)

A taxon is *Vulnerable* when it is not *Critically Endangered* or *Endangered* but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the following criteria (A to E):

- A. Population reduction in the form of either of the following:
- 1 an observed, estimated, inferred or suspected reduction of at least 20% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
 - a. direct observation;
 - b. an index of abundance appropriate for the taxon;
 - c. a decline in area of occupancy, extent of occurrence and/or quality of habitat;
 - d. actual or potential levels of exploitation;
 - e. the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites;
 - 2 a reduction of at least 20%, projected or suspected to be met within the next 10 years or three generations, whichever is the longer, based on (and specifying) any of b, c, d or e above.
- B. Extent of occurrence estimated to be less than 20,000 km² or area of occupancy estimated to be less than 2,000 km², and estimates indicating any two of the following:
- 1 severely fragmented or known to exist at no more than ten locations;
 - 2 continuing decline, inferred, observed or projected, in any of the following:
 - a. extent of occurrence
 - b. area of occupancy
 - c. area, extent and/or quality of habitat
 - d. number of locations or sub-populations
 - e. number of mature individuals;
 - 3 extreme fluctuations in any of the following:
 - a. extent of occurrence
 - b. area of occupancy
 - c. number of locations or sub-populations
 - d. number of mature individuals.
- C. Population estimated to number less than 10,000 mature individuals and either:
- 1 an estimated continuing decline of at least 10% within 10 years or 3 generations, whichever is longer, or

- 2 a continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either:
 - a. population estimated to number less than 1,000 mature individuals; or
 - b. population is characterised by an acute restriction in its area of occupancy (typically less than 100 km²) or in the number of locations (typically less than five). Such a taxon would thus be prone to the effects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming *Critically Endangered* or even *Extinct* in a very short period.
- D. Population very small or restricted in the form of either of the following:
- 1 population estimated to number less than 1,000 mature individuals; or
 - 2 population is characterised by an acute restriction in its area of occupancy (typically less than 100 km²) or in the number of locations (typically less than five). Such a taxon would thus be prone to the effects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming *Critically Endangered* or even *Extinct* in a very short period.
- E. Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

Definitions

Extent of occurrence

Extent of occurrence is defined as the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred or projected sites of the present occurrence of a taxon, excluding cases of vagrancy. This measure may exclude discontinuities or disjunctions within the overall distributions of taxa (e.g. large areas of obviously unsuitable habitat) (but see 'area of occupancy'). Extent of occurrence can often be measured by a minimum convex polygon (the smallest polygon in which no internal angle exceeds 180° and which contains all the sites of occurrence).

Area of occupancy

Area of occupancy is defined as the area within its 'extent of occurrence' (see definition) that is occupied by a taxon, excluding cases of vagrancy. The measure reflects the fact that a taxon will not usually occur throughout the area of its extent of occurrence, which may, for example, contain unsuitable habitats. The area of occupancy is the smallest area essential at any stage to the survival of existing populations of a taxon (e.g. colonial nesting sites, feeding sites for migratory taxa). The size of the area of occupancy will be a function of the scale at which it is measured, and should be at a scale appropriate to relevant biological aspects of the taxon. The criteria include values in km², and to avoid errors in classification, the area of occupancy should be measured on grid squares (or equivalents) that are sufficiently small.

Appendix 2 Species assigned to IUCN threat categories

Critically Endangered						
Species	Threat category (1997)	Criteria sub-heads				Perring & Farrell (1983)
		A	B	C	D	
<i>Alisma gramineum</i>	CR	A1a	B1+3d			E
<i>Apium repens</i>	CR		B1+2e	C2a		E
<i>Atriplex pedunculata</i>	CR		B1+3d			EX
<i>Bupleurum falcatum</i>	CR		B1+3d	C2b	D	EN
<i>Carex depauperata</i>	CR				D	E
<i>Carex muricata</i> ssp. <i>muricata</i>	CR			C2a		R
<i>Cephalanthera rubra</i>	CR				D	E
<i>Corrigiola litoralis</i>	CR	A1a			D	V
<i>Cypripedium calceolus</i>	CR				D	E
<i>Dactylorhiza incarnata</i> ssp. <i>ochroleuca</i>	CR		B1+2e	C2a	D	-
<i>Epipogium aphyllum</i>	CR				D	E
<i>Filago gallica</i>	CR				D	EX
<i>Galium tricornerutum</i>	CR	A1a	B1+3d		D	NS
<i>Gentianella ciliata</i>	CR	A1a		C2b	D	-
<i>Gnaphalium luteoalbum</i>	CR		B1+3d			E
<i>Petrorhagia prolifera</i>	CR		B1+3d		D	-
<i>Schoenoplectus triqueter</i>	CR	A1a?			D	E
<i>Scleranthus perennis</i> ssp. <i>perennis</i>	CR		B1+3d		D	E
<i>Senecio paludosus</i>	CR				D	V
<i>Sorbus domestica</i>	CR				D	-
<i>Sorbus leptophylla</i>	CR				D	R
<i>Sorbus leyana</i>	CR				D	R
<i>Sorbus wilmottiana</i>	CR				D	R
<i>Spergularia bocconeii</i>	CR	A1a?		C2a	D	E
<i>Valerianella rimosa</i>	CR	A1a?		C2?		V

Endangered						
Species	Threat category (1997)	Criteria sub-heads				Perring & Farrell (1983)
		A	B	C	D	
<i>Alchemilla subcrenata</i>	EN	A1c			D	V
<i>Allium sphaerocephalon</i>	EN		B1+2e		D	V
<i>Althaea hirsuta</i>	EN		B1+3d			E
<i>Arabis alpina</i>	EN				D	R
<i>Artemisia campestris</i>	EN		B1+2c			E
<i>Bupleurum baldense</i>	EN		B1+3d			E
<i>Centaurea cyanus</i>	EN		B1+3d			NS
<i>Cerastium brachypetalum</i>	EN	A2c		C1+2a		R
<i>Clinopodium menthifolium</i>	EN			C2b?		V
<i>Cotoneaster integerrimus</i>	EN				D	E
<i>Crepis foetida</i>	EN				D	V
<i>Crepis praemorsa</i>	EN				D	-
<i>Dactylorhiza incarnata</i> ssp. <i>cruenta</i>	EN				D	-
<i>Damasonium alisma</i>	EN		B1+3d			E
<i>Echium plantagineum</i>	EN		B1+2d+3d			V
<i>Epipactis youngiana</i>	EN				D	-
<i>Euphrasia rotundifolia</i>	EN		B1+2c/d		D	R
<i>Filago pyramidata</i>	EN		B2d+3d			V
<i>Fumaria reuteri</i>	EN		B1+3d			E
<i>Homogyne alpina</i>	EN				D	V
<i>Juncus pygmaeus</i>	EN	A1a	B1+2d/e +3d			R
<i>Lactuca saligna</i>	EN	A1a	B1+?3d			E
<i>Leersia oryzoides</i>	EN	A1a?	B1+2d			V
<i>Liparis loeselii</i>	EN	A1a	B1+2c/d			E
<i>Lonicera xylosteum</i>	EN				D	V
<i>Melampyrum arvense</i>	EN		B1+3d			E
<i>Minuartia stricta</i>	EN		B1+3d			V
<i>Orobanche artemisiae-campestris</i>	EN				D	E
<i>Petrorhagia nanteuillii</i>	EN		B1+3d			E
<i>Polygonum maritimum</i>	EN			C2a?		E
<i>Pyrus cordata</i>	EN				D	E
<i>Ranunculus ophioglossifolius</i>	EN		B1+3d			E
<i>Ranunculus reptans</i>	EN		B1+3d			-
<i>Rumex rupestris</i>	EN			C2a		V
<i>Scleranthus perennis</i> ssp. <i>prostratus</i>	EN		B1+3d			E
<i>Sorbus bristoliensis</i>	EN				D	R
<i>Stachys alpina</i>	EN		B1+3d		D	E
<i>Stachys germanica</i>	EN		B1+3d			E
<i>Teucrium chamaedrys</i>	EN				D	R
<i>Tordylium maximum</i>	EN	A2c?	B1+3d			-
<i>Veronica triphyllos</i>	EN		B1+2d+3d		D	E
<i>Viola canina</i> ssp. <i>montana</i>	EN		B1+3d		D	-
<i>Viola persicifolia</i>	EN		B1+3d		D	E
<i>Woodsia ilvensis</i>	EN			C2a	D	V

Vulnerable						
Species	Threat category (1997)	Criteria sub-heads				Perring & Farrell (1983)
		A	B	C	D	
<i>Adonis annua</i>	VU	A2?	B2d+3c			NS
<i>Ajuga chamaepitys</i>	VU		B2b+3d			NS
<i>Alchemilla gracilis</i>	VU			C1+2a	D2	V
<i>Alchemilla minima</i>	VU				D2	V
<i>Anisantha madritensis</i>	VU				D2	R
<i>Arabis glabra</i>	VU	A1a?	B2b+3d			NS
<i>Arabis scabra</i>	VU		B1+3d			V
<i>Arenaria norvegica</i> ssp. <i>anglica</i>	VU		B1+3d			E
<i>Armeria maritima</i> ssp. <i>elongata</i>	VU				D2	V
<i>Artemisia norvegica</i>	VU				D2	R
<i>Asparagus prostratus</i>	VU				D1	V
<i>Astragalus alpinus</i>	VU				D2	R
<i>Athyrium flexile</i>	VU				D1	-
<i>Calamagrostis scotica</i>	VU				D2	V
<i>Carex buxbaumii</i>	VU				D2	V
<i>Carex chordorrhiza</i>	VU				D2	R
<i>Carex flava</i>	VU				D1+2	R
<i>Carex microglochin</i>	VU				D2	R
<i>Carex norvegica</i>	VU				D1	R
<i>Carex recta</i>	VU				D2	R
<i>Carex vulpina</i>	VU	A1a/b	B2d/e			NS
<i>Centaurea calcitrapa</i>	VU		B1+3d			R
<i>Centaureum scilloides</i>	VU				D2	V
<i>Centaureum tenuiflorum</i>	VU				D2	V
<i>Cerastium fontanum</i> ssp. <i>scoticum</i>	VU				D2	-
<i>Cerastium nigrescens</i>	VU				D2	R
<i>Chenopodium vulvaria</i>	VU		B1+3d		D2	V
<i>Cicerbita alpina</i>	VU				D1+2	R
<i>Cirsium tuberosum</i>	VU	A2e				R
<i>Coincya wrightii</i>	VU				D2	R
<i>Crassula aquatica</i>	VU				D2	V
<i>Cynodon dactylon</i>	VU				D2	R
<i>Cynoglossum germanicum</i>	VU				D2	V
<i>Cyperus fuscus</i>	VU		B1+3d			E
<i>Cystopteris dickieana</i>	VU				D2	E
<i>Cytisus scoparius</i> ssp. <i>maritimus</i>	VU				D2	-
<i>Dianthus armeria</i>	VU		B2d+3d	C2a?		NS
<i>Dianthus gratianopolitanus</i>	VU				D2	V
<i>Diapensia lapponica</i>	VU				D2	V
<i>Eleocharis parvula</i>	VU		B1+?2c			R
<i>Erigeron borealis</i>	VU		B1+2e		D1	R
<i>Eriophorum gracile</i>	VU		B1+2c			V
<i>Eryngium campestre</i>	VU				D2	V
<i>Euphorbia hyberna</i>	VU				D2	R

Vulnerable continued

Species	Threat category (1997)	Criteria sub-heads				Perring & Farrell (1983)
		A	B	C	D	
<i>Euphorbia serrulata</i>	VU	A1a				R
<i>Euphrasia cambrica</i>	VU				D2?	R
<i>Euphrasia vigursii</i>	VU	A1a/c				R
<i>Festuca longifolia</i>	VU		B1+2d	C1?		R
<i>Filago lutescens</i>	VU		B2d+3d			V
<i>Gagea bohemica</i>	VU				D2	V
<i>Gentiana nivalis</i>	VU		B1+3d		D2	V
<i>Gentianella uliginosa</i>	VU		B1+3d	C2a		V
<i>Helianthemum canum</i> ssp. <i>levoigatum</i>	VU				D2	R
<i>Himantoglossum hircinum</i>	VU		B1+3c			V
<i>Hypochaeris maculata</i>	VU		B1+2d			R
<i>Lavatera cretica</i>	VU		B2d+3c			R
<i>Limonium binervosum</i> ssp. <i>cantianum</i>	VU				D2	
<i>Limonium binervosum</i> ssp. <i>mutatum</i>	VU				D2	
<i>Limonium dodartiforme</i>	VU				D2	
<i>Limonium loganicum</i>	VU				D2	
<i>Limonium paradoxum</i>	VU				D2	E
<i>Limonium parvum</i>	VU				D2	
<i>Limonium procerum</i> ssp. <i>cambrense</i>	VU				D2	
<i>Limonium procerum</i> ssp. <i>devoniense</i>	VU				D2	
<i>Limonium recurvum</i> ssp. <i>portlandicum</i>	VU				D2	
<i>Limonium recurvum</i> ssp. <i>recurvum</i>	VU				D2	E
<i>Limonium transwallianum</i>	VU				D2	R
<i>Limosella australis</i>	VU		B1+3c/d			R
<i>Lloydia serotina</i>	VU				D2	V
<i>Lobelia urens</i>	VU		B1+3d			V
<i>Luzula pallidula</i>	VU				D1+2	R
<i>Lychnis alpina</i>	VU				D2	V
<i>Lychnis viscaria</i>	VU	A1a		C1+2a		R
<i>Lythrum hyssopifolia</i>	VU		B1+3d			V
<i>Maianthemum bifolium</i>	VU				D2	V
<i>Matthiola sinuata</i>	VU		B1+3d		D2	V
<i>Mentha pulegium</i>	VU			?C1		V
<i>Moneses uniflora</i>	VU			C1?		V
<i>Muscari neglectum</i>	VU			C2a?		V
<i>Najas marina</i>	VU		B1+3c/d			V
<i>Ononis reclinata</i>	VU		B1+3d			V
<i>Ophioglossum lusitanicum</i>	VU		B1+3d		D2	R
<i>Ophrys fuciflora</i>	VU				D1+2	V
<i>Orchis militaris</i>	VU				D2	V
<i>Orchis simia</i>	VU				D1+2	V
<i>Orobanche caryophylla</i>	VU				D2	E
<i>Orobanche purpurea</i>	VU	A2			D1	V
<i>Oxytropis campestris</i>	VU				D2	R

Vulnerable continued

Species	Threat category (1997)	Criteria sub-heads				Perring & Farrell (1983)
		A	B	C	D	
<i>Phyllodoce caerulea</i>	VU				D1	V
<i>Physospermum cornubiense</i>	VU	A1a				R
<i>Phyteuma spicatum</i>	VU	A1a	B1+2e		D1	R
<i>Pilosella flagellaris</i> ssp. <i>bicapitata</i>	VU				D2	-
<i>Pilosella peleteriana</i>	VU				D2	-
<i>Poa flexuosa</i>	VU				D1	R
<i>Polygala amarella</i>	VU	A1a				R
<i>Polygonatum verticillatum</i>	VU		B1+2d			E
<i>Potamogeton acutifolius</i>	VU	A1a/c				-
<i>Potamogeton epihydrus</i>	VU				D2	R
<i>Potentilla rupestris</i>	VU				D1	V
<i>Pulicaria vulgaris</i>	VU	A1a				V
<i>Pulmonaria obscura</i>	VU				D1+2	-
<i>Ranunculus tripartitus</i>	VU	A1a	B2d+3d			NS
<i>Rhinanthus angustifolius</i>	VU	A1c				E
<i>Romulea columnae</i>	VU				D2	V
<i>Rumex aquaticus</i>	VU				D2	R
<i>Sagina nivalis</i>	VU		B1+3d			R
<i>Salix lanata</i>	VU	A1c+2c				R
<i>Saxifraga cernua</i>	VU				D1	V
<i>Saxifraga cespitosa</i>	VU				D1	R
<i>Saxifraga hirculus</i>	VU	A2c	B1+2c			R
<i>Scheuchzeria palustris</i>	VU			C2a?		V
<i>Schoenus ferrugineus</i>	VU				D2	V
<i>Scirpoides holoschoenus</i>	VU				D2	R
<i>Scorzonera humilis</i>	VU				D2	V
<i>Selinum carvifolia</i>	VU				D2	V
<i>Seseli libanotis</i>	VU				D2	R
<i>Sorbus anglica</i>	VU				D1	R
<i>Sorbus arranensis</i>	VU				D1+2	R
<i>Sorbus eminens</i>	VU				D1+2	R
<i>Sorbus minima</i>	VU				D1+2	R
<i>Sorbus pseudofennica</i>	VU				D1+2	R
<i>Sorbus subcuneata</i>	VU				D1	V
<i>Sorbus vexans</i>	VU				D1	V
<i>Tephrosieris integrifolia</i> ssp. <i>maritima</i>	VU				D2	-
<i>Teucrium botrys</i>	VU		B1+3d		D2	V
<i>Teucrium scordium</i>	VU	A1c?			D2	V
<i>Thlaspi perfoliatum</i>	VU	A1c	B1+3d			R
<i>Trichomanes speciosum</i>	VU			C2a?		E
<i>Trifolium bocconeii</i>	VU		B1+3d			R
<i>Trifolium incarnatum</i> ssp. <i>molinerii</i>	VU		B1+3d			R
<i>Trifolium strictum</i>	VU		B1+3d			R
<i>Tuberaria guttata</i>	VU		B2d+3d	C2a?		V

Vulnerable continued

Species	Threat category (1997)	Criteria sub-heads				Perring & Farrell (1983)
		A	B	C	D	
<i>Valerianella eriocarpa</i>	VU		B1+3c		D2	V
<i>Veronica spicata</i> ssp. <i>spicata</i>	VU				D2	V
<i>Veronica verna</i>	VU				D2	V
<i>Viola kitaibeliana</i>	VU				D2	R

Lower Risk (near threatened)

