



A Vascular Plant Red Data List for Wales

Rhestr o Blanhigion Fasgwlaidd Data Coch ar gyfer Cymru



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With the help of the Vice-county Recorders
and Committee of the Botanical Society of the
British Isles in Wales, and the Countryside
Council for Wales

*Gyda chymorth Cofnodwyr yr is-siroedd a hefyd
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SUMMARY

In this report, the threats facing the entire vascular plant flora of Wales have been assessed using international criteria for the first time. Using data supplied by the Botanical Society of the British Isles and others, the rate at which species are declining and the size of remaining populations have been quantified in detail to provide an accurate and up-to-date picture of the state of vascular plants in Wales. The production of a similar list (using identical criteria) for Great Britain in 2005 allows comparisons to be made between the GB and Welsh floras.

The results show that of the 1467 native and archaeophyte vascular plants recorded in Wales, 38 are extinct (2.6%) and 256 (17.4%) are threatened with extinction, being either Critically Endangered (3.4%), Endangered (4.4%) or Vulnerable (9.7%). A further 28 (1.9%) are Near Threatened. Although there are proportionately more extinctions in Wales than there have been in Great Britain (1.0%), the Welsh flora is generally faring slightly better than the GB flora as a whole, where 18.9% of vascular plants are threatened.

This is the first such regional analysis of threats facing any group of species in Great Britain, and the results have been used to inform the selection of priorities for conservation in Wales. The list also identifies vascular plants reaching the edge of their GB range in Wales, as well as Welsh endemics and near-endemics.

CRYNODEB

Yn yr adroddiad hwn mae'r bygythiadau sy'n wynebu holl blanhigion fasgwlaidd Cymru wedi cael eu hasesu gan ddefnyddio meini prawf rhyngwladol am y tro cyntaf. Defnyddiwyd y data a dderbyniwyd gan y Botanical Society of the British Isles, a chan eraill, er mwyn amcangyfrif yn fanwl cyfradd dirywiad rhywogaethau a maint y poblogaethau sy'n weddill. Mae hyn wedi creu darlun cywir a chyfredol o gyflwr planhigion fasgwlaidd yng Nghymru. Oherwydd bod rhestr debyg (yn defnyddio meini prawf tebyg) wedi cael ei chreu ar gyfer Prydain yn 2005 mae modd cymharu'r fflora Cymreig a'r un Prydeinig.

Mae'r canlyniadau'n dangos bod 38 (2.6%) o'r 1467 o blanhigion fasgwlaidd brodorol ac archeofftig a gofnodwyd yng Nghymru wedi mynd i ddifancoll. Mae 256 (17.4%) dan fygythiad o ddiflannu'n gyfan gwbl, ac maen nhw un ai mewn Perygl Difrifol (3.4%), mewn Perygl (4.4%) neu'n Fregus (9.7%). Mae 28 (1.9%) o blanhigion eraill yn Agos at fod dan Fygythiad. Er bod mwy o blanhigion wedi mynd i ddifancoll yng Nghymru, o gymharu â Phrydain gyfan (1.0%), mae'r fflora Cymreig yn gwneud yn well, ar y cyfan, na'r fflora Prydeinig, lle mae 18.9% o blanhigion fasgwlaidd dan fygythiad.

Dyma'r dadansoddiad rhanbarthol cyntaf o'r bygythiadau sy'n wynebu unrhyw grŵp o rywogaethau ym Mhrydain ac mae'r canlyniadau wedi dylanwadu ar y dewis o flaenoriaethau ar gyfer cadwraeth yng Nghymru. Mae'r rhestr hefyd yn adnabod planhigion fasgwlaidd sydd ar ymyl eu hardal ddsbarthiad Prydeinig yma yng Nghymru, yn ogystal â phlanhigion endemig Cymreig a rhai sy'n agos at fod yn endemig yng Nghymru.

