

## 11 VASCULAR PLANTS (FLOWERING PLANTS, FERNS AND THEIR ALLIES)

### 1 Introduction

- 1.1 In seeking species representation within a vascular flora which includes 1,593 taxa of specific rank (Clapham, Tutin & Warburg 1981), site selection has to give particular attention to the rarer and more threatened species. The more common and widespread species tend to form the plant communities which are the basis of selection for habitat or vegetation types, though such selection will also include some of the rarer species as well. From the maps of Atlas of the British flora (Perring & Walters 1962), its Critical supplement (Perring & Sell 1978) and subsequent revisions of some of these, mainly at the rarer end of the scale and of ferns (Jermy et al. 1978), lists of rare and scarce species have been compiled. Nationally rare species are defined as those occurring in 1-15 10 x 10 km squares of the National Grid (Table 24) and nationally scarce species as those occurring in 16-100 such 10 km grid squares (Table 25).
- 1.2 The British Red Data Book for vascular plants (Perring & Farrell 1983) lists 317 species or subspecies in its four categories - "extinct", "endangered", "vulnerable" and "rare" (i.e. species or subspecies believed extinct or surviving in 1-15 squares). Species of Hieracium and Rubus are omitted from both nationally rare and nationally scarce categories, but species of Euphrasia and Sorbus (many of them endemic) are included. The Wildlife and Countryside Act 1981 gives special protection to 92 vulnerable or endangered vascular plant species listed in its Schedule 8 (see 3.1 and Tables 24 and 25). Most of these are species in the highest category of rarity (present in only 1-5 10 km squares), but a few species have been admitted because their attractiveness makes them especially vulnerable to collecting. One species of charophyte, Lamprothamnium papulosum, is similarly protected (see C.12, 3).

### 2 International importance

- 2.1 The British vascular flora is not rich by comparison with that of continental Europe. Island isolation has resulted in floristic impoverishment, yet it has been too recent for any appreciable degree of endemism to have developed. Many species which have a relict or fringe distribution here are common on the continent, for example many species of our rare orchids (Matthews 1955). The elements of our flora regarded as especially important by overseas botanists are the following.
- 2.1.1 The strongly Atlantic element restricted to the north-west European seaboard (and sometimes the Atlantic Isles), which has several species better represented in Britain and Ireland than elsewhere. These range from common British species, some of which are community dominants (e.g. all three species of gorse Ulex, bluebell Hyacinthoides non-scripta and heath rush Juncus squarrosus) to species of specialised habitats (e.g. Dryopteris aemula, Pinguicula lusitanica and Rhynchospora alba).
- 2.1.2 Maritime species in the wide range of coastal habitats which are especially well represented in Britain (see C.1).
- 2.1.3 Species which are declining and threatened in continental Europe, often through loss of habitats as a result of agricultural and other development.

- 2.1.4 Species or assemblages which are regarded as important in the study of plant geography. These include plants with markedly discontinuous distributions (e.g. outposts of those occurring mainly in North America, northern Europe, the Alps or the Mediterranean region) and unusual combinations of different phytogeographical elements (e.g. Arctic-Alpine and Continental Southern). Notable 'refugia' where particular floristic elements have survived during periods of unfavourable post-glacial climatic change are also important.
- 2.1.5 Endemic species and taxa with subspecies or regional race status peculiar to Britain (Threatened Plants Unit 1983), as examples of genetic divergence and perhaps incipient evolution of new species.

### 3 Site selection requirements

There should be a presumption for selecting vascular plant sites on the following grounds.

#### 3.1 Schedule 8 species

All sites with viable populations should be selected. The schedule will be reviewed at five-yearly intervals, and note should be taken of any additions or deletions. The next revision will be in 1991.

#### 3.2 Red Data Book species

All RDB species' localities should be regarded as candidate sites.

One RDB species qualifies a site for selection if it has:

- 3.2.1 the largest population of this species in Great Britain;
- 3.2.2 a good population of the species on a site which is itself a good example of a habitat type but has not already been chosen;
- 3.2.3 a good population of the species in an AOS supporting a substantial proportion of localities for the species;
- 3.2.4 a good population on the edge of the species' geographical range; or
- 3.2.5 the only occurrence of the species in the particular AOS.