Species	Threat category (1997)	Perring & Farrell (1983)
<i>Alchemilla acutiloba</i>	LR - nt	R
<i>Alchemilla glaucescens</i>	LR - nt	R
<i>Alchemilla monticola</i>	LR - nt	R
<i>Anthyllis vulneraria</i> ssp. <i>corbierei</i>	LR - nt	-
<i>Arenaria norvegica</i> ssp. <i>norvegica</i>	LR - nt	R
<i>Aster linosyris</i>	LR - nt	R
<i>Bartsia alpina</i>	LR - nt	R
<i>Bunium bulbocastanum</i>	LR - nt	R
<i>Buxus sempervirens</i>	LR - nt	R
<i>Calamagrostis purpurea</i>	LR - nt	-
<i>Calamagrostis stricta</i>	LR - nt	NS
<i>Carex atrofusca</i>	LR - nt	R
<i>Carex filiformis</i>	LR - nt	R
<i>Carex lachenalii</i>	LR - nt	R
<i>Carex ornithopoda</i>	LR - nt	R
<i>Carex rariflora</i>	LR - nt	R
<i>Chenopodium chenopodioides</i>	LR - nt	NS
<i>Corynephorus canescens</i>	LR - nt	NS
<i>Cystopteris montana</i>	LR - nt	NS
<i>Dactylorhiza lapponica</i>	LR - nt	-
<i>Diphysastrum issleri</i>	LR - nt	-
<i>Draba aizoides</i>	LR - nt	R
<i>Dryopteris cristata</i>	LR - nt	V
<i>Eleocharis austriaca</i>	LR - nt	R
<i>Erica ciliaris</i>	LR - nt	R
<i>Erica vagans</i>	LR - nt	R
<i>Eriocaulon aquaticum</i>	LR - nt	R
<i>Euphrasia campbelliae</i>	LR - nt	R
<i>Euphrasia heslop-harrisonii</i>	LR - nt	R
<i>Euphrasia marshallii</i>	LR - nt	R
<i>Euphrasia rivularis</i>	LR - nt	R
<i>Galium constrictum</i>	LR - nt	R
<i>Genista pilosa</i>	LR - nt	R
<i>Gentiana verna</i>	LR - nt	R
<i>Gladiolus illyricus</i>	LR - nt	V

Lower Risk (near threatened) continued

Species	Threat category (1997)	Perring & Farrell (1983)
<i>Helianthemum apenninum</i>	LR - nt	R
<i>Herniaria ciliolata</i> ssp. <i>ciliolata</i>	LR - nt	R
<i>Herniaria glabra</i>	LR - nt	V
<i>Hierochloa odorata</i>	LR - nt	R
<i>Hypericum linariifolium</i>	LR - nt	V
<i>Isoetes histrix</i>	LR - nt	R
<i>Juncus capitatus</i>	LR - nt	R
<i>Kobresia simpliciuscula</i>	LR - nt	R
<i>Koeleria vallesiana</i>	LR - nt	R
<i>Koenigia islandica</i>	LR - nt	R
<i>Leucopodium aestivum</i>	LR - nt	R
<i>Limonium bellidifolium</i>	LR - nt	R
<i>L. binervosum</i> ssp. <i>anglicum</i>	LR - nt	-
<i>L. binervosum</i> ssp. <i>binervosum</i>	LR - nt	-
<i>L. binervosum</i> ssp. <i>saxonicum</i>	LR - nt	-
<i>L. britannicum</i> ssp. <i>britannicum</i>	LR - nt	-
<i>L. britannicum</i> ssp. <i>celticum</i>	LR - nt	-
<i>L. britannicum</i> ssp. <i>coombense</i>	LR - nt	-
<i>L. britannicum</i> ssp. <i>transcanalis</i>	LR - nt	-
<i>Limonium recurvum</i> ssp. <i>humile</i>	LR - nt	-
<i>Lithospermum purpureocaeruleum</i>	LR - nt	R
<i>Ludwigia palustris</i>	LR - nt	R
<i>Luzula arcuata</i>	LR - nt	-
<i>Mibora minima</i>	LR - nt	R
<i>Minuartia rubella</i>	LR - nt	R
<i>Myosotis alpestris</i>	LR - nt	R
<i>Ophrys sphegodes</i>	LR - nt	V
<i>Ornithopus pinnatus</i>	LR - nt	R
<i>Orobanche reticulata</i>	LR - nt	E
<i>Oxytropis halleri</i>	LR - nt	R
<i>Peucedanum officinale</i>	LR - nt	R
<i>Phleum phleoides</i>	LR - nt	R
<i>Polemonium caeruleum</i>	LR - nt	R
<i>Polycarpon tetraphyllum</i>	LR - nt	R
<i>Potamogeton nodosus</i>	LR - nt	R

Lower Risk (near threatened) continued

Species	Threat category (1997)	Perring & Farrell (1983)
<i>Potamogeton rutilus</i>	LR - nt	R
<i>Potentilla fruticosa</i>	LR - nt	R
<i>Saxifraga rivularis</i>	LR - nt	R
<i>Senecio cambrensis</i>	LR - nt	R
<i>Silene otites</i>	LR - nt	R
<i>Sorbus lancastriensis</i>	LR - nt	R
<i>Thymus serpyllum</i>	LR - nt	R
<i>Trinia glauca</i>	LR - nt	R
<i>Veronica fruticans</i>	LR - nt	R
<i>Viola rupestris</i>	LR - nt	R
<i>Woodsia alpina</i>	LR - nt	R

Data Deficient

Species	Threat category (1997)	Perring & Farrell (1983)
<i>Cochlearia atlantica</i>	DD	-
<i>Asplenium trichomanes</i> ssp. <i>pachyrachis</i>	DD	-

Nationally Scarce

Species	Threat category (1997)	Perring & Farrell (1983)
<i>Allium ampeloprasum</i>	LR(ns)	R
<i>Cochlearia micacea</i>	LR(ns)	-
<i>Fumaria occidentalis</i>	LR(ns)	R
<i>Gastroidium ventricosum</i>	LR(ns)	V
<i>Gnaphalium norvegicum</i>	LR(ns)	R
<i>Geranium purpureum</i>	LR(ns)	R
<i>Limonium procerum</i> ssp. <i>procerum</i>	LR(ns)	-
<i>Lotus angustissimus</i>	LR(ns)	R
<i>Poa infirma</i>	LR(ns)	-
<i>Rorippa islandica</i>	LR(ns)	-
<i>Rosa agrestis</i>	LR(ns)	-
<i>Salvia pratensis</i>	LR(ns)	V
<i>Scrophularia scorodonia</i>	LR(ns)	R

Extinct in the wild in Britain (year of last record in the wild in Britain)

Species	Threat category (1997)	Perring & Farrell (1983)
<i>Agrostemma githago</i> (1970s?)	EW	EX
<i>Bromus interruptus</i> (1972)	EW	EX
<i>Bupleurum rotundifolium</i> (1960s)	EW	EX
<i>Euphorbia peplis</i> (1965)	EW	EX
<i>Sagina boydii</i> (1878)	EW	EX
<i>Saxifraga rosacea</i> ssp. <i>rosacea</i> (c. 1974)	EW	EX

Extinct in Britain (year of last record in Britain)

Species	Threat category (1997)	Perring & Farrell (1983)
<i>Arnoseris minima</i> (1970)	EX	EX
<i>Carex davalliana</i> (c. 1845)	EX	EX
<i>Crepis foetida</i> (1980)	EX*	EX
<i>Filago gallica</i> (1955)	EX*	EX
<i>Galeopsis segetum</i> (1980s?)	EX	E
<i>Holosteum umbellatum</i> (1930)	EX	EX
<i>Hydrilla verticillata</i> (c. 1934)	EX	EX
<i>Neotinea maculata</i> (1986?)	EX	R
<i>Otanthus maritimus</i> (1970s?)	EX	EX
<i>Pinguicula alpina</i> (1900s)	EX	EX
<i>Rubus arcticus</i> (1841)	EX	EX
<i>Spiranthes aestivalis</i> (1959)	EX	EX
<i>Tephrosia palustris</i> ssp. <i>congestus</i> (1899)	EX	EX
<i>Trichophorum alpinum</i> (1813)	EX	EX

Key: * reintroduced

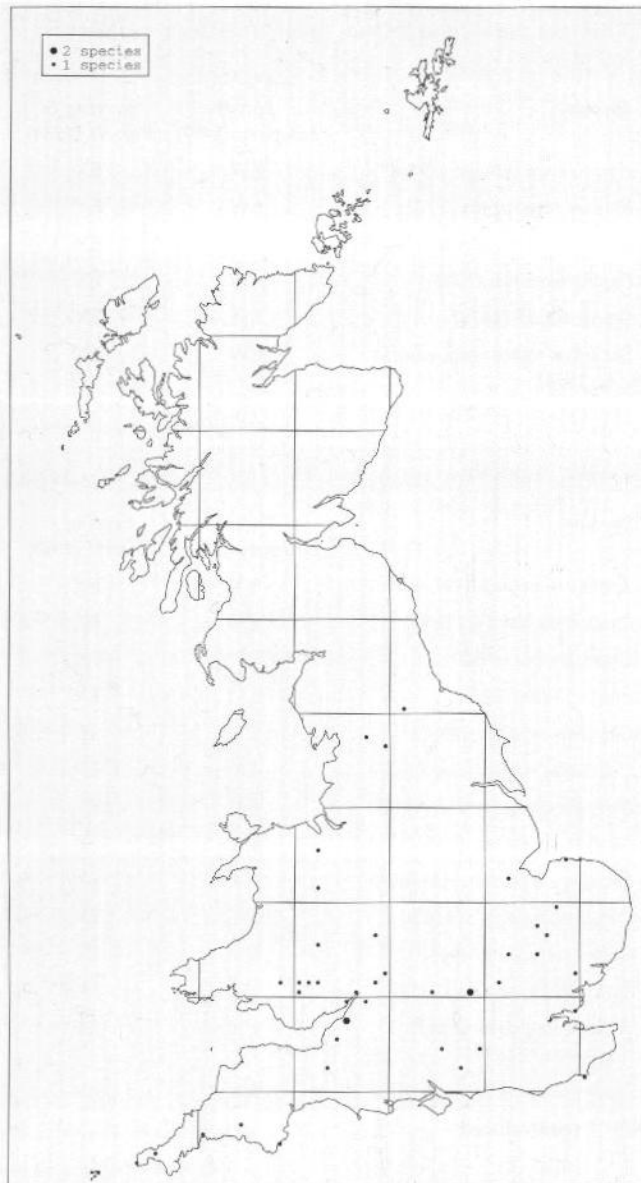


Figure A2.1 Number of Critically Endangered species recorded from 1987 onwards in each 10 km square. The species mapped are listed in Appendix 2. The smaller dot indicates 1 species per square, and the larger, 2 species per square.

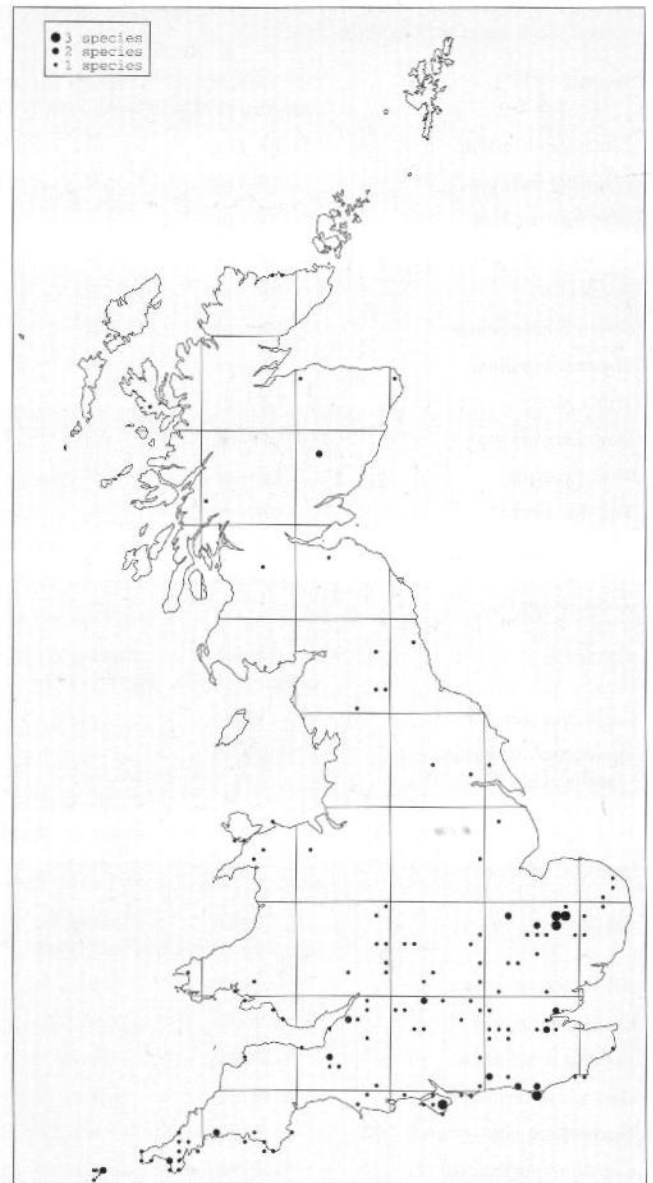


Figure A2.2 Number of Endangered species recorded from 1987 onwards in each 10 km square. The species mapped are listed in Appendix 2. Dots of increasing size indicate 1, 2 and 3 species per square.

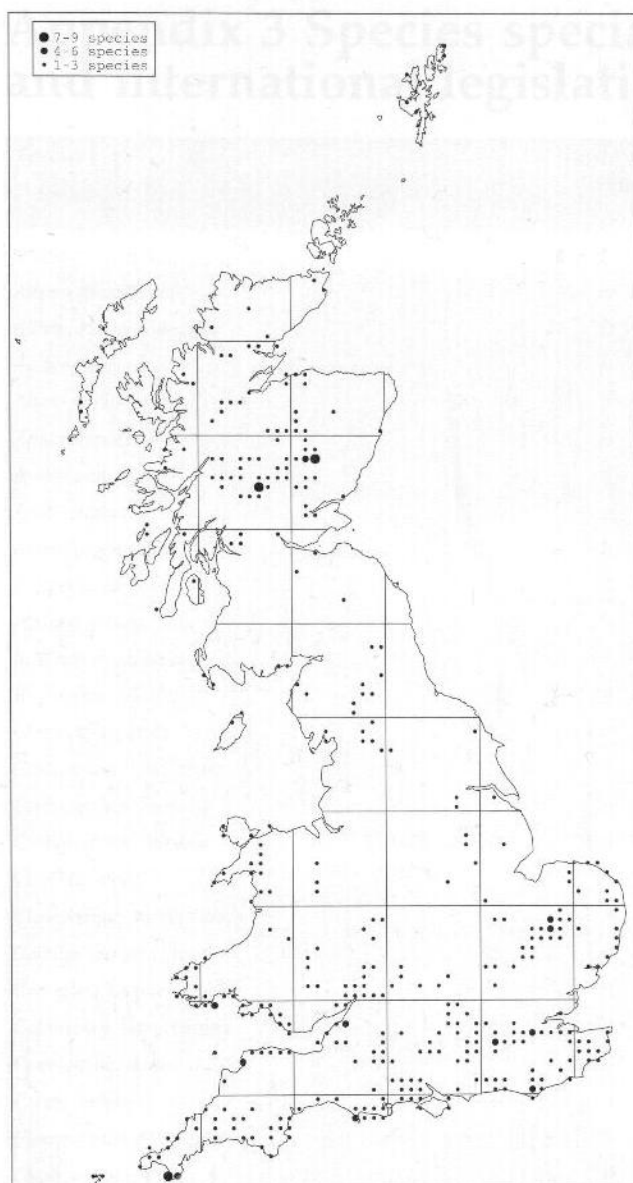


Figure A2.3 Number of Vulnerable species recorded from 1987 onwards in each 10 km square. The species mapped are listed in Appendix 2. Dots of increasing size indicate 1-3, 4-6 and 7-9 species per square.

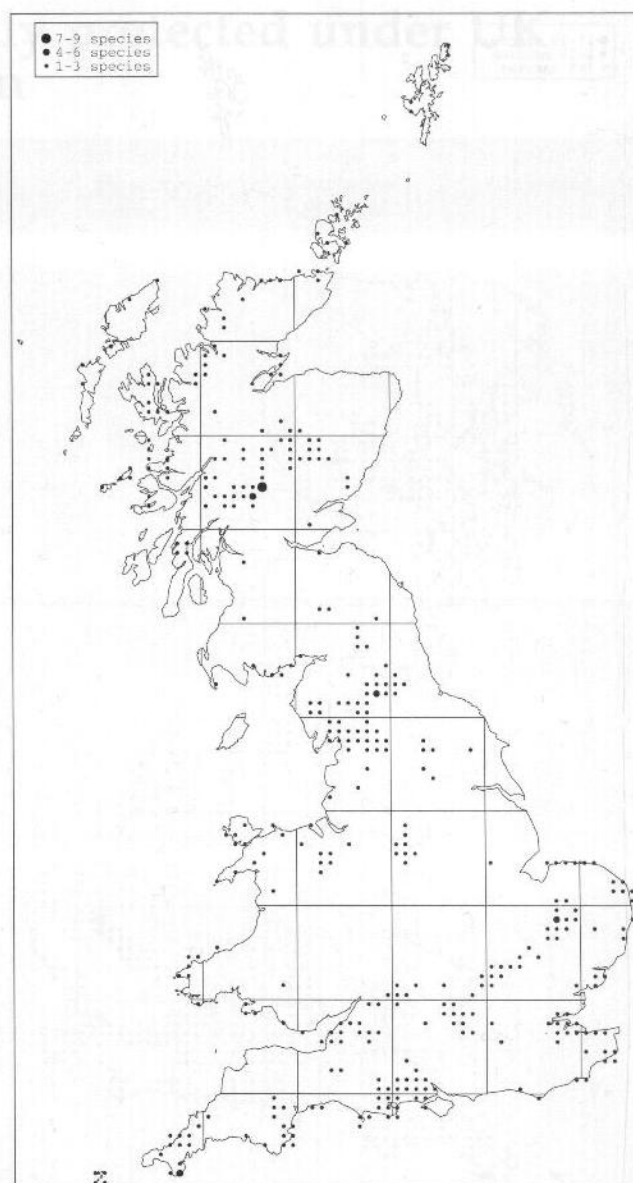


Figure A2.4 Number of Near Threatened species recorded from 1987 onwards in each 10 km square. The species mapped are listed in Appendix 2. Dots of increasing size indicate 1-3, 4-6 and 7-9 species per square.