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This report is the first comprehensive analysis of decline using the updated IUCN criteria for an entire species group in Wales. It has brought to light a suite of species more threatened in Wales than in the rest of Great Britain, as well as species threatened in Great Britain but which are doing better in Wales. Wales has a responsibility to protect and conserve all these threatened species, and the findings of this study have been used to inform the selection of vascular plants that appear on Section 42 of the Natural Environment and Rural Communities Act (NERC) 2006 (*Habitats and species of principal importance in Wales*).

This report has been produced by Plantlife Wales with the support of the Wales Committee of the Botanical Society of the British Isles and the Countryside Council for Wales.

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I. Introduction

Following publication of *The Vascular Plant Red Data List for Great Britain* (Cheffings & Farrell, 2005) an assessment of threat using the same methodology applied to the Welsh flora became possible. As well as being an interesting scientific exercise, allowing a comparison of threat between species at Great Britain and country level, this project also provides scientifically robust data for the selection of priority species of conservation concern in Wales. This report also includes several lists, such as extinctions, that have never before been published for Wales.

This Welsh Vascular Plant Red Data List closely follows the GB Red Data List. It applies the same IUCN criteria in the same way and with the same thresholds, it includes the same taxa and implements the same 'Waiting List' method to identify taxa for which analysis is not yet possible. The principal difference is that the area under consideration is the country of Wales rather than Great Britain. Because of this, there are slight differences between the lists, such as the need to identify Regionally Extinct taxa (extinct in Wales but not in Great Britain) and the need to take into account the possibility for immigration of species from England into Wales.

As with *The Vascular Plant Red Data List for Great Britain* (Cheffings & Farrell, 2005), annual updates to this Welsh Red Data List will be made available electronically, based on either new data, additional data that is made available, or refined methods of analysing data. The updates may result in changes to threat status categories for certain taxa and these changes will supersede the status categories published here.

This report has been produced by Plantlife Wales, but would not have been possible without considerable help from the Vice-county Recorders of the Botanical Society of the British Isles in Wales and several staff of the Countryside Council for Wales.

2. Implementation of this Red Data List

One aim of this report is to assess the level of threat facing vascular plant species in Wales so that priorities can be identified within Wales for conservation action. However, Wales is a political, not biogeographic, area and this list should not be used in isolation without the *Vascular Plant Red Data List for Great Britain* (Cheffings & Farrell, 2005). Now that Red Data Lists exist for vascular plants in both Great Britain and Wales some guidance on how these lists should be used is needed, especially in view of the fact that many taxa have different levels of threat in each area.

Any taxon that is threatened (Critically Endangered, Endangered, Vulnerable or Near Threatened) in Great Britain (Cheffings & Farrell, 2005) should also be regarded as a priority for conservation in Wales, regardless of its threat status in Wales. The categories of threat given in Cheffings & Farrell (2005) are based on an assessment of national distribution and decline, and apply throughout the current range of each taxon in Great Britain.

If a taxon is less threatened in Wales than it is in Great Britain (it has a lower category of threat than in Great Britain or is even classified as Least Concern in Wales), the Welsh population must still be regarded as a critically important component of the GB population and deserves full protection in Wales with appropriate conservation measures. This is because it represents a part of the whole GB population that has more chance of surviving and recovering than the GB population as a whole. Should the GB population outside Wales continue to decline, the Welsh population will become increasingly important, again regardless of its status within Wales. Should the Welsh population begin to decline, the species will be regarded as even more threatened in the GB as a whole.

Taxa that are more threatened in Wales than they are in Great Britain should naturally be considered as priorities for conservation within Wales. The results of this Red Data List analysis have already been used to inform the selection of species on Section 42 of the Natural Environment and Rural Communities Act (NERC) 2006 (*Habitats and species of principal importance in Wales*).

The Botanical Society of the British Isles is currently compiling County Rare Plant Registers for Vice-counties in Wales. These should include records of all taxa regarded as threatened (Critically Endangered, Endangered, Vulnerable or Near Threatened) in either Wales or Great Britain.