Judgement of a "good population" should be made in discussion with the CSD rare plants specialist, who holds precise data on both distribution and population sizes of RDB species. (See 3.4 for Senecio cambrensis.)

#### 3.3 Combination of species occurring in 1-100 10 km squares

A simple scoring procedure is used to assess combinations of species within the two classes, nationally rare and nationally scarce (Tables 24 and 25). Schedule 8 species (see 3.1) rate 200. Species occurring in 1-15 10 km squares (other than Schedule 8 species) rate 100. Species occurring in 16-100 10 km squares rate 50. A total score of 200 or more qualifies a site for selection. Presence of two RDB species, for example, thus qualifies a site for selection.

### 3.4 Endemic species

The largest populations of endemic species (see Tables 24 and 25) in each AOS should be selected, when practicable. As the Euphrasia species are hard to identify, verification of status will be difficult, and site selection will have to be based on the best information available at the time. Senecio cambrensis is an ephemeral species of waste ground, and its localities should not be selected unless it happens to be growing adjacent to an area which qualifies on other grounds.

### 3.5 Non-endemic species threatened in Europe

These number 23 species, of which 17 are RDB species; five of these are on Schedule 8 and Senecio congestus is believed to be extinct. This leaves for consideration Alopecurus alpinus, Deschampsia setacea, Hammarbya paludosa, Luronium natans, Petroselinum segetum and Pilularia globulifera. All of these are nationally scarce in Britain (see Table 25) except Petroselinum segetum, which is declining. The best population of each species in every AOS in which it occurs as a native should be selected.

### 3.6 Declining species and species at the edge of their range

If an AOS contains species which are known to have declined markedly within Britain but are not yet in the nationally rare or nationally scarce category, particularly large populations may be selected, in consultation with the CSD rare plants specialist. Examples are Eriophorum latifolium, Orchis morio, Platanthera bifolia, P. chlorantha and Pyrola minor. In addition, any particularly large population of a species with restricted distribution at the edge of its range or a population which appears phenotypically distinct from the prevailing form may be selected. Regionally rare species are of great concern to local botanists, and at least one locality per relevant AOS should be selected. A regionally rare species is defined as one with 15 or fewer localities in an NCC region. (For this purpose a locality is defined as being of no greater area than one square kilometre.)

### 3.7 Floristic assemblages

Many, perhaps most, localities with particularly good species lists will be selected either for habitat importance or for presence of rare or scarce species. There are, nevertheless, a limited number of places with a rich flora which will not qualify under these other attributes but which have a valid claim for selection. Assessment is difficult, particularly when more than one habitat is involved, but if a locality has 75% or more of the total vascular plant species list for a community type of the NVC it should qualify for selection.

### 3.8 Microspecies and hybrids

Many of these will be represented by site selection on other grounds, but, when this is not the case, all microspecies in genera such as Rubus, Hieracium, Taraxacum, Euphrasia and Salicornia should be represented on at least one SSSI somewhere in Britain. The same should apply to recognised, regularly occurring hybrids of native species. The CSD rare plants specialist will seek to ensure this representation, in consultation with external specialists in the particular plant groups.

#### 4 References

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**Table 24 Red Data Book species of vascular plants (Perring & Farrell 1983 with later additions)**