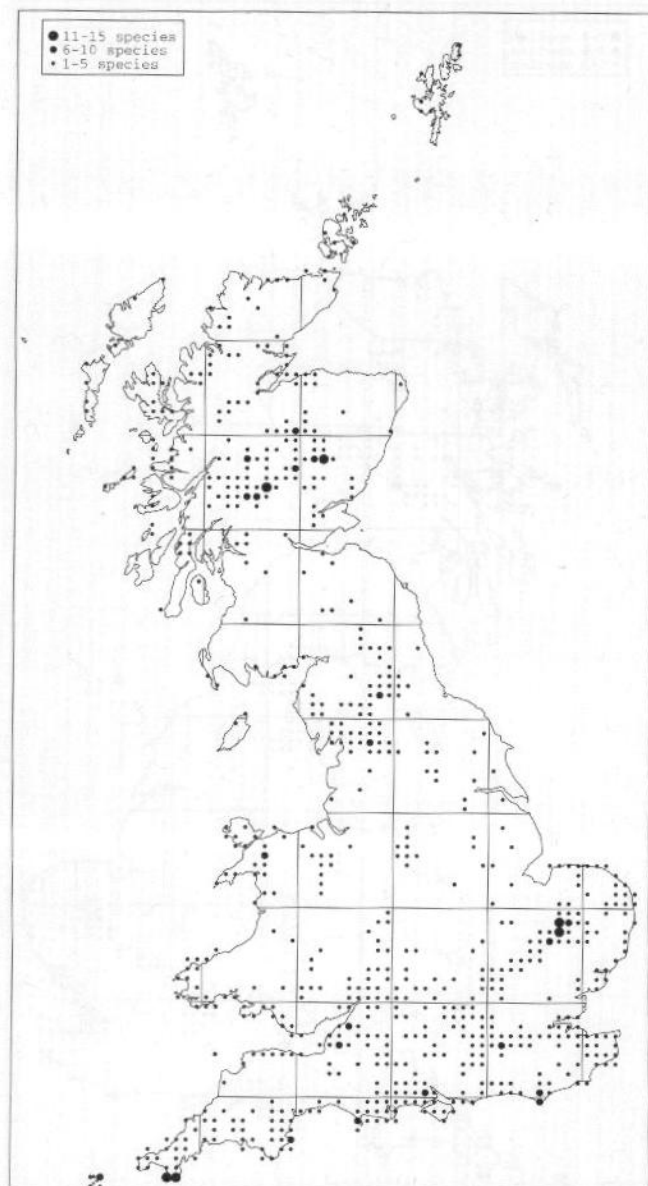


Figure A2.5 Number of all Threatened and Near Threatened species recorded from 1987 onwards in each 10 km square. The species mapped are listed in Appendix 2. Dots of increasing size indicate 1-5, 6-10 and 11-15 species per square.

Appendix 3 Species specially protected under UK and international legislation

Species	WCA * (1981)	EC Habitats Directive Annex	Bern Convention Appendix	CITES Appendix
<i>Ajuga chamaepitys</i>	8			
<i>Alisma gramineum</i>	8			
<i>Allium sphaerocephalon</i>	8			
<i>Althaea hirsuta</i>	8			
<i>Alyssum alyssoides</i>	8			
<i>Apium repens</i>	8	IIb, IVb	I	
<i>Arabis alpina</i>	8			
<i>Arabis scabra</i>	8			
<i>Arenaria norvegica</i>	8			
<i>Artemisia campestris</i>	8			
<i>Atriplex pedunculata</i>	8			
<i>Bupleurum baldense</i>	8			
<i>Bupleurum falcatum</i>	8			
<i>Carex depauperata</i>	8			
<i>Centaurium tenuiflorum</i>	8			
<i>Cephalanthera rubra</i>	8			II (C1)
<i>Chenopodium vulvaria</i>	8			
<i>Cicerbita alpina</i>	8			
<i>Climopodium menthifolium</i>	8			
<i>Coincya wrightii</i>	8			
<i>Corrigiola litoralis</i>	8			
<i>Cotoneaster integerrimus</i>	8			
<i>Crassula aquatica</i>	8			
<i>Crepis foetida</i>	8			
<i>Cynoglossum germanicum</i>	8			
<i>Cyperus fuscus</i>	8			
<i>Cypripedium calceolus</i>	8	IIb, IVb	I	II (C1)
<i>Cystopteris dickieana</i>	8			
<i>Dactylorhiza lapponica</i>	8			II (C1)
<i>Dactylorhiza incarnata ssp. cruenta</i>				II (C1)
<i>Dactylorhiza incarnata ssp. ochroleuca</i>				II (C1)
<i>Damasonium alisma</i>	8			
<i>Dianthus armeria</i>	8			
<i>Dianthus gratianopolitanus</i>	8			
<i>Diapensia lapponica</i>	8			
<i>Epipactis youngiana</i>	8			
<i>Epipogium aphyllum</i>	8			II (C1)
<i>Equisetum ramosissimum</i>	8			
<i>Erigeron borealis</i>	8			
<i>Eriophorum gracile</i>	8			
<i>Eryngium campestre</i>	8			
<i>Filago lutescens</i>	8			
<i>Filago pyramidata</i>	8			

Species	WCA * (1981)	EC Habitats Directive Annex	Bern Convention Appendix	CITES Appendix
<i>Fumaria reuteri</i>	8			
<i>Gagea bohemica</i>	8			
<i>Galanthus nivalis</i> (if native)		Vb		II (C1)
<i>Gentiana nivalis</i>	8			
<i>Gentiana verna</i>	8			
<i>Gentianella anglica</i>	8	IIIb, IVb	I	
<i>Gentianella ciliata</i>	8			
<i>Gentianella uliginosa</i>	8			
<i>Gladiolus illyricus</i>	8			
<i>Gnaphalium luteoalbum</i>	8			
<i>Hieracium attenuatifolium</i>	8			
<i>Hieracium northroense</i>	8			
<i>Hieracium zetlandicum</i>	8			
<i>Himantoglossum hircinum</i>	8			II (C1)
<i>Homogyne alpina</i>	8			
<i>Lactuca saligna</i>	8			
<i>Leersia oryzoides</i>	8			
<i>Limosella australis</i>	8			
<i>Liparis loeselii</i>	8	IIIb, IVb	I	II (C1)
<i>Lloydia serotina</i>	8			
<i>Luronium natans</i>	8	IIIb, IVb	I	
<i>Lychnis alpina</i>	8			
<i>Lycopodium</i> , sensu lato - all species		Vb		
<i>Lythrum hyssopifolia</i>	8			
<i>Melampyrum arvense</i>	8			
<i>Mentha pulegium</i>	8			
<i>Minuartia stricta</i>	8			
<i>Najas flexilis</i>	8	IIIb, IVb	I	
<i>Najas marina</i>	8			
<i>Ononis reclinata</i>	8			
<i>Ophioglossum lusitanicum</i>	8			
<i>Ophrys fuciflora</i>	8			II (C1)
<i>Ophrys sphegodes</i>	8			II (C1)
<i>Orchis militaris</i>	8			II (C1)
<i>Orchis simia</i>	8			II (C1)
<i>Orobanche artemisiae-campestris</i>	8			
<i>Orobanche caryophyllacea</i>	8			
<i>Orobanche reticulata</i>	8			
<i>Petrorhagia nanteuilii</i>	8			
<i>Phyllodoce caerulea</i>	8			
<i>Phyteuma spicatum</i>	8			
<i>Polygonatum verticillatum</i>	8			
<i>Polygonum maritimum</i>	8			
<i>Potentilla rupestris</i>	8			
<i>Pulicaria vulgaris</i>	8			
<i>Pyrus cordata</i>	8			

Species	WCA * (1981)	EC Habitats Directive Annex	Bern Convention Appendix	CITES Appendix
<i>Ranunculus ophioglossifolius</i>	8			
<i>Rhinanthus angustifolius</i>	8			
<i>Romulea columnae</i>	8			
<i>Ruscus aculeatus</i>		Vb		
<i>Rumex rupestris</i>	8	IIb, IVb	I	
<i>Salvia pratensis</i>	8			
<i>Saxifraga cernua</i>	8			
<i>Saxifraga cespitosa</i>	8			
<i>Saxifraga hirculus</i>	8	IIb, IVb		
<i>Schoenoplectus triqueter</i>	8			
<i>Scleranthus perennis</i>	8			
<i>Scorzonera humilis</i>	8			
<i>Selinum carvifolia</i>	8			
<i>Senecio paludosus</i>	8			
<i>Stachys alpina</i>	8			
<i>Stachys germanica</i>	8			
<i>Tephrosia integrifolia</i> ssp. <i>maritima</i>	8			
<i>Teucrium botrys</i>	8			
<i>Teucrium scordium</i>	8			
<i>Thlaspi perfoliatum</i>	8			
<i>Trichomanes speciosum</i>	8	IIb, IVb	I	
<i>Veronica spicata</i> ssp. <i>spicata</i>	8			
<i>Veronica triphyllos</i>	8			
<i>Viola persicifolia</i>	8			
<i>Woodsia alpina</i>	8			
<i>Woodsia ilvensis</i>	8			

Key: *Wildlife & Countryside Act; EC Habitat & Species Directive, Annex Iib: designation of protected areas for plant species; Annex Ivb: special protection necessary for plant species; Annex Vb: exploitation of plant to be subject to management if necessary; Bern Convention, Appendix I: special protection for plant species; CITES, Appendix I: trade permitted only in exceptional circumstances; Appendix II: trade subject to licensing; EC regulations treat all species of orchids as if they were listed in Appendix I (category C1).

Appendix 4 Occurrence of rare species in counties and unitary authority areas

With very few exceptions, this list includes only post-1987 occurrences. It includes only those nationally scarce species for which an account is given in this book. Species have been placed in threat categories according to their national status. The numbers of species recorded in each vice-county are tabulated in Appendices 5 and 6.

Isles of Scilly

Endangered	<i>Echium plantagineum</i> , <i>Rumex rupestris</i>
Vulnerable	<i>Lavatera cretica</i> , <i>Ophioglossum lusitanicum</i> , <i>Viola kitaibeliana</i>
Lower Risk (near threatened)	<i>Ornithopus pinnatus</i> , <i>Polycarpon tetraphyllum</i>
Nationally Scarce	<i>Allium ampeloprasum</i> , <i>Fumaria occidentalis</i> , <i>Poa infirma</i> , <i>Scrophularia scorodonia</i>

Cornwall

Critical	<i>Spergularia bocconeii</i> .
Endangered	<i>Echium plantagineum</i> , <i>Fumaria reuteri</i> , <i>Juncus pygmaeus</i> , <i>Polygonum maritimum</i> , <i>Pyrus cordata</i> , <i>Rumex rupestris</i>
Vulnerable	<i>Asparagus prostratus</i> , <i>Cynodon dactylon</i> , <i>Cytisus scoparius</i> ssp. <i>maritimus</i> , <i>Dianthus armeria</i> , <i>Euphorbia hyberna</i> , <i>Euphrasia vigursii</i> , <i>Hypochaeris maculata</i> , <i>Isoetes histrix</i> , <i>Limonium loganicum</i> , <i>Lobelia urens</i> , <i>Mentha pulegium</i> , <i>Physospermum cornubiense</i> , <i>Ranunculus tripartitus</i> , <i>Trichomanes speciosum</i> , <i>Trifolium bocconeii</i> , <i>Trifolium incarnatum</i> ssp. <i>molinerii</i> , <i>Trifolium strictum</i> , <i>Valerianella eriocarpa</i>
Lower Risk (near threatened)	<i>Anthyllis vulneraria</i> ssp. <i>corbierei</i> , <i>Erica ciliaris</i> , <i>Erica vagans</i> , <i>Genista pilosa</i> , <i>Herniaria ciliolata</i> ssp. <i>ciliolata</i> , <i>Hypericum linariifolium</i> , <i>Juncus capitatus</i> , <i>Limonium britannicum</i> ssp. <i>britannicum</i> , <i>Limonium britannicum</i> ssp. <i>coombense</i> , <i>Lotus angustissimus</i> , <i>Polycarpon tetraphyllum</i>
Nationally Scarce	<i>Allium ampeloprasum</i> , <i>Fumaria occidentalis</i> , <i>Gastriidium ventricosum</i> , <i>Geranium purpureum</i> , <i>Lotus angustissimus</i> , <i>Poa infirma</i> , <i>Scrophularia scorodonia</i>

Devon, Plymouth Unitary Authority & Torbay Unitary Authority.

Critical	<i>Corrigiola litoralis</i> , <i>Schoenoplectus triquetrum</i>
Endangered	<i>Bupleurum baldense</i> , <i>Pyrus cordata</i> , <i>Rumex rupestris</i>
Vulnerable	<i>Coincya wrightii</i> , <i>Cytisus scoparius</i> ssp. <i>maritimus</i> , <i>Eleocharis parvula</i> , <i>Eryngium campestre</i> , <i>Euphorbia hyberna</i> , <i>Euphrasia vigursii</i> , <i>Limonium binervosum</i> ssp. <i>mutatum</i> , <i>Limonium procerum</i> ssp.

Lower Risk (near threatened)

Nationally Scarce

devoniense, *Lobelia urens*, *Matthiola sinuata*, *Mentha pulegium*, *Ononis reclinata*, *Romulea columnae*, *Scirpoides holoschoenus*, *Sorbus anglica*, *Sorbus subcuneata*, *Sorbus vexans*, *Teucrium scordium*, *Valerianella eriocarpa*, *Aster linosyris*, *Cynodon dactylon*, *Erica ciliaris*, *Helianthemum apenninum*, *Hypericum linariifolium*, *Leucosium aestivum*, *Limonium britannicum* ssp. *coombense*, *Limonium britannicum* ssp. *transcanalis*, *Lithospermum purpureocaeruleum*, *Lotus angustissimus*, *Polycarpon tetraphyllum*, *Trinia glauca*, *Gastriidium ventricosum*, *Geranium purpureum*, *Lotus angustissimus*, *Poa infirma*, *Scrophularia scorodonia*

Somerset, N.W. Somerset Unitary Authority and Bath & N.E. Somerset Unitary Authority

Critical	<i>Carex depauperata</i> , <i>Sorbus wilmottiana</i> , <i>Valerianella rimosa</i>
Endangered	<i>Althaea hirsuta</i> , <i>Leersia oryzoides</i> , <i>Sorbus bristolensis</i>
Vulnerable	<i>Anisantha madritensis</i> , <i>Arabis scabra</i> , <i>Cyperus fuscus</i> , <i>Dianthus armeria</i> , <i>Dianthus gratianopolitanus</i> , <i>Euphorbia serrulata</i> , <i>Himantoglossum hircinum</i> , <i>Scirpoides holoschoenus</i> , <i>Sorbus anglica</i> , <i>Sorbus eminens</i> , <i>Sorbus subcuneata</i> , <i>Sorbus vexans</i> , <i>Thlaspi perfoliatum</i> , <i>Valerianella eriocarpa</i>
Lower Risk (near threatened)	<i>Aster linosyris</i> , <i>Cynodon dactylon</i> , <i>Helianthemum apenninum</i> , <i>Herniaria glabra</i> , <i>Koeleria vallesiana</i> , <i>Lithospermum purpureocaeruleum</i> , <i>Potamogeton nodosus</i> , <i>Trinia glauca</i>
Nationally Scarce	<i>Allium ampeloprasum</i> , <i>Gastriidium ventricosum</i> , <i>Geranium purpureum</i> , <i>Rosa agrestis</i>

Wiltshire & Thamesdown Unitary Authority

Endangered	<i>Melampyrum arvense</i>
Vulnerable	<i>Adonis annua</i> , <i>Arabis glabra</i>
Lower Risk (near threatened)	<i>Carex filiformis</i> , <i>Cirsium tuberosum</i> , <i>Leucosium aestivum</i> , <i>Ophrys sphegodes</i> , <i>Potamogeton nodosus</i>
Nationally Scarce	<i>Rosa agrestis</i> , <i>Salvia pratensis</i>

Dorset, Bournemouth Unitary Authority & Poole Unitary Authority

Endangered	<i>Polygonum maritimum</i>
Vulnerable	<i>Adonis annua</i> , <i>Asparagus prostratus</i> , <i>Centaurium tenuiflorum</i> , <i>Chenopodium vulvaria</i> , <i>Himantoglossum hircinum</i> , <i>Limonium dodartiforme</i> , <i>Limonium recurvum</i> ssp. <i>portlandicum</i> , <i>Limonium recurvum</i> ssp. <i>recurvum</i> , <i>Lobelia urens</i> ,

- Lythrum hyssopifolia*, *Orobanche purpurea*, *Pilosella peleteriana*, *Potamogeton acutifolius*, *Scorzonera humilis*, *Valerianella eriocarpa*
- Lower Risk (near threatened) *Cirsium tuberosum*, *Erica ciliaris*, *Leucoujum aestivum*, *Ludwigia palustris*, *Mibora minima*, *Ophrys sphegodes*, *Polycarpon tetraphyllum*, *Potamogeton nodosus*
- Nationally Scarce *Allium ampeloprasum*, *Gastridium ventricosum*, *Geranium purpureum*, *Rosa agrestis*

Isle of Wight

- Endangered *Clinopodium menthifolium*, *Fumaria reuteri*, *Melampyrum arvense*, *Orobanche artemisiae-campestris*
- Vulnerable *Orobanche purpurea*, *Pilosella peleteriana*
- Lower Risk (near threatened) *Ophrys sphegodes*
- Nationally Scarce *Gastridium ventricosum*

Hampshire, Portsmouth Unitary Authority & Southampton Unitary Authority

- Critical *Cephalanthera rubra*, *Valerianella rimosa*
- Endangered *Polygonum maritimum*
- Vulnerable *Adonis annua*, *Ajuga chamaepitys*, *Arabis glabra*, *Cyperus fuscus*, *Dianthus armeria*, *Eleocharis parvula*, *Eriophorum gracile*, *Filago lutescens*, *Himantoglossum hircinum*, *Lobelia urens*, *Mentha pulegium*, *Orobanche purpurea*, *Pulicaria vulgaris*, *Ranunculus tripartitus*, *Teucrium botrys*
- Lower Risk (near threatened) *Buxus sempervirens*, *Galium constrictum*, *Gladiolus illyricus*, *Lotus angustissimus*, *Ludwigia palustris*
- Nationally Scarce *Gastridium ventricosum*, *Geranium purpureum*, *Lotus angustissimus*, *Rosa agrestis*

West Sussex

- Endangered *Filago pyramidata*, *Leersia oryzoides*, *Lonicera xylosteum*, *Orobanche artemisiae-campestris*, *Petrorhagia nanteuillii*
- Vulnerable *Carex vulpina*, *Centaurea calcitrapa*, *Filago lutescens*, *Lythrum hyssopifolia*, *Potamogeton acutifolius*, *Ranunculus tripartitus*
- Nationally Scarce *Salvia pratensis*.