3. Coverage

3.1 Taxonomic coverage

This Red Data List includes all vascular plants (pteridophytes, angiosperms and gymnosperms) that are native or archaeophyte to Wales. Neophytes are excluded, as are taxa that have only ever been recorded as casuals, such as the archaeophytes *Carum carvi* (Caraway), *Isatis tinctoria* (Woad) and *Chenopodium hybridum* (Maple-leaved Goosefoot). Species that are native to other parts of Great Britain but are alien in Wales, such as *Draba muralis* (Wall Whitlowgrass), *Polemonium caeruleum* (Jacob's-ladder) and *Ulex minor* (Dwarf Gorse) are also excluded.

Apomictic microspecies of *Hieracium* in Wales are included in the analysis, thanks to the work of Tim Rich (National Museum Wales). Those of *Taraxacum* and *Rubus* are currently excluded (a comprehensive treatment of *Taraxacum* at a GB level are included in the *Year 1 Amendments of the GB Red Data List*, Leach, 2007 & www.jncc.gov.uk), but it is hoped to include an analysis of these genera for Wales in the future.

The taxonomy of the Welsh list has been updated to follow the *Year 1 Amendments of the GB Red Data List* (Leach, 2007; www.jncc.gov.uk). Thus *Asparagus officinalis* subsp. *prostratus* now appears as *Asparagus prostratus*, *Cotoneaster intergerimus* as *C. cambicus* and *Lythrum hyssopifolium* as *L. hyssopifolia*. The only exception to this is *Chrysanthemum segetum*, which is not listed as *Xanthophthalmum segetum* as per the GB Red Data List because this unfamiliar name has not been widely accepted. Name changes given in the new BSBI Cyperaceae Handbook (Jermy *et al.* 2007), such as *Carex leporina* for *C. ovalis*, have also not been incorporated into the list because of their current unfamiliarity.

Following recent taxonomic work the numerous subspecies of *Limonium binervosum*, *L. britannicum* and *L. procerum*, as well as *L. paradoxum*, *L. parvum* and *L. transwallianum* have all been removed from the Waiting List and are now treated as *Limonium binervosum*.

3.2 Alien status

This analysis follows the alien status categories given to taxa in the *GB Red Data List*, with two exceptions. Firstly, following an assessment of its status in Britain (Twibell, 2007), *Artemisia campestris* subsp. *maritima* is included here as a native subspecies and the Crymlyn Burrows (Glamorgan) population is assessed as such. Secondly, because of the uncertainty over its status but the need to afford some protection to the species until this uncertainty is resolved, *Stachys alpina* is removed from the "Waiting List" and included in this Red Data List with an "Alien or Native" status.

Sisyrinchium bermudianum is included in two Welsh County Rare Plant Registers (Pryce, 1999 & Evans, 2007) and has been regarded as possibly native at some of its sites. This species was, however, being cultivated in Britain by 1732 (Aiton, 1789) and the very late date of its first record in the wild (around 1950 at Tywyn Burrows, Carmarthenshire) makes a native origin very unlikely for such a showy monocot. Its status as a neophyte therefore remains unchanged and it is not included in this analysis.

Limosella australis remains on the Waiting List following its reassessment as a possible alien by Jones (1991).

3.3 Hybrids

As with the *GB Red Data List*, some hybrids have been included within this analysis. The same five criteria for selection have been applied, namely that the parents are native, that the hybrid is not ephemeral, that there is more than one individual, that the hybrid reproduces vegetatively and that the hybrid is not part of a swarm between similar parents. All hybrids in Wales conforming to these criteria, and therefore of potential conservation concern, have been included.

Because of these criteria, not all hybrids occurring in Wales have been included in the list. However, it is hoped this can be done following completion of the BSBI Hybrid Project, and to then treat all hybrids occurring in Wales comprehensively.