E = Endemic  
 S = Listed on Schedule 8  
 \* = Extinct

Adonis annua	Carex flava
Agrostemma githago	Carex lachenalii
Ajuga chamaepitys	Carex microglochin
* Ajuga genevensis	Carex muricata subsp. muricata
Alchemilla acutiloba	Carex norvegica
Alchemilla glaucescens	Carex ornithopoda
Alchemilla gracilis	Carex rariflora
E Alchemilla minima	Carex recta
Alchemilla monticola	Carex tomentosa
Alchemilla subcrenata	Caucalis platycarpus
S Alisma gramineum	Centaurea calcitrapa
Allium ampeloprasum	Centaurea cyanus
Allium babingtonii	* Centaurium latifolium
S Allium sphaerocephalon	Centaurium scilloides
S Althaea hirsuta	Centaurium tenuiflorum
S Alyssum alyssoides	S Cephalanthera rubra
Anagallis foemina	Cerastium arcticum subsp. edmondstonii
Anthoxanthum puelii	Cerastium brachypetalum
S Apium repens	Chenopodium glaucum
S Arabis alpina	S Chenopodium vulvaria
S Arabis scabra	S Cicerbita alpina
( Arenaria norvegica subsp. anglica	Cirsium tuberosum
( Arenaria norvegica subsp. norvegica	Cochlearia micacea
Armeria maritima subsp. elongata	S Corrigiola litoralis
* Arnoseris minima	S Cotoneaster integerrimus
S Artemisia campestris	S Crassula aquatica
Artemisia norvegica	S Crepis foetida
Asparagus officinalis subsp. prostratus	Crocus purpureus
Aster linosyris	Cyclamen hederifolium
Astragalus alpinus	Cynodon dactylon
Atriplex longipes	S Cynoglossum germanicum
Bartsia alpina	S Cyperus fuscus
* Bromus interruptus	S Cypripedium calceolus
Bromus madritensis	S Cystopteris dickieana
Bromus tectorum	S Damasonium alisma
Buglossoides purpureocaerulea	S Dianthus gratianopolitanus
Bunium bulbocastanum	S Diapensia lapponica
S Bupleurum baldense	Draba aizoides
S* Bupleurum falcatum	Dryopteris cristata
* Bupleurum rotundifolium	Echium plantagineum
Buxus sempervirens	Elatine hydropiper
E Calamagrostis scotica	Eleocharis austriaca
S Calamintha sylvatica	Eleocharis parvula
* Campanula persicifolia	E Epipactis dunensis
Campanula rapunculus	ES Epipactis youngiana
Carex atrofusca	S Epipogium aphyllum
Carex buxbaumii	S Equisetum ramosissimum
Carex chordorrhiza	Erica ciliaris
* Carex davalliana	Erica vagans
S Carex depauperata	S Erigeron borealis