East Sussex and Brighton Unitary Authority & Hove Unitary Authority

- Endangered: *Althaea hirsuta*, *Bupleurum baldense*, *Lactuca saligna*, *Lonicera xylosteum*, *Polygonum maritimum*, *Teucrium chamaedrys*
- Vulnerable *Adonis annua*, *Carex vulpina*, *Centaurea calcitrapa*, *Centaureum scilloides*, *Dianthus armeria*, *Himantoglossum hircinum*, *Lobelia urens*, *Phyteuma spicatum*, *Potamogeton acutifolius*, *Seseli libanotis*

- Lower Risk (near threatened) *Chenopodium chenopodioides*, *Genista pilosa*, *Limonium binervosum* ssp. *binervosum*, *Ludwigia palustris*, *Ophrys sphegodes*
- Nationally Scarce *Rosa agrestis*

Kent, and Rochester & Gillingham proposed Unitary Authority

- Endangered *Althaea hirsuta*, *Cerastium brachypetalum*, *Crepis foetida*, *Filago pyramidata*, *Orobanche artemisiae-campestris*
- Vulnerable *Adonis annua*, *Ajuga chamaepitys*, *Carex vulpina*, *Centaureum scilloides*, *Chenopodium vulvaria*, *Cynoglossum germanicum*, *Dianthus armeria*, *Himantoglossum hircinum*, *Limonium binervosum* ssp. *cantianum*, *Ophrys fuciflora*, *Orchis simia*, *Orobanche caryophyllacea*, *Orobanche purpurea*, *Polygala amarella*, *Potamogeton acutifolius*, *Teucrium botrys*
- Lower Risk (near threatened) *Buxus sempervirens*, *Chenopodium chenopodioides*, *Limonium binervosum* ssp. *binervosum*, *Lotus angustissimus*, *Ophrys sphegodes*, *Peucedanum officinale*
- Nationally Scarce *Lotus angustissimus*, *Salvia pratensis*

Surrey

- Critical *Carex depauperata*
- Endangered *Damasonium alisma*, *Filago pyramidata*, *Leersia oryzoides*
- Vulnerable *Ajuga chamaepitys*, *Arabis glabra*, *Carex vulpina*, *Cynoglossum germanicum*, *Cyperus fuscus*, *Dianthus armeria*, *Eriophorum gracile*, *Filago lutescens*, *Himantoglossum hircinum*, *Potamogeton acutifolius*, *Pulicaria vulgaris*, *Ranunculus tripartitus*, *Rhinanthus angustifolius*, *Teucrium botrys*
- Lower Risk (near threatened) *Buxus sempervirens*, *Carex filiformis*, *Dryopteris cristata*, *Polycarpon tetraphyllum*
- Nationally Scarce *Rosa agrestis*, *Salvia pratensis*

Essex & Southend Unitary Authority

- Critical *Atriplex pedunculata*, *Bupleurum falcatum*, *Filago gallica*
- Endangered *Lactuca saligna*, *Melampyrum arvense*, *Tordylium maximum*
- Vulnerable *Dianthus armeria*, *Filago lutescens*
- Lower Risk (near threatened) *Chenopodium chenopodioides*, *Limonium binervosum* ssp. *saxonicum*, *Peucedanum officinale*

Hertfordshire

- Critical *Galium tricornutum*
- Vulnerable *Dianthus armeria*, *Hypochaeris maculata*
- Lower Risk (near threatened) *Bunium bulbocastanum*, *Phleum phleoides*

Greater London

- Vulnerable *Arabis glabra*, *Rhinanthus angustifolius*

Berkshire

Endangered	<i>Althaea hirsuta</i>
Vulnerable	<i>Arabis glabra</i> , <i>Cyperus fuscus</i> , <i>Mentha pulegium</i>
Lower Risk (near threatened)	<i>Dryopteris cristata</i> , <i>Leucojum aestivum</i> , <i>Potamogeton nodosus</i>
Nationally Scarce	<i>Salvia pratensis</i>

Oxfordshire

Critical	<i>Althaea hirsuta</i> , <i>Apium repens</i> , <i>Galium tricornutum</i>
Endangered	<i>Filago pyramidata</i> , <i>Stachys germanica</i>
Vulnerable	<i>Adonis annua</i> , <i>Carex vulpina</i> , <i>Cynoglossum germanicum</i> , <i>Dianthus armeria</i> , <i>Himantoglossum hircinum</i> , <i>Lythrum hyssopifolia</i> , <i>Orchis militaris</i> , <i>Orchis simia</i> , <i>Thlaspi perfoliatum</i>
Lower Risk (near threatened)	<i>Carex filiformis</i> , <i>Leucojum aestivum</i>
Nationally Scarce	<i>Salvia pratensis</i>

Buckinghamshire

Critical	<i>Cephalanthera rubra</i> , <i>Epipogium aphyllum</i> , <i>Gentianella ciliata</i>
Endangered	<i>Damasonium alisma</i>
Vulnerable	<i>Adonis annua</i> , <i>Cyperus fuscus</i> , <i>Orchis militaris</i> , <i>Physospermum cornubiense</i>
Lower Risk (near threatened)	<i>Bunium bulbocastanum</i> , <i>Buxus sempervirens</i> , <i>Leucojum aestivum</i>
Nationally Scarce	<i>Salvia pratensis</i>

Suffolk

Endangered	<i>Artemisia campestris</i> , <i>Centaurea cyanus</i> , <i>Scleranthus peregrinus</i> ssp. <i>prostratus</i> , <i>Veronica triphyllos</i>
Vulnerable	<i>Ajuga chamaepitys</i> , <i>Arabis glabra</i> , <i>Festuca longifolia</i> , <i>Filago lutescens</i> , <i>Himantoglossum hircinum</i> , <i>Hypochaeris maculata</i> , <i>Muscari neglectum</i> , <i>Orchis militaris</i> , <i>Orobancha purpurea</i> , <i>Pulmonaria obscura</i> , <i>Veronica spicata</i> ssp. <i>spicata</i> , <i>Veronica verna</i>
Lower Risk (near threatened)	<i>Chenopodium chenopodioides</i> , <i>Corynephorus canescens</i> , <i>Herniaria glabra</i> , <i>Ophrys sphegodes</i> , <i>Peucedanum officinale</i> , <i>Phleum phleoides</i> , <i>Silene otites</i> , <i>Thymus serpyllum</i>

Norfolk

Critical	<i>Gnaphalium luteoalbum</i> , <i>Petrorhagia prolifera</i>
Endangered	<i>Artemisia campestris</i> , <i>Liparis loeselii</i> , <i>Veronica triphyllos</i>
Vulnerable	<i>Arabis glabra</i> , <i>Dianthus armeria</i> , <i>Maianthemum bifolium</i> , <i>Najas marina</i> , <i>Orobancha purpurea</i> , <i>Potamogeton acutifolius</i> , <i>Veronica spicata</i> ssp. <i>Spicata</i>
Lower Risk (near threatened)	<i>Calamagrostis stricta</i> , <i>Corynephorus canescens</i> , <i>Dryopteris cristata</i> , <i>Herniaria glabra</i> , <i>Limonium bellidifolium</i> , <i>Limonium binervosum</i> ssp. <i>anglicum</i> , <i>Phleum phleoides</i> , <i>Silene otites</i> , <i>Thymus serpyllum</i>
Nationally Scarce	<i>Rosa agrestis</i>

Cambridgeshire

Critical	<i>Dactylorhiza incarnata</i> ssp. <i>ochroleuca</i> , <i>Galium tricornutum</i> , <i>Senecio paludosus</i>
Endangered	<i>Filago pyramidata</i> , <i>Viola canina</i> ssp. <i>montana</i> , <i>Viola persicifolia</i>
Vulnerable	<i>Adonis annua</i> , <i>Ajuga chamaepitys</i> , <i>Filago lutescens</i> , <i>Himantoglossum hircinum</i> , <i>Hypochaeris maculata</i> , <i>Luzula pallidula</i> , <i>Lythrum hyssopifolia</i> , <i>Muscari neglectum</i> , <i>Selinum carvifolia</i> , <i>Seseli libanotis</i> , <i>Teucrium scordium</i> , <i>Veronica spicata</i> ssp. <i>Spicata</i>
Lower Risk (near threatened)	<i>Bunium bulbocastanum</i> , <i>Herniaria glabra</i> , <i>Phleum phleoides</i> , <i>Silene otites</i>

Bedfordshire & Luton Unitary Authority

Critical	<i>Valerianella rimosa</i>
Endangered	<i>Cerastium brachypetalum</i> , <i>Melampyrum arvense</i> , <i>Petrorhagia prolifera</i>
Vulnerable	<i>Adonis annua</i> , <i>Ajuga chamaepitys</i> , <i>Hypochaeris maculata</i> , <i>Seseli libanotis</i>
Lower Risk (near threatened)	<i>Bunium bulbocastanum</i>

Northamptonshire

Vulnerable	<i>Hypochaeris maculata</i>
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Gloucestershire, S. Gloucestershire Unitary Authority, and City & County of Bristol Unitary Authority

Critical	<i>Carex muricata</i> ssp. <i>muricata</i> , <i>Cephalanthera rubra</i> , <i>Sorbus domestica</i> , <i>Sorbus wilmottiana</i>
Endangered	<i>Allium sphaerocephalon</i> , <i>Ranunculus ophioglossifolius</i> , <i>Sorbus bristoliensis</i> , <i>Stachys alpina</i>
Vulnerable	<i>Anisantha madritensis</i> , <i>Arabis scabra</i> , <i>Carex vulpina</i> , <i>Cynoglossum germanicum</i> , <i>Euphorbia serrulata</i> , <i>Lythrum hyssopifolia</i> , <i>Sorbus eminens</i> , <i>Teucrium botrys</i> , <i>Thlaspi perfoliatum</i>
Lower Risk (near threatened)	<i>Buxus sempervirens</i> , <i>Carex filiformis</i> , <i>Ophrys sphegodes</i> , <i>Potamogeton nodosus</i> , <i>Trinia glauca</i>
Nationally Scarce	<i>Salvia pratensis</i>
Data Deficient	<i>Asplenium trichomanes</i> ssp. <i>pachyrachis</i>

Herefordshire

Critical	<i>Epipogium aphyllum</i>
Vulnerable	<i>Mentha pulegium</i> , <i>Ranunculus tripartitus</i> , <i>Sorbus eminens</i>
Data Deficient	<i>Asplenium trichomanes</i> ssp. <i>pachyrachis</i>

Worcestershire

Critical	<i>Alisma gramineum</i>
Vulnerable	<i>Arabis glabra</i> , <i>Dianthus armeria</i>
Nationally Scarce	<i>Rosa agrestis</i>

Warwickshire

Vulnerable	<i>Dianthus armeria</i>
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Staffordshire and Stoke on Trent Unitary Authority

Lower Risk (near threatened)	<i>Polemonium caeruleum</i>
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Shropshire

Vulnerable *Sorbus anglica*

Lincolnshire, & N. Lincolnshire Unitary Authority

Critical *Alisma gramineum*
 Vulnerable *Armeria maritima* ssp. *elongata*, *Dianthus armeria*, *Festuca longifolia*, *Maianthemum bifolium*, *Orobancha purpurea*, *Rhinanthus angustifolius*
 Lower Risk (near threatened) *Herniaria glabra*, *Limonium binervosum* ssp. *anglicum*

Nottinghamshire

Vulnerable *Dianthus armeria*, *Festuca longifolia*

Derbyshire

Vulnerable *Arabis glabra*
 Lower Risk (near threatened) *Carex ornithopoda*, *Polemonium caeruleum*

Merseyside

Lower Risk (near threatened) *Corynephorus canescens*

Lancashire

Lower Risk (near threatened) *Calamagrostis stricta*, *Eleocharis austriaca*, *Limonium britannicum* ssp. *celticum*, *Sorbus lancastriensis*

East Riding of Yorkshire

Vulnerable *Maianthemum bifolium*
 Lower Risk (near threatened) *Calamagrostis stricta*

South Yorkshire

Lower Risk (near threatened) *Calamagrostis stricta*, *Orobancha reticulata*

West Yorkshire

Endangered *Epipactis youngiana*
 Lower Risk (near threatened) *Orobancha reticulata*

North Yorkshire

Critical *Carex muricata* ssp. *muricata*, *Cypripedium calceolus*
 Vulnerable *Alchemilla minima*, *Arabis glabra*, *Arenaria norvegica* ssp. *anglica*, *Maianthemum bifolium*, *Polygala amarella*, *Saxifraga hirculus*
 Lower Risk (near threatened) *Alchemilla glaucescens*, *Bartsia alpina*, *Calamagrostis stricta*, *Carex ornithopoda*, *Eleocharis austriaca*, *Orobancha reticulata*, *Polemonium caeruleum*, *Viola rupestris*

Durham

Endangered *Alchemilla subcrenata*, *Minuartia stricta*
 Vulnerable *Helianthemum canum* ssp. *levigatum*, *Maianthemum bifolium*, *Polygala amarella*, *Saxifraga hirculus*
 Lower Risk (near threatened) *Alchemilla acutiloba*, *Alchemilla monticola*, *Bartsia alpina*, *Gentiana verna*,

Kobresia simpliciuscula, *Myosotis alpestris*, *Potentilla fruticosa*, *Viola rupestris*

Northumberland

Endangered *Epipactis youngiana*
 Vulnerable *Alchemilla gracilis*
 Lower Risk (near threatened) *Alchemilla acutiloba*, *Eleocharis austriaca*, *Polemonium caeruleum*
 Data Deficient *Asplenium trichomanes* ssp. *pachyrachis*

Cumbria

Endangered *Crepis praemorsa*, *Woodsia ilvensis*
 Vulnerable *Alchemilla minima*, *Carex flava*, *Hypochaeris maculata*, *Lychmis alpina*, *Orobancha purpurea*, *Polygala amarella*, *Saxifraga hirculus*, *Trichomanes speciosum*
 Lower Risk (near threatened) *Alchemilla glaucescens*, *Aster linosyris*, *Bartsia alpina*, *Calamagrostis purpurea*, *Carex ornithopoda*, *Eleocharis austriaca*, *Euphrasia rivularis*, *Gentiana verna*, *Limonium recurvum* ssp. *humile*, *Myosotis alpestris*, *Potentilla fruticosa*, *Sorbus lancastriensis*, *Viola rupestris*

Isle of Man

Vulnerable *Mentha pulegium*

WALES

Monmouth, Newport Unitary Authority, Torfaen Unitary Authority, Blaenau Gwent Unitary Authority, & Caerphilly Unitary Authority (Part)

Vulnerable *Euphorbia serrulata*, *Sorbus anglica*, *Sorbus eminens*
 Nationally Scarce *Salvia pratensis*
 Data Deficient *Asplenium trichomanes* ssp. *Pachyrachis*

Glamorgan

Bridgend
 Endangered *Liparis loeselii*
 Vulnerable *Matthiola sinuata*, *Scorzonera humilis*
 Nationally Scarce *Gastridium ventricosum*

Neath & Port Talbot

Vulnerable *Eriophorum gracile*, *Matthiola sinuata*

Swansea

Endangered *Liparis loeselii*, *Rumex rupestris*
 Vulnerable *Asparagus prostratus*, *Dianthus armeria*, *Eriophorum gracile*, *Gentianella uliginosa*, *Matthiola sinuata*, *Ononis reclinata*
 Lower Risk (near threatened) *Aster linosyris*, *Draba aizoides*, *Lithospermum purpureocaeruleum*, *Mibora minima*
 Nationally Scarce *Gastridium ventricosum*

Vale of Glamorgan

Lower Risk (near threatened) *Cirsium tuberosum*, *Lithospermum purpureocaeruleum*

Powys

Critical	<i>Sorbus leptophylla</i> , <i>Sorbus leyana</i> , <i>Scleranthus perennis</i> ssp. <i>perennis</i> .
Vulnerable	<i>Gagea bohemica</i> , <i>Lychnis viscaria</i> , <i>Mentha pulegium</i> , <i>Pilosella peleteriana</i> , <i>Potentilla rupestris</i> , <i>Sorbus anglica</i> , <i>Sorbus minima</i> , <i>Trifolium strictum</i>
Lower Risk (near threatened)	<i>Genista pilosa</i>

Carmarthenshire

Vulnerable	<i>Gentianella uliginosa</i>
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Pembrokeshire

Vulnerable	<i>Anisantha madritensis</i> , <i>Asparagus prostratus</i> , <i>Centaurium scilloides</i> , <i>Cytisus scoparius</i> ssp. <i>maritimus</i> , <i>Gentianella uliginosa</i> , <i>Limonium paradoxum</i> , <i>Limonium parvum</i> , <i>Limonium procerum</i> ssp. <i>cambrese</i> , <i>Limonium transwallianum</i> , <i>Ononis reclinata</i> , <i>Orobanche purpurea</i> , <i>Ranunculus tripartitus</i>
Lower Risk (near threatened)	<i>Aster linosyris</i> , <i>Genista pilosa</i> , <i>Limonium britannicum</i> ssp. <i>transcanalis</i>

Caernarvonshire & Merionethshire

Endangered	<i>Woodsia ilvensis</i>
Vulnerable	<i>Cytisus scoparius</i> ssp. <i>maritimus</i> , <i>Eleocharis parvula</i> , <i>Eriophorum gracile</i> , <i>Euphrasia cambrica</i> , <i>Lloydia serotina</i> , <i>Sorbus eminens</i> , <i>Trichomanes speciosum</i> , <i>Tuberaria guttata</i>
Lower Risk (near threatened)	<i>Euphrasia rivularis</i> , <i>Genista pilosa</i> , <i>Hypericum linariifolium</i> , <i>Limonium britannicum</i> ssp. <i>celticum</i> , <i>Limosella australis</i> , <i>Saxifraga cespitosa</i> , <i>Woodsia alpina</i>
Nationally Scarce	<i>Allium ampeloprasum</i> .