It has been argued that although some hybrid swarms (e.g. those between *Dactylorhiza* and *Euphrasia* species) are of conservation concern, they are specifically excluded by the criteria. In such cases, it is important to identify the sites where such swarms occur and implement appropriate designation mechanisms to protect them. If site selection criteria do not cover hybrid swarms they should be modified to do so, or other mechanisms (such as Important Plant Areas) developed to do so.

3.4 Geographic coverage

This Red Data List covers the country of Wales, including the 13 Vice-counties of Monmouthshire, Glamorgan, Brecknockshire, Radnorshire, Carmarthenshire, Pembrokeshire, Cardiganshire, Montgomeryshire, Merionethshire, Caernarvonshire, Denbighshire, Flintshire and Anglesey.

When analysing *New Atlas* data for the decline statistics, 10-km squares sharing a border with England were included. Wherever possible, errors resulting from this (i.e. occurrences known to be only on the English side of a border square) have been addressed. While it remains likely that not all such errors have been identified, those remaining probably have little effect on overall decline statistics.

4. Data sources

As with the *GB Red Data List*, this analysis used data from the Vascular Plant Database (VPD) compiled for the *New Atlas of the British and Irish Flora* (Preston *et al.*, 2002). This allowed comparison of data collected in the period 1930-1969 for the first *Atlas of the British Flora* (Perrings & Walters, 1962) with those collected in 1987-1999 for the *New Atlas*. These data were used as a basis for the analysis of decline used in IUCN threat criterion A, which for the purpose of this study looks exclusively at levels of decline in distribution or area of occupancy (AOO).

Other IUCN criteria (B, C and D) examine the current number of sites, populations or individuals in the area being considered. Criteria B and C also require evidence of any ongoing decline. For these criteria, detailed up-to-date site data were sought from BSBI County Rare Plant Registers for Anglesey (Bonner, 2006), Carmarthenshire (Pryce, 1999), Ceredigion (Chater, 1997) and Monmouthshire (Evans, 2007), along with Registers in preparation for Flintshire, Caernarfonshire and Glamorgan, records published in the *BSBI Welsh Bulletin* since 2000 (numbers 68 to 80), staff of the Countryside Council for Wales and directly from all BSBI Vice-county Recorders. In such cases, the most recent record was sought for each site, along with population information and a judgement of whether any population decline is underway based on recent records (1987-2007). IUCN threat categories for criteria B, C and D in this study are therefore based on the most up-to-date and detailed information available; for criterion A (hectad and AOO decline) only records up to 1999 are used. The judgement of site population decline is perhaps the most difficult to assess given the paucity of monitoring data for many taxa and there is much room for improved monitoring of many taxa. Some taxa may have been allocated a lower category of threat (based on population size alone) because monitoring data is not available.

5. Application of IUCN criteria

5.1 IUCN categories at the regional level

The standard IUCN Red Data List Categories (IUCN 2001) are used with the following modifications to take account of the regional nature of this analysis:

1. Taxa extinct within the region but extant in other parts of the world are classified as *Regionally Extinct* (RE). A taxon is RE when there is no reasonable doubt that the last individual in the region has died. In this report, taxa extinct in Great Britain as a whole are classified as EX, while those extinct in Wales but still present elsewhere in Great Britain are classified as RE. The list of extinctions for Wales therefore includes both EX and RE taxa.
2. Taxa that are (or have been) present in Wales but are not eligible for assessment at the regional level are assigned the category *Not Assessed* (NA) and are listed in Section 9. These are mainly taxa that are native to some part of Great Britain but are alien in Wales, and also taxa that only occur as casuals in Wales.

5.2 Treating Wales as a region

Considerable guidance is given by IUCN (2003) regarding the application of standard IUCN criteria and categories (IUCN, 2001) to a region (defined as any subglobal geographically defined area, such as a continent, country, state, or province). Provided that the regional population being assessed is isolated from conspecific populations outside the region, the IUCN Red Data List Criteria (IUCN 2001) can be used without modification within any geographically defined area.

However, when the criteria are applied to part of a population defined by a geopolitical border, as in the case of Wales sharing a border with England, the threshold values listed under each criterion may be inappropriate because the unit being assessed is not the same as the whole population or subpopulation. As a result, the estimate of extinction risk may be inaccurate.