- Eriocaulon aquaticum  
 S Eriophorum gracile  
 S Eryngium campestre  
 Euphorbia hyberna  
 S\* Euphorbia peplis  
 Euphorbia serrulata  
 \* Euphorbia villosa  
 E Euphrasia cambrica  
 E Euphrasia campbelliae  
 E Euphrasia eurycarpa  
 E Euphrasia heslop-harrisonii  
 E Euphrasia rhumica  
 E Euphrasia rivularis  
 E Euphrasia rotundifolia  
 E Euphrasia vigursii  
 Festuca caesia (= longifolia)  
 \* Filago gallica  
 S Filago lutescens (= apiculata)  
 Filago pyramidata (= spathulata)  
 Fumaria martinii  
 E Fumaria occidentalis  
 S Gagea bohemica  
 \* Galeopsis segetum  
 Galium debile  
 Galium fleurotii  
 Galium spurium  
 Galium tricornutum  
 Gastridium ventricosum  
 Genista pilosa  
 S Gentiana nivalis  
 S Gentiana verna  
 S Gentianella ciliata  
 Gentianella uliginosa  
 Geranium purpureum subsp. forsteri  
 Geranium purpureum subsp. purpureum  
 S Gladiolus illyricus  
 S Gnaphalium luteoalbum  
 Gnaphalium norvegicum  
 Halimione pedunculata  
 Helianthemum apenninum  
 Helianthemum canum subsp. levigatum  
 Herniaria ciliolata  
 Herniaria glabra  
 Hierochloa odorata  
 S Himantoglossum hircinum  
 \* Holosteum umbellatum  
 S Homogyne alpina  
 \* Hydrilla verticillata  
 Hypericum linarifolium  
 Hypochoeris maculata  
 Iris spuria  
 Iris versicolor  
 Isatis tinctoria  
 Isoetes histrix  
 Juncus capitatus  
 Juncus dudleyi  
 Juncus filiformis  
 Juncus mutabilis  
 Juncus nodulosus  
 Juncus subulatus  
 Kobresia simpliciuscula  
 Koeleria vallesiana  
 Koenigia islandica  
 S Lactuca saligna  
 Lavatera cretica  
 Ledum groenlandicum  
 Leersia oryzoides  
 Leucojum aestivum  
 Leucojum vernum  
 Limonium bellidifolium  
 ?E S Limonium paradoxum  
 E S Limonium recurvum  
 ?E Limonium transwallianum  
 Limosella australis  
 Linaria supina  
 S Liparis loeselii  
 S Lloydia serotina  
 Lobelia urens  
 Lonicera xylosteum  
 Lotus angustissimus  
 Ludwigia palustris  
 Luzula pallescens  
 S Lychnis alpina  
 Lychnis viscaria  
 S Lythrum hyssopifolia  
 Maianthemum bifolium  
 Matthiola incana  
 Matthiola sinuata  
 S Melampyrum arvense  
 S Mentha pulegium  
 Mibora minima  
 Minuartia rubella  
 S Minuartia stricta  
 Moneses uniflora  
 Muscari atlanticum  
 Myosotis alpestris  
 Najas flexilis  
 S Najas marina  
 Narcissus obvallaris  
 Neotinea maculata  
 Oenothera stricta  
 S Ononis reclinata  
 S Ophioglossum lusitanicum  
 S Ophrys holoserica (= fuciflora)  
 S Ophrys sphegodes  
 S Orchis militaris  
 S Orchis simia  
 Ornithopus pinnatus  
 S Orobanche caryophyllacea  
 S Orobanche loricata  
 Orobanche maritima  
 Orobanche purpurea  
 S Orobanche reticulata  
 \* Otanthus maritimus

- Oxytropis campestris*  
*Oxytropis halleri*  
*Paeonia mascula*  
S *Petrorhagia nanteuillii*  
*Peucedanum officinale*  
*Phleum phleoides*  
S *Phyllodoce caerulea*  
*Physospermum cornubiense*  
*Phyteuma spicatum*  
\* *Pinguicula alpina*  
*Poa flexuosa*  
*Poa infirma*  
*Polemonium caeruleum*  
*Polycarpon tetraphyllum*  
*Polygala amara*  
*Polygala austriaca*  
S *Polygonatum verticillatum*  
*Polygonum dumetorum*  
S *Polygonum maritimum*  
*Potamogeton acutifolius*  
*Potamogeton epihydrus*  
*Potamogeton nodosus*  
*Potamogeton rutilus*  
*Potentilla fruticosa*  
S *Potentilla rupestris*  
S *Pulicaria vulgaris*  
S *Pyrus cordata*  
S *Ranunculus ophioglossifolius*  
S *Rhinanthus serotinus*  
E S *Rhynchosinapis wrightii*  
S *Romulea columnae*  
*Rorippa austriaca*  
\* *Rubus arcticus*  
*Rumex aquaticus*  
*Rumex rupestris*  
*Sagina intermedia*  
*Sagina normaniana*  
*Sagittaria rigida*  
*Salix lanata*  
*Salvia pratensis*  
S *Saxifraga cernua*  
S *Saxifraga cespitosa*  
*Saxifraga hirculus*  
*Saxifraga rivularis*  
\* *Saxifraga rosacea*  
*Scheuchzeria palustris*  
*Schoenus ferrugineus*  
*Scirpus holoschoenus*  
\* *Scirpus hudsonianus*  
S *Scirpus triquetrus*  
( *Scleranthus perennis* subsp. *perennis*  
S ( *Scleranthus perennis* subsp. *prostratus*  
S *Scorzonera humilis*  
*Scrophularia scorodonia*  
S *Selinum carvifolia*  
E *Senecio cambrensis*  
\* *Senecio congestus*  
S *Senecio paludosus*  
*Seseli libanotis*  
*Silene conica*  
*Silene italica*  
*Silene otites*  
*Sisymbrium irio*  
*Sorbus anglica*  
E *Sorbus arranensis*  
E *Sorbus bristoliensis*  
E *Sorbus eminens*  
E *Sorbus lancastriensis*  
E *Sorbus leptophylla*  
E *Sorbus leyana*  
E *Sorbus minima*  
E *Sorbus pseudofennica*  
E *Sorbus subcuneata*  
E *Sorbus vexans*  
E *Sorbus wilmottiana*  
*Spartina alterniflora*  
*Spergularia bocconii*  
\* *Spiranthes aestivalis*  
*Spiranthes romanzoffiana*  
S *Stachys alpina*  
S *Stachys germanica*  
E *Taraxacum acutum*  
E *Taraxacum clovense*  
*Taraxacum cymbifolium*  
*Taraxacum glaucinum*  
*Taraxacum hygrophilum*  
E *Taraxacum pseudonordstedtii*  
*Taraxacum scanicum*  
*Taraxacum ziphoideum*  
*Tetragonolobus maritimus*  
*Teucrium chamaedrys*  
S *Teucrium botrys*  
S *Teucrium scordium*  
*Thlaspi perfoliatum*  
*Thymus serpyllum*  
S *Trichomanes speciosum*  
*Trifolium bocconeii*  
*Trifolium incarnatum* subsp. *molinerii*  
*Trifolium stellatum*  
*Trifolium strictum*  
*Trinia glauca*  
*Turritis glabra*  
*Tuberaria guttata* subsp. *breweri*  
*Valerianella eriocarpa*  
*Valerianella rimosa*  
*Veronica fruticans*  
*Veronica praecox*  
S *Veronica spicata* subsp. *spicata*  
S *Veronica triphyllos*  
*Veronica verna*  
*Viola kitaibeliana*  
S *Viola persicifolia*  
*Viola rupestris*  
S *Woodsia alpina*  
S *Woodsia ilvensis*