Aberconwy & Colwyn

Endangered	<i>Cotoneaster integerrimus</i>
Vulnerable	<i>Euphrasia cambrica</i> , <i>Hypochaeris maculata</i> , <i>Lloydia serotina</i>
Lower Risk (near threatened)	<i>Aster linosyris</i> , <i>Senecio cambrensis</i>
Nationally Scarce	<i>Rosa agrestis</i>

Denbighshire

Endangered	<i>Stachys alpina</i>
Vulnerable	<i>Sorbus anglica</i>
Lower Risk (near threatened)	<i>Lithospermum purpureocaeruleum</i>

Wrexham

Critical	<i>Carex muricata</i> ssp. <i>muricata</i>
Lower Risk (near threatened)	<i>Senecio cambrensis</i>

Flintshire

Vulnerable	<i>Dianthus armeria</i>
Lower Risk (near threatened)	<i>Senecio cambrensis</i>

Anglesey

Endangered:	<i>Rumex rupestris</i>
Vulnerable	<i>Tephrosia integrifolia</i> ssp. <i>maritima</i> , <i>Tuberaria guttata</i>
Lower Risk (near threatened)	<i>Anthyllis vulneraria</i> ssp. <i>corbierei</i> , <i>Juncus capitatus</i> , <i>Limonium britannicum</i> ssp. <i>celticum</i> , <i>Mibora minima</i>

SCOTLAND**Dumfries & Galloway**

Endangered	<i>Woodsia ilvensis</i>
Vulnerable	<i>Lychnis viscaria</i> , <i>Ononis reclinata</i>
Lower Risk (near threatened)	<i>Hierochloa odorata</i> , <i>Limonium recurvum</i> ssp. <i>humile</i> , <i>Oxytropis halleri</i>

East Ayrshire

Lower Risk (near threatened)	<i>Calamagrostis stricta</i>
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North Ayrshire

Vulnerable	<i>Sorbus arranensis</i> , <i>Sorbus pseudofennica</i> , <i>Trichomanes speciosum</i>
Data Deficient	<i>Cochlearia atlantica</i>

Renfrewshire

Lower Risk (near threatened)	<i>Hierochloa odorata</i>
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City of Glasgow

Endangered	<i>Epipactis youngiana</i>
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The Borders

Vulnerable	<i>Lychnis viscaria</i>
Lower Risk (near threatened):	<i>Calamagrostis stricta</i> , <i>Eleocharis austriaca</i> , <i>Hierochloa odorata</i>

Midlothian

Endangered	<i>Epipactis youngiana</i>
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City of Edinburgh

Vulnerable	<i>Lychnis viscaria</i>
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West Lothian

Vulnerable	<i>Saxifraga hirculus</i>
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Falkirk

Endangered	<i>Epipactis youngiana</i>
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Fife

Vulnerable	<i>Lychnis viscaria</i>
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Argyll & Bute

Endangered	<i>Ranunculus reptans</i>
Vulnerable	<i>Athyrium flexile</i> , <i>Carex buxbaumii</i> , <i>Gentianella uliginosa</i> , <i>Oxytropis campestris</i> , <i>Rumex aquaticus</i> , <i>Trichomanes speciosum</i>
Lower Risk (near threatened)	<i>Arenaria norvegica</i> ssp. <i>norvegica</i> , <i>Bartsia alpina</i> , <i>Calamagrostis purpurea</i> , <i>Cystopteris montana</i> , <i>Dactylorhiza</i>

lapponica, *Eriocaulon aquaticum*,
Euphrasia heslop-harrisonii, *Kobresia*
simpliciuscula, *Koenigia islandica*,
Oxytropis halleri, *Potamogeton rutilus*,
Veronica fruticans, *Woodsia alpina*
Nationally Scarce *Cochlearia micacea*

Stirling

Vulnerable *Lychnis viscaria*, *Poa flexuosa*, *Rumex*
aquaticus, *Sagina nivalis*, *Salix lanata*
Lower Risk (near threatened) *Bartsia alpina*, *Cystopteris montana*,
Kobresia simpliciuscula, *Veronica fruticans*

Perthshire & Kinross

Vulnerable *Astragalus alpinus*, *Carex microglochin*,
Carex norvegica, *Cystopteris dickieana*,
Erigeron borealis, *Gentiana nivalis*,
Lychnis viscaria, *Oxytropis campestris*,
Phyllodoce caerulea, *Polygonatum*
verticillatum, *Sagina nivalis*, *Salix lanata*,
Saxifraga cernua, *Scheuchzeria palustris*,
Schoenus ferrugineus
Lower Risk (near threatened) *Bartsia alpina*, *Calamagrostis purpurea*,
Carex atrofusca, *Carex rariflora*,
Cystopteris montana, *Hierochloa odorata*,
Kobresia simpliciuscula, *Minuartia*
rubella, *Myosotis alpestris*, *Oxytropis*
halleri, *Saxifraga rivularis*, *Veronica*
fruticans, *Woodsia alpina*
Nationally Scarce *Cochlearia micacea*

Angus

Endangered *Homogyne alpina*, *Woodsia ilvensis*
Vulnerable *Astragalus alpinus*, *Athyrium flexile*,
Carex norvegica, *Cerastium fontanum* ssp.
scoticum, *Cicerbita alpina*, *Erigeron*
borealis, *Gentiana nivalis*, *Lychnis alpina*,
Oxytropis campestris, *Rhinanthus*
angustifolius, *Salix lanata*
Lower Risk (near threatened) *Calamagrostis purpurea*, *Calamagrostis*
stricta, *Carex rariflora*, *Cystopteris*
montana, *Veronica fruticans*, *Woodsia*
alpina
Nationally Scarce *Cochlearia micacea*, *Gnaphalium*
norvegicum

City of Aberdeen

Vulnerable *Cystopteris dickieana*

Aberdeenshire

Endangered *Ranunculus reptans*
Vulnerable *Astragalus alpinus*, *Athyrium flexile*,
Carex norvegica, *Cicerbita alpina*,
Erigeron borealis, *Poa flexuosa*, *Salix*
lanata, *Saxifraga cespitosa*, *Saxifraga*
hirculus
Lower Risk (near threatened) *Calamagrostis purpurea*, *Carex lachenalii*,
Carex rariflora, *Luzula arcuata*, *Minuartia*
rubella, *Saxifraga rivularis*, *Woodsia*
alpina
Nationally Scarce *Cochlearia micacea*, *Gnaphalium*
norvegicum

Moray

Vulnerable *Moneses uniflora*, *Poa flexuosa*, *Saxifraga*
cespitosa, *Saxifraga hirculus*
Lower Risk (near threatened) *Carex lachenalii*, *Carex rariflora*, *Luzula*
arcuata, *Saxifraga rivularis*

Highland (East Inverness-shire)

Endangered *Woodsia ilvensis*
Vulnerable *Athyrium flexile*, *Carex buxbaumii*, *Carex*
chordorrhiza, *Cystopteris dickieana*,
Moneses uniflora, *Phyllodoce caerulea*, *Poa*
flexuosa, *Salix lanata*
Lower Risk (near threatened) *Carex lachenalii*, *Carex rariflora*, *Carex*
recta, *Cystopteris montana*, *Luzula*
arcuata, *Saxifraga rivularis*, *Veronica*
fruticans
Nationally Scarce *Cochlearia micacea*, *Gnaphalium*
norvegicum

Highland (West Inverness-shire)

Vulnerable *Athyrium flexile*, *Carex buxbaumii*,
Crassula aquatica, *Diapensia lapponica*,
Phyllodoce caerulea, *Poa flexuosa*, *Salix*
lanata, *Saxifraga cernua*, *Saxifraga*
cespitosa, *Scheuchzeria palustris*
Lower Risk (near threatened) *Arenaria norvegica* ssp. *norvegica*, *Carex*
atrofusca, *Carex lachenalii*, *Carex rariflora*,
Cystopteris montana, *Dactylorhiza*
lapponica, *Eriocaulon aquaticum*, *Euphrasia*
lapponica, *Eriocaulon aquaticum*, *Euphrasia*
heslop-harrisonii, *Luzula arcuata*,
Minuartia rubella, *Saxifraga rivularis*,
Veronica fruticans, *Woodsia alpina*
Nationally Scarce *Gnaphalium norvegicum*
Data Deficient *Cochlearia atlantica*.

Highland (Skye)

Endangered *Arabis alpina*
Lower Risk (near threatened) *Arenaria norvegica* ssp. *norvegica*,
Dactylorhiza lapponica, *Eriocaulon*
aquaticum, *Euphrasia heslop-harrisonii*,
Euphrasia marshallii, *Koenigia islandica*
Data Deficient *Cochlearia atlantica*

Highland (Ross & Cromarty)

Endangered *Dactylorhiza incarnata* ssp. *Cruenta*
Vulnerable *Artemisia norvegica*, *Carex recta*, *Poa*
flexuosa, *Saxifraga cespitosa*
Lower Risk (near threatened) *Alchemilla glaucescens*, *Dactylorhiza*
lapponica, *Luzula arcuata*, *Oxytropis*
halleri, *Potamogeton rutilus*, *Saxifraga*
rivularis
Nationally Scarce *Cochlearia micacea*, *Gnaphalium norvegicum*

Highland (Sutherland)

Endangered *Euphrasia rotundifolia*
Vulnerable *Carex chordorrhiza*, *Carex recta*, *Moneses*
uniflora, *Potentilla rupestris*
Lower Risk (near threatened) *Alchemilla glaucescens*, *Arenaria*
norvegica ssp. *norvegica*, *Dactylorhiza*
lapponica, *Euphrasia marshallii*,
Minuartia rubella, *Oxytropis halleri*,
Potamogeton rutilus

Highland (Caithness)

Vulnerable *Calamagrostis scotica*, *Carex recta*
 Lower Risk (near threatened) *Anthyllis vulneraria* ssp. *corbierei*,
Calamagrostis stricta, *Hierochloa odorata*

Western Isles

Vulnerable *Potamogeton epihydrus*
 Lower Risk (near threatened) *Dactylorhiza lapponica*, *Euphrasia campbelliae*, *Euphrasia heslop-harrisonii*,
Hierochloa odorata, *Potamogeton rutilus*
 Data Deficient *Cochlearia atlantica*

Orkney Islands

Lower Risk (near threatened) *Euphrasia heslop-harrisonii*, *Euphrasia marshallii*, *Hierochloa odorata*

Shetland Islands

Vulnerable *Cerastium nigrescens*, *Pilosella flagellaris* ssp. *Bicapitata*
 Lower Risk (near threatened) *Arenaria norvegica* ssp. *norvegica*,
Euphrasia heslop-harrisonii, *Euphrasia marshallii*, *Potamogeton rutilus*

Appendix 5 Records of Threatened and Near Threatened species in vice-counties

This table shows the numbers of Threatened and Near Threatened species that have been recorded in each vice-county in three date classes. Also given is the total number of Threatened and Near Threatened species that have been

recorded in each vice-county since 1970. It should be noted that the figures in a date class may mask changes that have taken place in more than one.

Numbers of taxa [excluding introductions]

Vice-county	v.c. no.	Critical			Endangered			Vulnerable			Near Threatened				
		Pre-1970	1970-1986	1987-1997	Total 1970-1997	Pre-1970	1970-1986	1987-1997	Total 1970-1997	Pre-1970	1970-1986	1987-1997	Total 1970-1997		
West Cornwall	1	3	1	1	1	6	7	3	2	15	17	3	1	8	9
East Cornwall	2	3	1	1	3	2	2	7	6	6	6	2	2	3	5
South Devon	3	2	2	2	3	3	3	5	4	9	13	1	1	7	8
North Devon	4	2	1	1	4	1	1	6	2	9	11	1	1	1	1
South Somerset	5	2	1	1	3	3	3	5	1	2	3	5	1	1	1
North Somerset	6	1	1	2	3	4	4	2	1	9	1	2	1	6	6
North Wiltshire	7	2	2	2	6	2	2	6	1	2	3	1	1	3	3
South Wiltshire	8	3	1	1	3	1	1	3	2	2	4	1	1	3	4
Dorset	9	3	1	2	4	1	2	9	1	14	14	1	1	7	7
Isle of Wight	10	2	3	6	3	6	6	8	1	2	3	1	1	1	1
South Hampshire	11	2	7	1	7	1	1	6	6	8	8	2	2	3	5
North Hampshire	12	1	3	2	3	2	2	4	2	7	9	1	1	1	1
West Sussex	13	4	3	6	3	1	7	6	6	7	7	3	3	2	4
East Sussex	14	2	3	6	3	6	6	5	3	7	1	1	2	2	4
East Kent	15	5	5	2	5	2	4	8	4	9	13	1	1	5	5
West Kent	16	6	1	3	5	2	5	1	1	8	8	4	4	1	1
Surrey	17	4	1	1	1	3	3	6	6	13	13	1	1	3	3
South Essex	18	1	1	2	3	3	3	6	6	1	1	1	1	1	1
North Essex	19	1	1	2	1	2	2	7	7	1	1	1	1	3	3
Hertfordshire	20	2	3	1	3	1	1	11	2	2	4	2	2	2	2
Middlesex	21	3	5	3	5	2	3	9	1	2	3	2	2	3	3
Berkshire	22	1	2	1	1	3	3	6	2	4	6	2	2	2	2
Oxfordshire	23	1	2	1	1	1	4	4	5	5	1	2	1	4	4
Buckinghamshire	24	2	1	2	2	2	2	9	1	3	4	1	2	3	5
East Suffolk	25	2	1	1	4	4	5	6	1	3	4	2	1	6	7
West Suffolk	26	4	4	4	4	1	4	5	2	9	11	1	1	2	4
East Norfolk	27	4	4	2	4	2	2	1	4	4	4	1	2	2	4
West Norfolk	28	4	1	2	7	2	2	4	2	4	6	1	1	8	9
Cambridgeshire	29	2	1	3	3	4	4	5	1	9	1	2	1	4	4
Bedfordshire	30	2	2	1	2	2	2	7	1	3	4	1	1	1	2
Huntingdonshire	31	3	2	1	2	1	3	4	2	1	3	4	2	1	3

32	Northamptonshire	2	1	2	1	1	1	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1
33	East Gloucestershire	1	1	2	2	1	1	1	1	1	1	5	1	1	5	5	1	1	1	1	1	1
34	West Gloucestershire	1	1	4	5	2	5	8	2	2	7	9	1	1	7	9	1	1	1	1	1	4
35	Monmouthshire	1	1	1	1	1	1	3	3	1	3	3	1	1	3	3	1	1	1	1	1	4
36	Herefordshire	3	1	1	1	1	1	4	1	1	2	3	1	1	2	3	1	1	1	1	1	4
37	Worcestershire	1	1	1	1	1	1	8	1	1	2	2	1	1	2	2	1	1	1	1	1	1
38	Warwickshire	2	1	1	1	1	1	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1
39	Staffordshire	1	1	1	1	1	1	5	1	1	5	5	1	1	5	5	1	1	1	1	1	1
40	Shropshire	1	1	1	1	1	1	2	2	1	2	3	1	1	3	1	1	1	1	1	1	1
41	Glamorgan	2	1	1	2	1	2	4	1	1	8	8	1	1	8	8	1	1	1	1	1	4
42	Breconshire	1	1	2	2	1	1	3	1	1	3	3	1	1	3	3	1	1	1	1	1	1
43	Radnorshire	1	1	1	1	1	1	1	1	1	5	5	1	1	5	5	1	1	1	1	1	1
44	Carmarthenshire	2	2	2	2	1	2	2	1	1	1	2	1	1	2	2	1	1	1	1	1	3
45	Pembrokeshire	1	1	1	1	1	1	2	2	1	11	13	1	1	13	13	1	1	1	1	1	2
46	Cardiganshire	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
47	Montgomeryshire	1	1	1	1	1	1	1	1	1	4	4	1	1	4	4	1	1	1	1	1	1
48	Merionethshire	2	2	2	2	1	2	4	1	1	4	4	1	1	4	4	1	1	1	1	1	1
49	Caernarvonshire	1	1	1	1	1	1	6	1	1	11	12	1	1	11	12	1	1	1	1	1	5
50	Denbighshire	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	2
51	Flintshire	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
52	Anglesey	1	1	1	1	1	1	6	1	1	2	2	1	1	2	2	1	1	1	1	1	4
53	South Lincolnshire	4	4	4	4	1	1	5	1	1	2	2	1	1	2	2	1	1	1	1	1	1
54	North Lincolnshire	4	4	4	4	1	1	6	1	1	5	6	1	1	5	6	1	1	1	1	1	2
55	Leicestershire	2	2	2	2	1	1	9	1	1	2	2	1	1	2	2	1	1	1	1	1	2
56	Nottinghamshire	1	1	1	1	1	1	6	1	1	2	2	1	1	2	2	1	1	1	1	1	2
57	Derbyshire	3	3	3	3	1	1	3	1	1	3	3	1	1	3	3	1	1	1	1	1	2
58	Cheshire	1	1	1	1	1	1	5	1	1	5	5	1	1	5	5	1	1	1	1	1	2
59	South Lancashire	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
60	West Lancashire	2	2	2	2	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	3
61	South-east Yorkshire	2	2	2	2	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	4
62	North-east Yorkshire	3	3	3	3	1	1	4	1	1	1	2	1	1	2	2	1	1	1	1	1	1
63	South-west Yorkshire	2	2	2	2	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	2
64	Mid-west Yorkshire	1	1	1	1	1	1	5	1	1	3	4	1	1	3	4	1	1	1	1	1	8
65	North-west Yorkshire	2	2	2	2	1	1	4	1	1	2	2	1	1	2	2	1	1	1	1	1	9
66	Durham	2	2	2	2	1	1	3	1	1	2	2	1	1	2	2	1	1	1	1	1	8

Vice-county	v.c. no.	Critical			Endangered			Vulnerable			Near Threatened		
		Pre-1970	1970-1986	1987-1997	Total 1970-1997	Pre-1970	1970-1986	1987-1997	Total 1970-1997	Pre-1970	1970-1986	1987-1997	Total 1970-1997
South Northumberland	67	1		1	1	1	3	1	1		2	2	
North Northumberland	68	1	1		1	1	1				1	1	
Westmorland with North Lancashire	69	1	3	1	1	1	1	3	3	2	1	13	
Cumberland	70	2	1	1	2	2	2	2	2	1	1	7	
Isle of Man	71		1					1	1				
Dumfriesshire	72		1	1	1	1	1				1	1	
Kirkcudbrightshire	73							1	1		1	1	
Wigtownshire	74		1	1	1	1	1	1	1	2	1	3	
Ayrshire	75	1									1	1	
Renfrewshire	76	1									1	1	
Lanarkshire	77		1	1	2	2	1	1	1	1		2	
Peeblesshire	78					1	1						
Selkirkshire	79		1	1	1	2	1	1	1	2	3	3	
Roxburghshire	80												
Berwickshire	81	1								1			
East Lothian	82	1				1	1						
Midlothian	83	1		1	1	1	1	1	1		2	2	
West Lothian	84												
Fifeshire	85	2				1	1	1	1	1	1	1	
Stirlingshire	86							2	2	1			
West Perthshire	87		1	1	1	1	1	1	1	1	2	3	
Mid Perthshire	88	1				2	12	13	13	3	3	12	
East Perthshire	89	1	1			2	7	8	8	2	1	6	
Angus	90	1		2	2	2	11	11	11	3	1	6	
Kincardineshire	91							1	1	1			
South Aberdeenshire	92	1				3	5	7	7	2	3	9	
North Aberdeenshire	93	1		1	1	1	1	1	1	2	1	1	
Banffshire	94	1				2	2	2	2	1	2	5	
Moray	95			1	1	1	1	1	1				
East Inverness-shire	96		1		1	1	8	9	9	1	2	8	
West Inverness-shire	97	1					1	1	1	1	3	13	
Argyll Main	98			1	1	2	4	4	4	1	9	9	

Dunbartonshire	99	1	1	1	1	1	1	1	1	1
Clyde Isles	100	1	1	2	2	2	1	1	1	1
Kintyre	101	1	1	1	1	1	1	1	1	1
South Ebuades	102	1	1	1	1	1	2	2	2	2
Mid Ebuades	103	1	1	1	2	2	2	2	2	2
North Ebuades	104	1	1	1	1	1	1	1	1	1
West Ross	105	1	1	1	1	1	1	1	1	1
East Ross	106	1	1	1	1	1	1	1	1	1
East Sutherland	107	1	1	1	1	1	1	1	1	1
West Sutherland	108	1	1	1	1	1	1	1	1	1
Caithness	109	1	1	1	1	1	1	1	1	1
Outer Hebrides	110	1	1	1	1	1	1	1	1	1
Orkney Islands	111	1	1	1	1	1	1	1	1	1
Shetland Islands	112	1	1	1	1	1	1	1	1	1

The number of threatened and near-threatened taxa last recorded in each vice-county during these periods, e.g. in North Somerset, 1 species has not been recorded since 1970, and 2 species not since 1986.