In order to take this into account, we need to ask whether the Welsh population experiences any significant immigration of viable propagules from England (Figure 1). If not (or if it is unknown), there is no change in the Welsh IUCN category. If, however, it is known that viable propagules are entering Wales from England, the Welsh IUCN category is downgraded by one level provided that the GB population is stable or increasing. If the GB population is decreasing, though, the Welsh IUCN category remains the same (further modification of the category can take place if the Welsh population is acting as a sink, but it has not been possible to determine this).

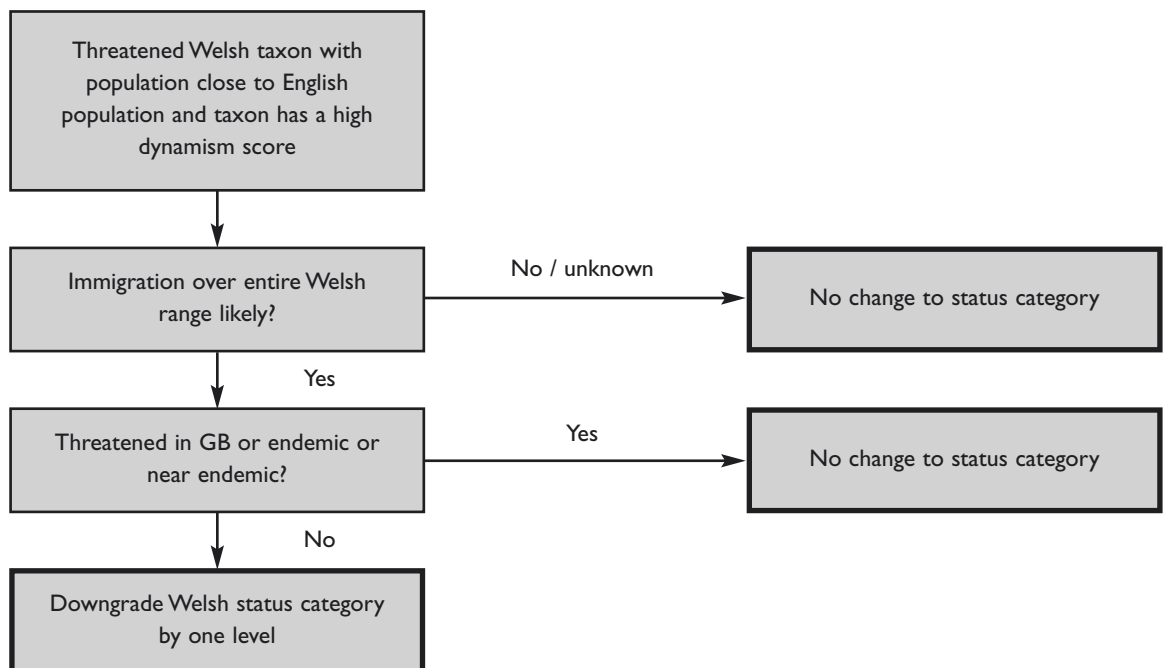


Figure 1. Chart used to determine whether any changes to the Welsh threat category were necessary due to potential immigration from England (adapted from IUCN, 2003).

The level of propagule immigration is almost impossible to assess. However, an attempt has been made to determine how likely immigration is by a consideration of the proximity of threatened Welsh taxa to English populations and their Dynamism Score (Preston *et al.*, 2003). This latter is a measure of how mobile a species is – a score of 5 indicates a highly dynamic species while species scoring 1 are largely sedentary. It must be noted that dynamism may result from a substantial turnover of range, a marked expansion of range or by a contraction in range. While not a measure of propagule dispersion, if interpreted with care, dynamism can indicate which taxa are more likely to immigrate.