**Table 25 Nationally scarce species of vascular plants**

E = Endemic    S = Listed on Schedule 8

<u>Species</u>	<u>No. of 10 km squares</u>
<i>Aceras anthropophorum</i>	58
<i>Aconitum anglicum</i>	76
<i>Actaea spicata</i>	26
<i>Adiantum capillus-veneris</i>	21
<i>Alchemilla glomerulans</i>	26
<i>Alchemilla wichurae</i>	37
<i>Allium oleraceum</i>	94
<i>Allium schoenoprasum</i>	16
<i>Allium scorodoprasum</i>	74
<i>Alopecurus aequalis</i>	82
<i>Alopecurus alpinus</i>	17
<i>Alopecurus bulbosus</i>	26
<i>Althaea officinalis</i>	73
<i>Andromeda polifolia</i>	69
<i>Apera interrupta</i>	21
<i>Apera spica-venti</i>	<60
<i>Arctous alpinus</i>	63
<i>Arum italicum</i>	43
<i>Asplenium billotii</i>	76
<i>Asplenium septentrionale</i>	26
<i>Asplenium trichomanes</i> subsp. <i>trichomanes</i>	54
<i>Athyrium distentifolium</i>	30
<i>Betula nana</i>	48
<i>Brassica oleracea</i>	33
<i>Briza minor</i>	17
<i>Bromus benekenii</i>	23
<i>Bromus diandrus</i>	56
<i>Bupleurum tenuissimum</i>	58
<i>Calamintha nepeta</i>	49
<i>Callitriche hermaphroditica</i>	79
<i>Callitriche truncata</i>	18
<i>Campanula patula</i>	21
<i>Cardamine impatiens</i>	47
<i>Cardaminopsis petraea</i>	47
<i>Carex appropinquata</i>	20
<i>Carex aquatilis</i>	45
<i>Carex atrata</i>	28
<i>Carex capillaris</i>	70
<i>Carex diandra</i>	94
<i>Carex digitata</i>	19
<i>Carex divisa</i>	79
<i>Carex elongata</i>	22
<i>Carex ericetorum</i>	22
<i>Carex humilis</i>	22
<i>Carex maritima</i>	26
<i>Carex montana</i>	26
<i>Carex paupercula</i>	46
<i>Carex punctata</i>	23
<i>Carex rupestris</i>	20
<i>Carex saxatilis</i>	46