Appendix 6a Occurrence of Threatened and Near Threatened species in grid squares

The following table shows the numbers of hectads (10 x 10 km squares) and 1 km x 1 km squares in which each taxon has been recorded during each period. For many species the figures provide a reliable measure of change, indicating, for example, a real increase in the occurrence of *Allium babingtonii* and a real decrease in the occurrence of *Dianthus armeria* and *Thlaspi perfoliatum*. However, some interpretation of the figures is needed. For instance, for some species a change in the number of records from one period to another may only reflect greater or lesser recording effort during particular periods. There is, for instance, often a dip in the number of records in the

period 1970-1986, this being very often an artifact of recording effort.

The *Ratio* column compares the number of 1 km x 1 km squares in which the taxon occurred between 1970 and 1997 with the number of hectads in which it has been recorded between 1970 and 1997 (i.e. it divides the number of 1970-1997 one km squares from which records are known by the number of 1970-1997 hectads from which records are known). The ratio gives a measure of local frequency: the higher the ratio, the more frequent the taxon, even if only in a very limited geographical range.

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Adonis annua</i>	62	12	10	16	15	11	22	1.38
<i>Ajuga chamaepitys</i>	37	18	11	20	18	25	37	1.85
<i>Alchemilla acutiloba</i>	13	7	9	11	12	15	22	2.00
<i>Alchemilla glaucescens</i>	14	6	12	12	5	24	28	2.33
<i>Alchemilla gracilis</i>	0	2	2	2	3	3	3	1.50
<i>Alchemilla minima</i>	2	2	3	3	2	10	11	3.67
<i>Alchemilla monticola</i>	9	2	3	3	2	6	8	2.67
<i>Alchemilla subcrenata</i>	2	1	1	1	2	2	3	3.00
<i>Alisma gramineum</i>	2	4	2	4	4	4	7	1.75
<i>Allium ampeloprasum</i> var. <i>ampeloprasum</i>	3	2	3	3	2	4	4	1.33
<i>Allium ampeloprasum</i> var. <i>babingtonii</i>	18	18	35	38	38	116	136	3.58
<i>Allium sphaerocephalon</i>	1	1	1	1	2	2	2	2.00
<i>Althaea hirsuta</i>	1	3	5	5	4	5	6	1.20
<i>Anisantha madritensis</i>	2	2	2	2	3	6	6	3.00
<i>Anthyllis vulneraria</i> ssp. <i>corbierei</i>	5	4	1	5	3	1	5	1.00
<i>Apium repens</i>	4	2	1	2	2	1	2	1.00
<i>Arabis alpina</i>	1	1	1	1	1	1	1	1.00
<i>Arabis glabra</i>	128	25	14	32	30	20	44	1.38
<i>Arabis scabra</i>	1	1	1	1	3	3	4	4.00
<i>Arenaria norvegica</i> ssp. <i>anglica</i>	2	2	2	2	9	10	10	5.00
<i>Arenaria norvegica</i> ssp. <i>norvegica</i>	8	11	8	11	15	15	22	2.00
<i>Armeria maritima</i> ssp. <i>elongata</i>	6	1	1	1	1	1	1	1.00
<i>Artemisia campestris</i>	11	3	4	4	8	7	10	2.50
<i>Artemisia norvegica</i>	3	3	3	3	6	3	6	2.00
<i>Asparagus officinalis</i> ssp. <i>prostratus</i>	10	5	10	10	9	16	17	1.70
<i>Asplenium trichomanes</i> ssp. <i>pachyrachis</i>	0	1	6	6	1	9	9	1.50
<i>Aster limosyris</i>	8	7	7	7	10	11	14	2.00
<i>Astragalus alpinus</i>	3	4	4	4	8	8	11	2.75
<i>Athyrium flexile</i>	11	5	6	8	6	6	11	1.38
<i>Atriplex pedunculata</i>	12	0	1	1	0	1	1	1.00
<i>Bartsia alpina</i>	14	12	11	13	32	35	49	3.77

British Red Data Books 1 Vascular plants

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Bunium bulbocastanum</i>	13	11	11	12	40	33	46	3.83
<i>Bupleurum baldense</i>	3	2	2	2	2	2	2	1.00
<i>Bupleurum falcatum</i>	1	1	0	1	1	0	1	1.00
<i>Buxus sempervirens</i>	6	3	5	5	5	18	18	3.60
<i>Calamagrostis purpurea</i>	3	5	6	9	5	6	9	1.00
<i>Calamagrostis scotica</i>	1	1	1	1	1	2	2	2.00
<i>Calamagrostis stricta</i>	19	14	8	15	14	14	25	1.67
<i>Carex atrofusca</i>	5	5	4	5	12	11	16	3.20
<i>Carex buxbaumii</i>	2	3	3	3	4	5	5	1.67
<i>Carex chordorrhiza</i>	1	3	3	3	7	3	7	2.33
<i>Carex depauperata</i>	7	1	2	2	1	3	3	1.50
<i>Carex filiformis</i>	9	11	10	12	13	17	21	1.75
<i>Carex flava</i>	1	1	1	1	1	1	1	1.00
<i>Carex lachenalii</i>	7	5	3	5	10	12	17	3.40
<i>Carex microglochin</i>	1	1	1	1	8	8	9	9.00
<i>Carex muricata</i> ssp. <i>muricata</i>	3	4	5	5	4	5	5	1.00
<i>Carex norvegica</i>	4	5	5	5	7	6	8	1.60
<i>Carex ornithopoda</i>	11	11	13	13	44	33	55	4.23
<i>Carex rariflora</i>	11	16	14	18	55	34	68	3.78
<i>Carex recta</i>	2	3	3	3	8	7	11	3.67
<i>Carex vulpina</i>	21	12	8	13	17	12	22	1.69
<i>Centaurea calcitrapa</i>	6	4	5	5	4	9	9	1.80
<i>Centaurea cyanus</i>	408	88	43	125	92	46	136	1.09
<i>Centaureum scilloides</i>	3	1	1	1	4	2	4	4.00
<i>Centaureum tenuiflorum</i>	2	1	1	1	4	5	5	5.00
<i>Cephalanthera rubra</i>	8	4	3	5	5	3	6	1.20
<i>Cerastium brachypetalum</i>	0	2	2	2	5	5	6	3.00
<i>Cerastium fontanum</i> ssp. <i>scoticum</i>	0	1	1	1	1	1	1	1.00
<i>Cerastium nigrescens</i>	2	2	2	2	2	2	2	1.00
<i>Chenopodium chenopodioides</i>	29	10	11	13	4	58	62	4.77
<i>Chenopodium vulvaria</i>	95	3	2	4	3	2	5	1.25
<i>Cicerbita alpina</i>	4	4	4	4	5	4	5	1.25
<i>Cirsium tuberosum</i>	11	13	11	14	37	29	45	3.21
<i>Clinopodium menthifolium</i>	1	1	1	1	1	1	1	1.00
<i>Cochlearia micacea</i>	21	6	15	15	6	35	37	2.47
<i>Coincya wrightii</i>	1	1	1	1	5	1	5	5.00
<i>Corrigiola litoralis</i>	2	1	1	1	1	2	2	2.00
<i>Corynephorus canescens</i>	23	7	10	12	12	14	21	1.75
<i>Cotoneaster integerrimus</i>	1	1	1	1	2	6	6	6.00
<i>Crassula aquatica</i>	2	1	1	1	2	5	5	5.00
<i>Crepis foetida</i>	13	1	1	1	2	1	3	3.00
<i>Crepis praemorsa</i>	0	0	1	1	0	1	1	1.00
<i>Cynodon dactylon</i>	2	2	2	2	2	3	5	2.50
<i>Cynoglossum germanicum</i>	29	4	3	4	9	15	16	4.00
<i>Cyperus fuscus</i>	9	5	6	6	6	9	10	1.67
<i>Cypripedium calceolus</i>	20	1	1	1	1	1	2	2.00

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Cystopteris dickiana</i>	2	1	4	4	1	5	5	1.25
<i>Cystopteris montana</i>	19	13	9	14	24	16	29	2.07
<i>Cytisus scoparius</i> ssp. <i>maritimus</i>	13	5	5	8	4	4	8	1.00
<i>Dactylorhiza incarnata</i> ssp. <i>cruenta</i>	0	1	0	1	1	0	1	1.00
<i>Dactylorhiza incarnata</i> ssp. <i>ochroleuca</i>	2	0	1	1	0	1	1	1.00
<i>Dactylorhiza lapponica</i>	2	4	15	15	4	22	23	1.53
<i>Damasonium alisma</i>	50	3	5	6	5	6	8	1.33
<i>Dianthus armeria</i>	157	24	19	37	25	19	40	1.08
<i>Dianthus gratianopolitanus</i>	2	2	2	2	6	4	9	4.50
<i>Diapensia lapponica</i>	1	1	1	1	1	0	1	1.00
<i>Diphasiastrum complanatum</i>	7	1	3	3	1	3	3	1.00
<i>Draba aizoides</i>	3	2	2	2	13	10	15	7.50
<i>Dryopteris cristata</i>	18	9	6	11	29	26	34	3.09
<i>Echium plantagineum</i>	7	3	3	3	3	6	6	2.00
<i>Eleocharis austriaca</i>	8	8	7	10	19	7	24	2.40
<i>Eleocharis parvula</i>	11	6	7	7	9	13	15	2.14
<i>Epipactis youngiana</i>	0	1	5	6	1	7	8	1.33
<i>Epipogium aphyllum</i>	5	2	0	2	5	0	5	2.50
<i>Erica ciliaris</i>	12	9	13	14	75	81	98	7.00
<i>Erica vagans</i>	7	5	4	5	69	41	75	15.00
<i>Erigeron borealis</i>	7	4	4	4	13	11	14	3.50
<i>Eriocaulon aquaticum</i>	7	8	9	9	28	37	42	4.67
<i>Eriophorum gracile</i>	12	4	6	7	4	8	9	1.29
<i>Eryngium campestre</i>	2	3	3	3	3	4	4	1.33
<i>Euphorbia hyberna</i>	2	2	2	2	2	7	8	4.00
<i>Euphorbia serrulata</i>	6	6	8	9	11	20	23	2.56
<i>Euphrasia cambrica</i>	4	2	3	3	2	7	9	3.00
<i>Euphrasia campbelliae</i>	6	3	2	4	3	3	5	1.25
<i>Euphrasia heslop-harrisonii</i>	11	3	8	10	3	10	12	1.20
<i>Euphrasia marshallii</i>	26	14	3	15	19	2	20	1.33
<i>Euphrasia rivularis</i>	10	7	5	8	4	15	19	2.38
<i>Euphrasia rotundifolia</i>	3	1	2	2	1	1	2	1.00
<i>Euphrasia vigursii</i>	24	12	7	15	25	12	32	2.13
<i>Festuca longifolia</i>	2	4	5	5	13	12	18	3.60
<i>Filago gallica</i>	11	1	1	2	1	0	2	1.00
<i>Filago lutescens</i>	69	11	12	16	10	16	21	1.31
<i>Filago pyramidata</i>	99	12	9	14	15	15	24	1.71
<i>Fumaria occidentalis</i>	22	25	19	28	66	50	105	3.75
<i>Fumaria reuteri</i>	8	3	2	3	3	2	3	1.00
<i>Gagea bohemica</i>	1	1	1	1	1	1	1	1.00
<i>Galium constrictum</i>	5	8	8	10	35	39	51	5.10
<i>Galium tricornutum</i>	274	6	2	7	6	2	7	1.00
<i>Gastridium ventricosum</i>	72	11	22	25	26	51	65	2.60
<i>Genista pilosa</i>	16	11	11	12	39	38	59	4.92
<i>Gentiana nivalis</i>	4	3	3	3	7	9	11	3.67
<i>Gentiana verna</i>	4	3	4	4	40	40	55	13.75

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Gentianella ciliata</i>	2	0	1	1	0	1	1	1.00
<i>Gentianella uliginosa</i>	6	7	7	8	15	10	20	2.50
<i>Geranium purpureum</i>	21	15	23	26	22	54	64	2.46
<i>Gladiolus illyricus</i>	9	5	6	6	32	34	41	6.83
<i>Gnaphalium luteoalbum</i>	6	1	2	2	1	3	3	1.50
<i>Gnaphalium norvegicum</i>	12	8	16	16	9	27	31	1.94
<i>Helianthemum apenninum</i>	4	4	4	4	8	7	10	2.50
<i>Helianthemum canum</i> ssp. <i>levigatum</i>	1	1	1	1	2	2	2	2.00
<i>Herniaria ciliolata</i>	4	3	2	3	30	6	30	10.00
<i>Herniaria glabra</i>	12	7	9	11	29	30	42	3.82
<i>Hierochloa odorata</i>	9	13	11	17	19	16	27	1.59
<i>Himantoglossum hircinum</i>	99	17	15	23	20	20	28	1.22
<i>Homogyne alpina</i>	1	1	1	1	1	1	1	1.00
<i>Hypericum linariifolium</i>	14	8	9	9	13	23	23	2.56
<i>Hypochaeris maculata</i>	14	9	9	9	14	15	19	2.11
<i>Isoetes histrix</i>	2	3	3	3	16	11	18	6.00
<i>Juncus capitatus</i>	7	4	4	5	17	15	24	4.80
<i>Juncus pygmaeus</i>	2	3	3	3	15	5	17	5.67
<i>Kobresia simpliciuscula</i>	5	10	11	14	30	24	46	3.29
<i>Koeleria vallesiana</i>	3	3	4	4	8	13	16	4.00
<i>Koenigia islandica</i>	5	4	5	5	5	19	21	4.20
<i>Lactuca saligna</i>	23	5	2	5	12	3	12	2.40
<i>Lavatera cretica</i>	4	5	4	5	7	8	10	2.00
<i>Leersia oryzoides</i>	18	5	5	5	7	7	8	1.60
<i>Leucojum aestivum</i>	17	14	14	17	43	36	62	3.65
<i>Limonium bellidifolium</i>	10	5	5	5	25	14	28	5.60
<i>Limonium bineroosum</i>	2	16	3	16	25	5	27	1.69
<i>Limonium britannicum</i>	6	17	5	21	25	7	31	1.48
<i>Limonium dodartiforme</i>	1	3	4	4	3	4	4	1.00
<i>Limonium loganicum</i>	0	1	0	1	4	0	4	4.00
<i>Limonium paradoxum</i>	0	1	1	1	1	1	1	1.00
<i>Limonium parvum</i>	0	1	1	1	1	1	1	1.00
<i>Limonium procerum</i>	0	3	0	3	4	0	4	1.33
<i>Limonium recurvum</i>	1	6	3	6	10	6	11	1.83
<i>Limonium transwallianum</i>	1	1	1	1	2	2	2	2.00
<i>Limosella australis</i>	4	3	4	5	8	7	10	2.00
<i>Liparis loeselii</i>	25	9	6	9	13	16	20	2.22
<i>Lithospermum purpureocaeruleum</i>	21	13	13	14	20	32	37	2.64
<i>Lloydia serotina</i>	2	2	2	2	6	7	8	4.00
<i>Lobelia urens</i>	9	8	6	8	10	6	10	1.25
<i>Lonicera xylosteum</i>	2	2	2	2	5	7	7	3.50
<i>Lotus angustissimus</i>	36	17	19	25	20	36	46	1.84
<i>Ludwigia palustris</i>	8	4	5	5	12	24	24	4.80
<i>Luzula arcuata</i>	19	12	7	15	15	15	28	1.87
<i>Luzula pallidula</i>	2	2	2	2	2	2	3	1.50
<i>Lychmis alpina</i>	2	1	2	2	1	2	2	1.00