Immigration was considered for the entire Welsh range of a taxon. In cases where disjunct populations exist, such as *Callitriche hermaphroditica* occurring on both the Welsh border and on Anglesey, immigration was considered unlikely to replace the Anglesey populations. The biology of each species was also taken into account; large-seeded species of restricted or fragmented habitats, for example, are less likely to immigrate than wind-dispersed opportunistic species with small seed.

The threat category of threatened Welsh taxa with a high dynamism score and for which the entire population is close to English populations may therefore be downgraded by one category if the GB population is Least Concern. If, however, the GB population is threatened the Welsh IUCN category remains unaltered. Taxa for which such changes have been applied are noted in the list.

5.3 IUCN categories in Wales

Apart from the modifications given in sections 5.1 and 5.2 above, the standard IUCN categories and criteria (IUCN, 2001) have been used to produce this Red Data List. This means that the same thresholds used to determine categories in the GB Red Data List have been used for Wales, and the lists are therefore directly comparable. Because of this, a detailed treatment of how each criterion was applied is not reproduced here, but readers are referred to the *GB Red Data List* (2005) for further information. Table 1, however, gives a brief summary of the categories and criteria used here.

Threat Category	Criterion	Thresholds
EX Extinct		Extinct in Great Britain (but was present in Wales)
RE Regionally extinct		Extinct in Wales but still present elsewhere in Great Britain
EW Extinct in the wild		Extinct in Great Britain (was present in Wales) but still present in cultivation
CR Critically Endangered	A	AOO trend or Hectad trend > 80% decline
	B	1 location + continuing decline
	C	<250 individuals + continuing decline
	D	< 50 individuals
EN Endangered	A	AOO trend or Hectad trend > 50% decline
	B	5 locations + continuing decline
	C	< 2,500 individuals + continuing decline
	D	< 250 individuals
VU Vulnerable	A	AOO trend or Hectad trend > 30% decline
	B	10 locations + continuing decline
	C	< 10,000 individuals + continuing decline
	D1	< 1,000 individuals
	D2	< 5 locations
NT Near Threatened	A	AOO trend or Hectad trend > 20% decline
	B	30 locations + continuing decline
	D	< 10,000 individuals
LC Least concern		No threat to taxon
DD Data deficient		Threat suspected but there is insufficient data for analysis
WL Waiting list		Inadequate data, taxonomic uncertainties or uncertainties over native or archaeophyte status means no assessment can be made.

Table 1. IUCN Categories and criteria used in the Welsh Red Data List. In essence, criterion A looks at decline in hectads or area of occupation, criterion B deals with declining taxa that occur in a small number of sites, criterion C also deals with declining taxa but those that have a small number of individuals, and criterion D looks at those taxa in a small number of sites or with few individuals that are not necessarily declining. A taxon may qualify as threatened or near threatened on one or more criteria.

5.4 Limitations of the analysis

While considerable efforts have been made to compile and use the best available data for this analysis, two factors are effective in compromising the application of IUCN criteria in Wales.

For Criterion A, *The GB Red Data List* (Cheffings & Farrell, 2005) used data from 2,851 hectads (10-km squares) for the analysis of AOO, EOO and hectad decline. This number of hectads allowed a fairly robust analysis, as each unit represents 0.035% of the total area under consideration. In Wales, however, the same scale of data has been used, with 285 hectads being included in the analysis. Each unit therefore represents 0.35% of the area. This makes the analysis much more sensitive and less reliable. As a result, more caution has been applied and the A criterion has only been used with species that have been recorded from more than 10 hectads. In addition, Extent of Occupation (EOO) looks at changes in a range of a species and is a relatively complicated analysis to perform; it was felt inappropriate to do this analysis on such a small area as Wales and it has not been included. It is hoped that, with more tetrad (2km square) data becoming available across the country, criterion A can be applied at this scale in the future.