<u>Species</u>	<u>No. of 10 km squares</u>
<i>Carex vaginata</i>	39
<i>Carex vulpina</i>	19
<i>Centaureum capitatum</i>	19
<i>Centaureum littorale</i>	42
<i>Cephalanthera longifolia</i>	29
<i>Cerastium alpinum</i>	49
<i>Cerastium arcticum</i> subsp. <i>arcticum</i>	24
<i>Cerastium cerastoides</i>	16
<i>Cerastium pumilum</i>	24
<i>Ceratophyllum submersum</i>	38
<i>Chenopodium botryodes</i>	17
<i>Chenopodium glaucum</i>	16
<i>Cherleria sedoides</i>	47
<i>Cicendia filiformis</i>	30
<i>Cicuta virosa</i>	29
<i>Cochlearia scotica</i>	76
<i>Corallorhiza trifida</i>	19
<i>Corynephorus canescens</i>	16
<i>Crambe maritima</i>	88
<i>Crassula tillaea</i>	44
<i>Crepis mollis</i>	18
<i>Cuscuta europaea</i>	36
<i>Cyperus longus</i>	21
<i>Cystopteris montana</i>	18
<i>Dactylorhiza traunsteineri</i>	18
<i>Daphne mezereum</i>	29
<i>Dentaria bulbifera</i>	19
<i>Deschampsia alpina</i>	52
<i>Deschampsia setacea</i>	36
<i>Dianthus armeria</i>	43
<i>Dianthus deltoides</i>	58
<i>Draba incana</i>	96
<i>Draba muralis</i>	20
<i>Draba norvegica</i>	18
<i>Dryas octopetala</i>	56
<i>Dryopteris villarii</i> subsp. <i>submontana</i>	24
<i>Dryopteris</i> x <i>deweveri</i>	49
<i>Dryopteris</i> x <i>tavelii</i>	47
<i>Elatine hexandra</i>	39
<i>Eleocharis acicularis</i>	88
<i>Epilobium alsinifolium</i>	81
<i>Epilobium lamyi</i>	65
<i>Epipactis atrorubens</i>	28
<i>Epipactis leptochila</i>	24
<i>Epipactis phyllanthes</i>	54
<i>Equisetum</i> x <i>litorale</i>	94
<i>Equisetum pratense</i>	70
<i>Equisetum variegatum</i>	89
<i>Erodium maritimum</i>	77
<i>Erodium moschatum</i>	37
<i>Euphorbia paralias</i>	92
<i>Euphorbia platyphyllos</i>	34
<i>Euphorbia portlandica</i>	74