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Lychtis viscaria</i>	22	13	14	15	26	22	30	2.00
<i>Lythrum hyssopifolia</i>	42	2	6	7	9	16	17	2.43
<i>Maianthemum bifolium</i>	5	3	3	3	4	3	4	1.33
<i>Matthiola sinuata</i>	11	4	7	7	11	17	22	3.14
<i>Melampyrum arvense</i>	28	4	4	6	5	5	8	1.33
<i>Mentha pulegium</i>	150	13	13	20	20	20	32	1.60
<i>Mibora minima</i>	4	5	6	6	8	13	16	2.67
<i>Minuartia rubella</i>	6	3	5	5	9	11	11	2.20
<i>Minuartia stricta</i>	1	1	1	1	2	2	2	2.00
<i>Moneses uniflora</i>	19	8	12	13	7	17	22	1.69
<i>Muscari neglectum</i>	11	12	8	12	19	17	24	2.00
<i>Myosotis alpestris</i>	6	5	5	5	14	12	16	3.20
<i>Najas marina</i>	4	3	2	3	12	12	17	5.67
<i>Ononis reclinata</i>	7	6	8	9	7	13	15	1.67
<i>Ophioglossum lusitanicum</i>	1	1	1	1	1	1	1	1.00
<i>Ophrys fuciflora</i>	5	4	4	4	11	9	13	3.25
<i>Ophrys sphegodes</i>	48	12	15	17	37	48	59	3.47
<i>Orchis militaris</i>	14	4	3	4	4	3	4	1.00
<i>Orchis simia</i>	6	4	2	4	4	2	4	1.00
<i>Ornithopus pinnatus</i>	4	3	3	3	6	6	10	3.33
<i>Orobanche artemisiae-campestris</i>	5	3	2	3	4	4	5	1.67
<i>Orobanche caryophyllacea</i>	4	5	4	5	7	6	8	1.60
<i>Orobanche purpurea</i>	14	10	13	16	22	20	33	2.06
<i>Orobanche reticulata</i>	4	6	6	6	11	22	23	3.83
<i>Oxytropis campestris</i>	3	3	3	3	5	6	7	2.33
<i>Oxytropis halleri</i>	13	10	9	10	23	22	33	3.30
<i>Petrorhagia nanteuilii</i>	5	1	1	1	3	3	4	4.00
<i>Petrorhagia prolifera</i>	0	1	2	2	1	2	2	1.00
<i>Peucedanum officinale</i>	6	6	7	8	32	34	42	5.25
<i>Phleum phleoides</i>	16	10	9	12	26	31	42	3.50
<i>Phyllodoce caerulea</i>	2	3	3	3	12	5	12	4.00
<i>Physospermum cornubiense</i>	9	4	6	8	12	20	27	3.38
<i>Phyteuma spicatum</i>	6	3	4	4	13	12	16	4.00
<i>Pilosella flagellaris</i> ssp. <i>bicapitata</i>	1	0	3	3	0	6	6	2.00
<i>Pilosella peleteriana</i>	7	1	6	6	1	12	13	2.17
<i>Poa flexuosa</i>	4	6	4	8	9	7	13	1.63
<i>Poa infirma</i>	6	10	31	34	13	54	63	1.85
<i>Polemonium caeruleum</i>	14	13	13	14	25	22	30	2.14
<i>Polycarpon tetraphyllum</i>	12	8	9	10	12	26	30	3.00
<i>Polygala amarella</i>	13	12	10	15	20	17	25	1.67
<i>Polygonatum verticillatum</i>	10	5	8	8	6	9	10	1.25
<i>Polygonum maritimum</i>	10	1	6	6	1	7	7	1.17
<i>Potamogeton acutifolius</i>	27	10	10	13	36	37	53	4.08
<i>Potamogeton epiphydrus</i>	2	1	2	2	2	3	3	1.50
<i>Potamogeton nodosus</i>	13	7	9	9	35	45	55	6.11
<i>Potamogeton rutilus</i>	7	8	9	12	10	14	20	1.67

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Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Potentilla fruticosa</i>	5	7	5	7	18	14	22	3.14
<i>Potentilla rupestris</i>	3	4	4	4	5	4	5	1.25
<i>Pulicaria vulgaris</i>	56	8	9	10	14	14	18	1.80
<i>Pulmonaria obscura</i>	0	0	1	1	0	3	3	3.00
<i>Pyrus cordata</i>	6	2	3	3	2	4	4	1.33
<i>Ranunculus ophioglossifolius</i>	4	2	2	2	2	2	3	1.50
<i>Ranunculus reptans</i>	2	0	2	2	0	2	2	1.00
<i>Ranunculus tripartitus</i>	66	17	10	20	32	16	42	2.10
<i>Rhinanthus angustifolius</i>	38	6	9	10	10	20	23	2.30
<i>Romulea columnae</i>	2	1	1	1	2	1	2	2.00
<i>Rorippa islandica sensu stricto</i>	8	13	23	30	19	37	51	1.70
<i>Rosa agrestis</i>	26	5	16	21	5	20	25	1.19
<i>Rumex aquaticus</i>	2	3	3	3	11	14	15	5.00
<i>Rumex rupestris</i>	33	15	15	18	26	26	35	1.94
<i>Sagina nivalis</i>	3	4	2	4	14	10	14	3.50
<i>Salix lanata</i>	11	11	10	13	12	15	20	1.54
<i>Salvia pratensis</i>	31	21	19	24	32	36	47	1.96
<i>Saxifraga cernua</i>	4	3	3	3	5	4	5	1.67
<i>Saxifraga cespitosa</i>	9	9	6	10	15	8	18	1.80
<i>Saxifraga hirculus</i>	19	7	6	7	18	17	23	3.29
<i>Saxifraga rivularis</i>	16	12	14	17	26	23	35	2.06
<i>Scheuchzeria palustris</i>	9	4	5	6	16	19	29	4.83
<i>Schoenoplectus triquetus</i>	7	1	1	1	3	1	3	3.00
<i>Schoenus ferrugineus</i>	2	2	3	3	5	6	6	2.00
<i>Scirpoides holoschoenus</i>	3	2	2	2	4	5	7	3.50
<i>Scleranthus perennis</i> ssp. <i>perennis</i>	1	1	1	1	1	1	1	1.00
<i>Scleranthus perennis</i> ssp. <i>prostratus</i>	5	2	3	3	5	4	6	2.00
<i>Scorzonera humilis</i>	3	1	2	2	1	3	3	1.50
<i>Scrophularia scorodonia</i>	22	16	32	33	38	118	130	3.94
<i>Selinum carvifolia</i>	4	2	2	2	5	4	5	2.50
<i>Senecio cambrensis</i>	3	11	7	11	15	17	26	2.36
<i>Senecio paludosus</i>	5	1	1	1	1	1	1	1.00
<i>Seseli libanotis</i>	4	4	3	4	8	6	8	2.00
<i>Silene otites</i>	14	7	5	7	33	22	37	5.29
<i>Sorbus anglica</i>	12	11	10	13	19	25	34	2.62
<i>Sorbus arranensis</i>	1	1	1	1	5	7	8	8.00
<i>Sorbus bristoliensis</i>	0	1	1	1	4	2	5	5.00
<i>Sorbus domestica</i>	0	0	4	4	0	4	4	1.00
<i>Sorbus eminens</i>	4	4	6	6	7	9	13	2.17
<i>Sorbus lancastriensis</i>	4	6	7	9	33	24	51	5.67
<i>Sorbus leptophylla</i>	3	3	4	4	4	3	5	1.25
<i>Sorbus leyana</i>	2	2	2	2	3	3	4	2.00
<i>Sorbus minima</i>	1	1	1	1	5	3	5	5.00
<i>Sorbus pseudofennica</i>	1	1	1	1	3	3	4	4.00
<i>Sorbus subcuneata</i>	3	4	4	4	12	11	17	4.25
<i>Sorbus vexans</i>	2	2	3	3	3	5	8	2.67

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Sorbus wilmottiana</i>	1	1	1	1	2	2	3	3.00
<i>Spergularia bocconei</i>	6	4	4	4	2	5	6	1.50
<i>Stachys alpina</i>	2	2	2	2	2	2	2	1.00
<i>Stachys germanica</i>	9	2	2	3	7	5	9	3.00
<i>Tephrosia integrifolia</i> ssp. <i>maritima</i>	1	1	2	2	0	2	2	1.00
<i>Teucrium botrys</i>	12	6	6	6	10	9	12	2.00
<i>Teucrium chamaedrys</i>	1	1	1	1	1	1	1	1.00
<i>Teucrium scordium</i>	17	3	2	3	6	4	8	2.67
<i>Thlaspi perfoliatum</i>	9	3	4	4	11	12	16	4.00
<i>Thymus serpyllum</i>	5	4	4	4	20	17	29	7.25
<i>Tordylium maximum</i>	2	1	2	2	3	3	4	2.00
<i>Trifolium bocconei</i>	3	2	1	2	7	4	7	3.50
<i>Trifolium incarnatum</i> ssp. <i>molinerii</i>	3	2	2	2	4	4	5	2.50
<i>Trifolium strictum</i>	4	3	3	3	13	6	14	4.67
<i>Trinia glauca</i>	5	6	5	6	14	18	22	3.67
<i>Tuberaria guttata</i>	4	4	3	4	8	9	10	2.50
<i>Valerianella eriocarpa</i>	22	2	7	9	3	11	14	1.56
<i>Valerianella ramosa</i>	61	11	4	13	10	4	13	1.00
<i>Veronica fruticans</i>	18	14	13	16	22	24	30	1.88
<i>Veronica spicata</i> ssp. <i>spicata</i>	7	3	4	5	4	7	8	1.60
<i>Veronica triphyllos</i>	10	3	3	4	5	3	6	1.50
<i>Veronica verna</i>	4	2	2	2	19	13	24	12.00
<i>Viola canina</i> ssp. <i>montana</i>	3	2	2	2	2	3	4	2.00
<i>Viola kitaibeliana</i>	3	2	2	2	6	4	8	4.00
<i>Viola persicifolia</i>	18	3	4	4	5	5	7	1.75
<i>Viola rupestris</i>	4	6	7	7	10	15	17	2.43
<i>Woodsia alpina</i>	15	15	12	16	29	19	40	2.50
<i>Woodsia ilvensis</i>	9	6	4	6	6	2	7	1.17

Appendix 6b Occurrence of Threatened and Near Threatened species in grid squares, arranged by numbers of 1 km x 1 km squares with records between 1987-1997

This table lists species recorded in more than 20 1 km squares between 1987 and 1997. The *Ratio* column compares the number of 1 km x 1 km squares in which the taxon occurred between 1970-1997 with the number of hectads (10 km x 10 km squares) in which it has been recorded between 1970-1997 (i.e. it divides the number of 1970-1997 one km squares from which records are known by the number of 1970-1997 hectads from which records are known). The ratio gives a measure of local frequency:

the higher the ratio, the more frequent the taxon, even if only in a very limited geographical range.

This table highlights those species that are locally frequent within their restricted range and which, though qualifying as Threatened or Near Threatened under the hectad threshold used in this book, might not do so if a 1 km threshold were adopted. Under such a scheme, at least the two species heading the list would be prime candidates for the Nationally Scarce category.

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Scrophularia scorodonia</i>	22	16	32	33	38	118	130	3.94
<i>Allium ampeloprasum</i> var. <i>babingtonii</i>	18	18	35	38	38	116	136	3.58
<i>Erica ciliaris</i>	12	9	13	14	75	81	98	7.00
<i>Chenopodium chenopodioides</i>	29	10	11	13	4	58	62	4.77
<i>Geranium purpureum</i>	21	15	23	26	22	54	64	2.46
<i>Poa infirma</i>	6	10	31	34	13	54	63	1.85
<i>Gastridium ventricosum</i>	72	11	22	25	26	51	65	2.60
<i>Fumaria occidentalis</i>	22	25	19	28	66	50	105	3.75
<i>Ophrys sphegodes</i>	48	12	15	17	37	48	59	3.47
<i>Centaurea cyanus</i>	408	88	43	125	92	46	136	1.09
<i>Potamogeton nodosus</i>	13	7	9	9	35	45	55	6.11
<i>Erica vagans</i>	7	5	4	5	69	41	75	15.00
<i>Gentiana verna</i>	4	3	4	4	40	40	55	13.75
<i>Galium constrictum</i>	5	8	8	10	35	39	51	5.10
<i>Genista pilosa</i>	16	11	11	12	39	38	59	4.92
<i>Eriocaulon aquaticum</i>	7	8	9	9	28	37	42	4.67
<i>Potamogeton acutifolius</i>	27	10	10	13	36	37	53	4.08
<i>Rorippa islandica sensu stricto</i>	8	13	23	30	19	37	51	1.70
<i>Leucosium aestivum</i>	17	14	14	17	43	36	62	3.65
<i>Lotus angustissimus</i>	36	17	19	25	20	36	46	1.84
<i>Salvia pratensis</i>	31	21	19	24	32	36	47	1.96
<i>Bartsia alpina</i>	14	12	11	13	32	35	49	3.77
<i>Cochlearia micacea</i>	21	6	15	15	6	35	37	2.47
<i>Carex rariflora</i>	11	16	14	18	55	34	68	3.78
<i>Gladiolus illyricus</i>	9	5	6	6	32	34	41	6.83
<i>Peucedanum officinale</i>	6	6	7	8	32	34	42	5.25
<i>Bunium bulbocastanum</i>	13	11	11	12	40	33	46	3.83
<i>Carex ornithopoda</i>	11	11	13	13	44	33	55	4.23
<i>Lithospermum purpureocaeruleum</i>	21	13	13	14	20	32	37	2.64
<i>Phleum phleoides</i>	16	10	9	12	26	31	42	3.50

British Red Data Books 1 Vascular plants

Species	10 km x 10 km squares				1 km x 1 km squares			Ratio
	Pre-1970	1970-1986	1987-1997	Total 1970-1997	1970-1986	1987-1997	Total 1970-1997	
<i>Herniaria glabra</i>	12	7	9	11	29	30	42	3.82
<i>Cirsium tuberosum</i>	11	13	11	14	37	29	45	3.21
<i>Gnaphalium norvegicum</i>	12	8	16	16	9	27	31	1.94
<i>Dryopteris cristata</i>	18	9	6	11	29	26	34	3.09
<i>Polycarpon tetraphyllum</i>	12	8	9	10	12	26	30	3.00
<i>Rumex rupestris</i>	33	15	15	18	26	26	35	1.94
<i>Ajuga chamaepitys</i>	37	18	11	20	18	25	37	1.85
<i>Sorbus anglica</i>	12	11	10	13	19	25	34	2.62
<i>Alchemilla glaucescens</i>	14	6	12	12	5	24	28	2.33
<i>Kobresia simpliciuscula</i>	5	10	11	14	30	24	46	3.29
<i>Ludwigia palustris</i>	8	4	5	5	12	24	24	4.80
<i>Sorbus lancastriensis</i>	4	6	7	9	33	24	51	5.67
<i>Veronica fruticans</i>	18	14	13	16	22	24	30	1.88
<i>Hypericum linariifolium</i>	14	8	9	9	13	23	23	2.56
<i>Saxifraga rivularis</i>	16	12	14	17	26	23	35	2.06
<i>Dactylorhiza lapponica</i>	2	4	15	15	4	22	23	1.53
<i>Lychnis viscaria</i>	22	13	14	15	26	22	30	2.00
<i>Orobanche reticulata</i>	4	6	6	6	11	22	23	3.83
<i>Oxytropis halleri</i>	13	10	9	10	23	22	33	3.30
<i>Polemonium caeruleum</i>	14	13	13	14	25	22	30	2.14
<i>Silene otites</i>	14	7	5	7	33	22	37	5.29

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Localities mentioned in the text

The following list includes all localities mentioned in the accounts of species, together with the vice-county and the Ordnance grid square in which they occur.

- Abbots Ripton, Cambridgeshire, TL27
 Aberffraw, Anglesey, SH36
 Abhainn Beag, Isle of Arran, NR94
 Abingdon, Berkshire, SU49
 Adel Dam, Mid-W. Yorkshire, SE24
 Afon Teifi, Cardiganshire, SN
 Ainsdale, S. Lancashire, SD21
 Alderfen Broad, E. Norfolk, TG31
 Alderminster, Warwickshire, SP24
 Ale Water, Selkirkshire, NT31
 All Hallows Marshes, W. Kent, TQ87
 Allerthorpe Common, S.E. Yorkshire, SE74
 Altnaharra, W. Sutherland, NC53
 Amberley Wild Brooks, W. Sussex, TQ01
 An Stuc, Mid-Perthshire, NN64
 Ancaster, S. Lincolnshire, SK94
 Andrew's Wood, S. Devon, SX75
 Aonach Beag, W. Inverness, NN47
 Aonach Mor, W. Inverness, NN17
 Ardnamurchan, Main Argyll, NM46,56
 Arisaig, W. Inverness, NM68
 Arishmell, Dorset, SY88
 Arnside Knott, Westmorland, SD47
 Arran, NR, NS
 Arthur's Seat, Edinburgh, NT27
 Arundel Park, W. Sussex, TQ00
 Avon Gorge, N. Somerset/W. Gloucestershire, ST57
 Axbridge, N. Somerset, ST45
- Babraham, Cambridgeshire, TL54
 Badgeworth, E. Gloucestershire, SO92
 Balmaha, Dunbartonshire/Stirlingshire, NS49
 Bangor, Caernarvonshire, SH57
 Barmouth, Merioneth, SH61
 Barton Broad, E. Norfolk, TG32
 Batson Creek, S. Devon, SX73
 Beachy Head, E. Sussex, TV59
 Beaulieu R., E. Inverness, NH54
 Beer Head, S. Devon, SY28
 Beinn a'Chreachain, Main Argyll, NN34
 Beinn Alligin, W. Ross, NG86
 Beinn an Dothaidh, Main Argyll, NN34
 Beinn Chonzie, Mid-Perthshire, NN73
 Beinn Dearg, W. Ross, NH28
 Beinn Sgulaird, Main Argyll, NN04
 Bellingham, S. Northumberland, NY88
 Ben Alder, W. Inverness, NN57
 Ben Eibhinn, W. Inverness, NN47
 Ben Heasgarnich, Mid-Perthshire, NN33,43
 Ben Hope, W. Sutherland, NC44
 Ben Lawers, Mid-Perthshire, NN54,64
 Ben Lui (Beinn Laoigh), Perthshire, NN22
 Ben Nevis, W. Inverness, NN17
 Ben Vrackie, E. Perthshire, NN96
 Benfleet Downs, S. Essex, TQ78
- Berechurch, N. Essex, TL92
 Berrow Dunes, N. Somerset, ST25
 Berry Head, S. Devon, SX95
 Bettyhill, W. Sutherland, NC76
 Billacombe, S. Devon, SX55
 Bingley, Mid-W. Yorks., SE13
 Binsey, Oxfordshire, SP40
 Bishopsteignton, S. Devon, SX87
 Bixley Heath, Suffolk, TM24
 Black Head, W. Cornwall, SW71
 Blackfleet Broad, E. Norfolk, TG42
 Blackpool Moss, Roxburghshire, NT52
 Blackwater, N. Hampshire, SU85
 Blair Atholl, Perthshire, NN86
 Blakeney, E. & W. Norfolk, TG04
 Bolt Head, S. Devon, SX63
 Bovey Basin, S. Devon, SX
 Box Hill, Surrey, TQ15
 Boxley, E. Kent, TQ75
 Boxwell, W. Gloucestershire, ST89
 Braemar, S. Aberdeenshire, NO18
 Bramshott, S. Hants, SU83
 Brandon, W. Suffolk, TL48
 Braunton Burrows, N. Devon, SS43
 Breadalbane Mts., Perthshire, NN
 Brean Down, N. Somerset, ST25
 Breckland, W. Norfolk/W. Suffolk/Cambs., TF, TL
 Bridge of Orchy, Main Argyll, NN23
 Bridgewater Canal, S. Somerset, ST33
 Brigend, Glamorgan, SS88
 Brighton, E. Sussex, TQ30
 Brixham, S. Devon, SX95
 Brize Norton, Oxfordshire, SP20
 Bulstrode Park, Buckinghamshire, SU98
 Byfleet, Surrey, TQ06
- Cader Idris, Merioneth, SH71
 Caenlochan, E. Perthshire/Angus, NO17
 Cairngorms, NH, NJ, NN, NO
 Cairntoul, S. Aberdeenshire, NN99
 Calder & Hebble Navigation, Mid-W. Yorkshire, SE02, 12
 Caldicot, Monmouthshire, ST48
 Callington, E. Cornwall, SX36
 Cam Chreag, Mid-Perthshire, NN33
 Camber Castle, E. Sussex, TQ91
 Canisp, W. Sutherland, NC11, 21
 Cape Cornwall, W. Cornwall, SW33
 Cas Troggy, Monmouthshire, ST49
 Castle Carew, Pembrokeshire, SN00
 Castle Hedingham, N. Essex, TL73
 Cauldron Snout, Durham, NY82
 Cavenham Heath, W. Suffolk, TL77
 Cefn-y-Bedd, Denbighshire, SJ35
 Chadlington, Oxfordshire, SP32
 Charlbury, Oxfordshire, SP32
 Cheddar Gorge, N. Somerset, ST45
 Chepstow, Monmouthshire, ST59
 Cherry Hinton, Cambridgeshire, TL45
 Chesil Beach, Dorset, SY58