<u>Species</u>	<u>No. of 10 km squares</u>
<i>Euphrasia borealis</i> (= <i>arctica</i> )	99
<i>Euphrasia curta</i> (= <i>ostenfeldii</i> )	79
<i>Euphrasia foulaensis</i>	58
<i>Euphrasia frigida</i>	51
E <i>Euphrasia marshallii</i>	24
<i>Euphrasia montana</i> (= <i>rostkoviana</i> subsp. <i>montana</i> )	21
<i>Euphrasia pseudokernerii</i>	89
<i>Euphrasia rostkoviana</i>	85
<i>Fagopyrum esculentum</i>	86
<i>Festuca altissima</i>	53
<i>Festuca heterophylla</i>	20
<i>Festuca juncifolia</i>	27
<i>Festuca longifolia</i>	41
<i>Frankenia laevis</i>	25
<i>Fritillaria meleagris</i>	22
<i>Fumaria bastardii</i>	35
<i>Fumaria capreolata</i>	62
<i>Fumaria micrantha</i>	24
<i>Fumaria parviflora</i>	42
<i>Fumaria purpurea</i>	50
<i>Fumaria vaillantii</i>	28
<i>Gagea lutea</i>	64
<i>Galium parisiense</i>	24
<i>Galium pumilum</i>	10
<i>Galium sternerii</i>	81
<i>Gentiana pneumonanthe</i>	38
E <i>Gentianella anglica</i>	36
<i>Gentianella germanica</i>	20
<i>Geranium rotundifolium</i>	91
<i>Goodyera repens</i>	79
<i>Gymnocarpium robertianum</i>	80
<i>Hammarbya paludosa</i>	66
<i>Helianthemum canum</i>	16
<i>Helleborus foetidus</i>	55
<i>Herminium monorchis</i>	40
<i>Hippophae rhamnoides</i>	36
<i>Hordelymus europaeus</i>	48
<i>Hordeum marinum</i>	59
<i>Hornungia petraea</i>	26
<i>Hypericum montanum</i>	94
<i>Hypericum undulatum</i>	24
<i>Iberis amara</i>	28
<i>Illecebrum verticillatum</i>	20
<i>Impatiens noli-tangere</i>	21
<i>Inula crithmoides</i>	62
<i>Isoetes echinospora</i>	59
<i>Juncus acutus</i>	25
<i>Juncus alpinoarticulatus</i>	19
<i>Juncus balticus</i>	47
<i>Juncus biglumis</i>	21
<i>Juncus castaneus</i>	23

<u>Species</u>	<u>No. of 10 km squares</u>
<i>Lathyrus aphaca</i>	34
<i>Lathyrus japonicus</i>	16
<i>Lathyrus palustris</i>	15
<i>Lavatera arborea</i>	70
<i>Limonium binervosum</i>	70
<i>Limonium humile</i>	49
<i>Limosella aquatica</i>	16
<i>Linnaea borealis</i>	26
<i>Linum anglicum</i>	18
<i>Lotus hispidus</i>	35
<i>Luronium natans</i>	27
<i>Luzula arcuata</i>	16
<i>Lycopodiella inundata</i>	53
<i>Lycopodium annotinum</i>	81
<i>Lysimachia thyrsiflora</i>	17
<i>Marrubium vulgare</i>	14
<i>Mecanopsis cambrica</i>	32
<i>Medicago falcata</i>	23
<i>Medicago minima</i>	22
<i>Medicago polymorpha</i>	43
<i>Melampyrum cristatum</i>	22
<i>Melampyrum sylvaticum</i>	28
<i>Melittis melissophyllum</i>	28
<i>Mentha pulegium</i>	43
<i>Mertensia maritima</i>	48
<i>Meum athamanticum</i>	63
<i>Minuartia hybrida</i>	40
<i>Minuartia verna</i>	77
<i>Moenchia erecta</i>	82
<i>Myosotis brevifolia</i>	32
<i>Myosurus minimus</i>	55
<i>Myriophyllum verticillatum</i>	75
<i>Nardurus maritimus (= Vulpia unilateralis)</i>	16
<i>Nuphar pumila</i>	19
<i>Nymphoides peltata</i>	27
<i>Oenanthe fluviatilis</i>	79
<i>Oenanthe pimpinelloides</i>	94
<i>Oenanthe silaifolia</i>	26
<i>Ophioglossum azoricum</i>	19
<i>Ornithogalum pyrenaicum</i>	22
<i>Orchis purpurea</i>	22
<i>Orchis ustulata</i>	67
<i>Orobanche alba</i>	31
<i>Orobanche hederæ</i>	64
<i>Orobanche maritima</i>	22
<i>Orobanche rapum-genistæ</i>	48
<i>Orthilia secunda</i>	60
<i>Parapholis incurva</i>	36
<i>Papaver argemone</i>	75
<i>Papaver hybridum</i>	44
<i>Parentucellia viscosa</i>	66