Cheviot Hills, Northumberland, NT
 Chilterns, SP, SU
 Chippenham Fen, Cambridgeshire, TL66
 Chipstead Valley, Surrey, TQ25
 Chirk, Denbighshire, SJ23
 Christchurch, S. Hampshire, SZ29
 Cilygroeslwyd, Denbighshire, SJ15
 Cliffe Marshes, W. Kent, TQ77
 Cligga Head, W. Cornwall, SW75
 Clitheroe, S. Lancashire, SD74
 Clova Mts., Angus, NO37
 Cockrah Wood, N.E. Yorkshire, SE98
 Cockshoot Broad, E. Norfolk, TG31
 Coire an Lochan, E. Inverness, NH90
 Coire Fee, Angus, NO27
 Coll, Mid Ebudes, NM15, 25, 26
 Colne Point, N. Essex, TM22
 Colonsay, S. Ebudes, NR39, 49
 Colwyn Bay, Denbighshire, SH87
 Coniston Old Man, Westmorland, SD29
 Cotswolds, SO, SP, ST
 Coverack, W. Cornwall, SW71
 Cow Green reservoir, Durham/Westmorland, NY73, 82, 83
 Cowal, Main Argyll, NN, NR, NS
 Craeg Meagaidh, W. Inverness, NN48
 Craig Breidden, Montgomery, SJ21
 Craig-y-Castell, Breconshire, SO11
 Craig-y-Cilau, Breconshire, SO11
 Craig-y-Rhiwarth, Breconshire, SN81
 Cronkley Fell, N.W. Yorkshire, NY82
 Crook Peak, N. Somerset, ST35
 Crowle Moors, N. Lincolnshire, SE71
 Crymlyn Bog, Glamorgan, SS69, 79
 Crymlyn Burrows, Glamorgan, SS79
 Cuckmere Haven, E. Sussex, TV59
 Cuillin Mts., N. Ebudes, NG42
 Culbone, S. Somerset, SS84
 Culford, W. Suffolk, TL87
 Cwm Claisfer, Breconshire, SO11
 Cwm Clydach, Breconshire, SO21
 Cwm Idwal, Caernarvonshire, SH65

Dalmellington, Ayr, NS40
 Dart Valley, S. Devon, SX
 Dartmoor, Devon, SS, SX
 Dartmouth, S. Devon, SX85
 Dawlish Warren, S. Devon, SX97
 Devil's Elbow, E. Perthshire, NO17
 Devil's Point, S. Devon, SX45
 Dirleton, E. Lothian, NT48
 Drumochter Hills, E. Perth./E. Inverness, NN57, 67, 68
 Dun Ban, Kintyre, NR51
 Dungeness, E. Kent, TR01
 Durlston, Dorset, SZ07

East Haven, Angus, NO53
 East Portlemouth, S. Devon, SX73
 Eastbourne, E. Sussex, TV59
 Eaves Wood, W. Lancashire, SD47
 Eden Valley, Cumberland, NY
 Eggleston, Durham, NY92, NZ02
 Eglwyseg, Denbighshire, SJ24

Eigg, N. Ebudes, NM48, 49
 Ellenborough Park, N. Somerset, ST36
 Ellesborough, Buckinghamshire, SP80
 Ely, Cambridgeshire, TL58
 Epping, S. Essex, TQ49
 Esthwaite Water, Westmorland, SD39
 Exeter, S. Devon, SX99

Fairfield, Cumberland, NY31
 Farthing Downs, Surrey, TQ25, 35
 Faversham, E. Kent, TR06
 Ffrith, Flintshire, SJ25
 Flat Holm, Glamorgan, ST36
 Flimston, Pembrokeshire, SR99
 Flimwell, E. Sussex, TQ73
 Fobbing, S. Essex, TQ78
 Foula, Shetland, HT93, 94
 Freiston, S. Lincolnshire, TF34
 Friston Wood, E. Sussex, TQ50
 Frogmore Creek, S. Devon, SX74
 Frys Hill, N. Somerset, ST45
 Fulbourne, Cambridgeshire, TL45
 Fulsby Wood, N. Lincolnshire, TF26

Gannel estuary, W. Cornwall, SW86
 Geal Charn, W. Inverness, NN47
 Gew Graze, W. Cornwall, SW61
 Gibraltar Point, N. Lincolnshire, TF55
 Giltar Point, Pembrokeshire, SS19
 Glas Maol, E. Perthshire/Angus, NO17
 Gleann na Ciche, E. Inverness, NH11
 Glen Affric, E. Inverness, NH22
 Glen Callater, S. Aberdeenshire, NO18, 28
 Glen Canness, Angus, NO27
 Glen Clova, Angus, NO37
 Glen Coe, Main Argyll, NN15
 Glen Diomhan, Isle of Arran, NR94
 Glen Doll, Angus, NN17, 27
 Glen Easan Biorach, Isle of Arran, NR94
 Glen Einich, E. Inverness, NH90
 Glen Feshie, E. Inverness, NN89
 Glen Fyne, Argyll, NN
 Glen Iorsa, Isle of Arran, NR94
 Glen Prosen, Angus, NO26, 27
 Glen Quoich, S. Aberdeenshire, NO09, 19
 Glen Turret, Perthshire, NN73
 Goblin Combe, N. Somerset, ST46
 Godalming, Surrey, SU94
 Godmersham, E. Kent, TR05
 Godrevy Point, W. Cornwall, SW54
 Gog Magog Hills, Cambridgeshire, TL45
 Golden Cap, Dorset, SY49
 Goonhilly Down, W. Cornwall, SW71
 Gordale, Mid-W. Yorkshire, SD96
 Goring, Oxfordshire, SU67
 Gower coast, Glamorgan, SS48
 Gragareth, W. Lancashire, SD68
 Grantham, S. Lincolnshire, SK93
 Great Glen, NH, NM, NN
 Great Orme, Caernarvonshire, SH78
 Gunwalloe, W. Cornwall, SW62
 Gwennap Head, W. Cornwall, SW32

- Hadleigh Country Park, S. Essex, TQ78
 Hadlow Down, E. Sussex, TQ52
 Hailsham, E. Sussex, TQ50
 Hamford Water, N. Essex, TM22
 Happy Valley, Surrey, TQ25, 35
 Harewood Forest, N. Hampshire, SU34
 Hayling Island, S. Hampshire, SZ79
 Heathfield, E. Sussex, TQ52
 Heigham Sound, E. Norfolk, TG42
 Helvellyn, Cumberland, NY31
 Hengistbury Head, S. Hampshire, SZ19
 Hengrave, W. Suffolk, TL86
 Hickling Broad, E. Norfolk, TG42
 Hinton Charterhouse, N. Somerset, ST75
 Hinton, Cambridgeshire, TL45
 Holland Brook, N. Essex, TM21
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 Holy Island, Anglesey, SH27, 28
 Holy Island, Isle of Arran, NS02, 03
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 Humphrey Head, Westmorland, SD37
 Hunstanworth, Durham, NY94
 Hurst Heath, Dorset, SY78
 Hythe, E. Kent, TR13
- Icklingham, W. Suffolk, TL77
 Ingleborough, Mid-W. Yorkshire, SD77
 Inglestone Common, W. Gloucestershire, ST78
 Insh Marshes, E. Inverness, NH70,80
 Isle of Mull, Mid Ebudes, NM
 Isle of Portland, Dorset, SY66, 67, 77
 Isle of Sheppey, E. Kent, TR06
 Isle of Skye, N. Ebudes, NG
 Isles of Scilly, SV
- Keen of Hamar, Shetland, HP61
 Kenfig, Glamorgan, SS77, 78
 Kinghorn, Fife, NT28
 Kingsbridge, S. Devon, SX74
 Kingside Loch, Selkirkshire, NT31
 Kirkstone Pass, Cumberland, NY40
 Knapdale, Kintyre, c. NR76
 Knareborough, Mid-W. Yorkshire, SE35
 Kyle of Sutherland, E. Ross, NH59
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- Lake District, Westmorland/Cumberland, NY, SD
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 Langdon Beck, Durham, NY82, 83
 Langmere, W. Norfolk, TM98
 Langton Herring, Dorset, SY68
 Lannacombe, S. Devon, SX83
 Lantic Beach, E. Cornwall, SX15
 Lauder Castle, Berwickshire, NT54
 Leckby Carr, Yorkshire, SE46
 Lee-over-Sands, N. Essex, TM11
 Leith, Midlothian, NT27
 Lelant, W. Cornwall, SW53
- Leominster, Herefordshire, SO45
 Leven Canal, S.E. Yorkshire, TA04
 Liathach, W. Ross, NG95
 Limpsfield, Surrey, TQ45
 Linlithgow, W. Lothian, NT07
 Linney Head, Pembrokeshire, SR89
 Little Kilrannoch, Angus, NO27
 Little Sea, Dorset, SZ08
 Littlehempston, S. Devon, SX86
 Lizard peninsula, W. Cornwall, SW61, 71
 Llangattock, Breconshire, SO11
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 Llanymynech Hill, Montgomery/Shropshire, SJ22
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 Loch an Duin, Mid Ebudes, NM25
 Loch Awe, Main Argyll, NN02
 Loch Ballyhaugh, N. Ebudes, NM15
 Loch Flemington, E. Inverness, NH85
 Loch Leven, Fife & Kinross, NS19, NO10
 Loch Lomond, NS38, 48, 49
 Loch of Strathbeg, N. Aberdeenshire, NK05
 Loch Sheil, W. Inverness, NM66
 Loch Tummel, Mid-Perthshire, NN85
 Lochnagar, S. Aberdeenshire, NO28
 Loe Pool, W. Cornwall, SW62
 Logan Rock, W. Cornwall, SW32
 Long Fell, Westmorland, NY71
 Longfield, W. Kent, TQ56
 Luckett Reserve, E. Cornwall, SX37
 Ludlow, Shropshire, SO57
 Lundy Island, N. Devon, SS14
 Lyn valley, N. Devon, SS74
 Lynmouth, N. Devon, SS74
- Malham Tarn, Mid-W. Yorkshire, SD86
 Malham, Mid-W. Yorkshire, SD86
 Marlow, Buckinghamshire, SU88
 Marston Meysay, N. Wiltshire, SU19
 Martham Broad, E. Norfolk, TG42
 Martinhoe, N. Devon, SS64
 Maryport Docks, Cumberland, NY03
 Meall Buidh, Main Argyll, NN34
 Meall nan Tarmachan, Mid-Perthshire, NN55
 Melvich, W. Sutherland, NC86
 Mendip Hills, N. Somerset, ST
 Methven, Perthshire, NO02
 Micheldever, N. Hampshire, SU54
 Michelham Priory, E. Sussex, TQ50
 Mickleham, Surrey, TQ15
 Mieke Kilrannoch, Angus, NO27
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 Miller's Dale, Derbyshire, SK07
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 Minster Lovell, Oxfordshire, SP31
 Mochdre, Denbighshire, SH87
 Moffat Hills, Dumfries, NT01
 Morecambe Bay, W. Lancs./Westmorland, SD
 Morfa Harlech, Merioneth, SH53
 Morfa Pools, Glamorgan, SS69
 Morvern, Main Argyll, c. NM65
 Muckle Heog, Shetland, HP61
 Mull of Galloway, Wigtownshire, NX13

Mull of Kintyre, Argyll, NR51
Mynydd Llangattock, Breconshire, SO11

Nance Wood, W. Cornwall, SW64
Nanjizal, W. Cornwall, SW32
Neroche Forest, S. Somerset, ST21
Ness, Cheshire, SJ37
New Forest, S. Hampshire, SU,SZ
Newmarket, W. Suffolk, TL66
Newport, Monmouthshire, ST38
Newport, Pembrokeshire, SN04
Newquay, W. Cornwall, SW86
Newtown, Isle of Wight, SZ49
Norfolk Broads, TG
North Downs, TQ,TR
North Queensferry, Fife, NT18
Norton Heath, S. Essex, TL60

Oak Mere, Cheshire, SJ56
Ochil Hills, W. Perthshire, NS89
Ongar, S. Essex, TL60
Orton, Westmorland, NY60
Otmoor, Oxfordshire, SP51

Pagham, W. Sussex, SZ89
Pakenham, W. Suffolk, TL96
Par, E. Cornwall, SX05
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Pennard Castle, Glamorgan, SS58
Pentire Point, E. Cornwall, SW98
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Porth Dafarch, Anglesey, SH28
Porthgwarra, W. Cornwall, SW32
Porthmelgan Bay, Pembrokeshire, SM72
Portland, Dorset, SY66, 67, 77
Pound End, E. Norfolk, TG31
Prawle Point, S. Devon, SX73
Pulla Croos, W. Cornwall, SW73
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River Ant, E. Norfolk, TG31,32
River Arun, W. Sussex, TQ
River Avon, Somerset/Gloucestershire, ST
River Calder, Mid-W. Yorkshire, SE02,12
River Dwyryd, Merioneth, SH63
River Dysynni, Merioneth, SH50
River Endrick, Dunbartonshire, NS48
River Fowey, E. Cornwall, SX15
River Glaslyn, Caernarvonshire/Merioneth, SH53
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River Spey, E. Inverness, NH70
River Thames, SN, SO, ST
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River Tyne, Cumberland/Northumberland, NY, NZ
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River Wye, Monmouthshire/Radnorshire, SN, SO, ST
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Reigate Heath, Surrey, TQ25
Rhoscolyn, Anglesey, SH27
Rhostyllen, Denbighshire, SJ34
Ribblehead, Mid-W. Yorkshire, SD77
Richmond, N.W. Yorkshire, NZ10
Ridge, Dorset, SY98
Ringwood Chase, Shropshire, SO47
Rochdale Canal, S. Lancashire, c. SD91
Romaldkirk, N.W. Yorkshire, NZ02
Rona, N. Ebudes, NG65, 66
Ronas Voe, Shetland, HU28
Ross Priory, Dunbartonshire, NS48
Rothamsted, Hertfordshire, TL11
Roudsea Wood, Westmorland, SD38
Rougholme Point, Westmorland, SD37
Ruabon, Denbighshire, SJ24
Rum, N. Ebudes, NG30, 40, NM39, 49
Rye, E. Sussex, TQ91

Saddle Point, Pembrokeshire, SR99
Salterhebble Bridge, Mid-W. Yorkshire, SE02
Samson, Isles of Scilly, SV81
Sand Point, N. Somerset, ST36
Sandwich, E. Kent, TR35
Sandymouth, E. Cornwall, SS21
Sawston Hall Meadows, Cambridgeshire, TL44
Scabbacombe, S. Devon, SX95
Selsdon, Surrey, TQ36
Selsey, W. Sussex, SZ89
Sgurr Alasdair, N. Ebudes, NG42
Shap, Westmorland, NY51
Sheerwater, Surrey, TQ06
Shillinglee, W. Sussex, SU93
Shirehampton, W. Gloucestershire, ST57
Shoeburyness, S. Essex, TQ98
Shute Shelve, N. Somerset, ST45
Skipwith Common, S.E. Yorkshire, SE63
Skye, N. Ebudes, NG
Slapton Ley, S. Devon, SX84
Sleaford, S. Lincolnshire, TF04
Slimbridge, W. Gloucestershire, SO70
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 Stanner Rocks, Radnorshire, SO25
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 Stathfarrar, E. Inverness, NH33
 Steep Holm, N. Somerset, ST26
 Storrington, W. Sussex, TQ01
 Stour Valley, Dorset, ST81
 Strath Nethy, E. Inverness, NJ00
 Strathy Point, W. Sutherland, NC86
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 Strumble Head, Pembrokeshire, SM84
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- Taff Valley, Breconshire, SO01
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 Tilbury Fort, S. Essex, TQ67
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- Uffcott Hill, N. Wiltshire, SU17
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- Walberswick, E. Suffolk, TM47
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 Wandsworth, Middlesex, TQ27
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 Weardale, Durham, NY, NZ
 Weeting Heath, W. Norfolk, TL78
 Wendover, Buckinghamshire, SP80
 West Burrafirth, Shetland, HU25
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 Woodstock, Oxfordshire, SP41
 Woodwalton Fen, Huntingdonshire, TL28
 Wotton-under-Edge, S. Gloucestershire, ST79
 Wrexham, Denbighshire, SJ35
 Wye Downs, E. Kent, TR04
 Wymington, Bedfordshire/Northamptonshire, SP96
 Wyre Forest, Worcestershire/Shropshire, SO77
 Wytham, Oxfordshire, SP40