<u>Species</u>	<u>No. of 10 km squares</u>
Peucedanum palustre	23
Phleum alpinum	19
Phyteuma tenerum	33
Pilularia globulifera	72
Pinus sylvestris var. scotica	38
Poa alpina	44
Poa bulbosa	23
Poa glauca	33
Poa palustris	38
Polygonatum odoratum	22
Polygonum minus	43
Polygonum mite	29
Polygonum raii	66
Polypodium australe	93
Polypogon monspeliensis	18
Polystichum x bichnellii	34
Potamogeton coloratus	42
Potamogeton compressus	46
Potamogeton filiformis	45
Potamogeton friesii	87
Potamogeton praelongus	74
Potamogeton trichoides	64
Potentilla crantzii	48
Potentilla tabernaemontani	45
Primula elatior	25
Primula farinosa	58
E Primula scotica	33
Puccinellia fasciculata	52
Puccinellia rupestris	51
Pulmonaria longifolia	17
Pulsatilla vulgaris	27
Pyrola media	60
Pyrola rotundifolia	41
Ranunculus arvensis	71
Ranunculus baudotii	83
Ranunculus tripartitus	28
Raphanus maritimus	89
E Rhynchosinapis monensis	18
Rhynchospora fusca	23
Ribes alpinum	30
Ribes spicatum	20
Rumex maritimus	83
Rumex palustris	72
Ruppia cirrhosa (= spiralis)	32
Sagina saginoides	28
Salicornia perennis	37
Salicornia pusilla	32
Salix lapponum	49
Salix myrsinites	30
Salix nigricans	74
Salix reticulata	19
Saxifraga nivalis	42
Scandix pecten-veneris	20

<u>Species</u>	<u>No. of 10 km squares</u>
<i>Scilla autumnalis</i>	28
<i>Scrophularia umbrosa</i>	36
<i>Sedum forsteranum</i>	48
<i>Sedum villosum</i>	75
<i>Senecio integrifolius</i>	52
<i>Sesleria caerulea</i>	58
<i>Sibbaldia procumbens</i>	74
<i>Sibthorpia europaea</i>	59
<i>Silene nutans</i>	32
<i>Sium latifolium</i>	97
<i>Sonchus palustris</i>	17
<i>Sorbus devoniensis</i>	20
<i>Sorbus intermedia</i>	93
E <i>Sorbus porrigentiformis</i>	20
<i>Sorbus rupicola</i>	60
<i>Spartina maritima</i>	25
<i>Stratiotes aloides</i>	21
<i>Suaeda fruticosa (= vera)</i>	30
<i>Subularia aquatica</i>	84
<i>Thelypteris thelypteroides</i>	98
<i>Thesium humifusum</i>	73
<i>Thlaspi alpestre</i>	38
<i>Tilia platyphyllos</i>	18
<i>Tofieldia pusilla</i>	81
<i>Torilis arvensis</i>	16
<i>Trifolium glomeratum</i>	37
<i>Trifolium ochroleucon</i>	67
<i>Trifolium ornithopodioides</i>	85
<i>Trifolium squamosum</i>	41
<i>Trifolium suffocatum</i>	40
<i>Vaccinium microcarpum</i>	18
<i>Valerianella carinata</i>	92
<i>Valerianella dentata</i>	65
<i>Verbascum lychnitis</i>	24
<i>Verbascum pulverulentum</i>	20
<i>Verbascum virgatum</i>	17
<i>Veronica alpina</i>	22
S <i>Veronica spicata</i> subsp. <i>hybrida</i>	18
<i>Vicia bithynica</i>	25
<i>Vicia lutea</i>	19
<i>Vicia orobus</i>	61
<i>Vicia tenuissima</i>	24
<i>Viola lactea</i>	42
<i>Vulpia ambigua</i>	40
<i>Vulpia membranacea</i>	44
<i>Vulpia unilateralis (= Nardurus maritimus)</i>	16
<i>Wolffia arrhiza</i>	17
<i>Zostera angustifolia</i>	29
<i>Zostera marina</i>	74
<i>Zostera noltii</i>	43

## Non-vascular plants (1992)

These guidelines supersede those given in Chapter 12 (1989) –  
the older version follows immediately after this revision