The second limitation is in the Near Threatened category. Emphasis in this report has been placed on determining which taxa in Wales are Critically Endangered, Endangered or Vulnerable. Data has therefore not been specifically sought on those taxa that are found in fewer than 30 sites and are declining (criterion B) or have a population under 10,000 (criterion D). For this reason the Near Threatened category is under-represented. Some interesting and important taxa may qualify as Near Threatened, such as *Eleocharis acicularis*, *Thelypteris palustris* and *Alisma lanceolata*. This shortcoming will be addressed in future updates to the Wales Red Data List.

6. Explanation of the Wales Red Data List

The columns that appear in the Vascular Plant Red Data List for Wales (Section 8) are described below.

6.1 Species information

Taxonomy of the Wales Red Data List (as given in the **Taxon** column) follows that of the *New Atlas of the British and Irish Flora* (Preston *et al.*, 2002) with appropriate updates as given in the GB Red Data List (Cheffings & Farrell, 2005) and the *Year 1 Amendments* (Leach, 2007).

The threat category of the species in Great Britain is given in the **GB Red List** column, and follows Cheffings & Farrell (2005) and the *Year 1 Amendments* (Leach, 2007). The threat category for Wales is given in the **Wales Red List** column. Blanks in either of these columns indicate that the taxon has been assessed as Least Concern (LC) for that area.

The native or alien status of each taxon in Britain (and therefore also Wales) is given in the **Native/alien status** column, and designations follow Preston *et al.* (2002) and the *Year 1 Amendments* (Leach, 2007). A blank indicates a native taxon, archaeophytes are indicated by "Arch", and "NA" indicates a taxon that may be native or alien in Great Britain. Neophytes and taxa not native to Wales are excluded from the list (see section 9).

6.2 National responsibility and edge of range

An assessment has been made of what proportion of the British distribution of each taxon is found within Wales. This has been done using the number of hectads for which there are modern records in the *New Atlas* (Preston *et al.*, 2002). Although crude, this does provide an indication of how much of the GB resource is located within Wales. More detailed assessments have been made in the rare cases where site population data exist for all sites across Great Britain. For taxa with more than 25% of the GB distribution in Wales (and for which Wales therefore has a national responsibility) the percentage is given in the **Prop of GB population** column.

Taxa that reach the edge of their British range in Wales are identified in the **Edge of GB range?** column. The edge of range in question is indicated by "N", "S", "E" and "W", where "S" indicates that the taxon reaches its southern limit in Wales, etc. Two letters are used to indicate two edges of a range – "NW" for example means that the edges of a northern and a western range are reached in Wales, rather than the north-west edge of a range.

6.3 Welsh endemics and near endemics

For the purpose of this study, an *endemic* taxon is one whose entire global native range lies within Wales (**Endemic to Wales?** column). A *near endemic* is one whose entire global native range lies within an area comprising Great Britain, the Channel Islands, the Isle of Man and the Republic of Ireland (**Wales Near Endemic?** column).

These classifications were determined using data from the *GB Red Data List* (Cheffings & Farrell, 2005), the *New Atlas* (Preston *et al.* 2002) and other published sources for particular species (e.g. Rich & Houston, 2006).

6.4 Wales Red Data List categories, criteria and justification

The IUCN category (as defined in section 5.3 above) for Wales is given in the **Wales Red List** column (note that blanks indicate an assessment of Least Concern). The criteria under which each threatened taxon qualifies is given in the **Criteria** column. For details on how the categories CR (Critically Endangered), EN (Endangered), VU (Vulnerable) and NT (Near Threatened) were applied and the criteria used, see Cheffings & Farrell (2005, pp 18-22).

The number of extant locations in Wales is provided in the **Locations** column. Locations are assumed to be extant if they have been recorded in or since 1987 and have not since been reported as extinct. In line with IUCN guidelines, a location is defined as “a geographically or ecologically distinct area in which a single threatening event can rapidly affect all individuals of the taxon present”. This is not quite the same as “sites” in the traditional botanical sense. Wherever possible we have defined locations as “management units”, areas under the same management that may be threatened by changes in that management.

The number of extant individuals in Wales is given (**Individuals** column) based on data as supplied by Vice-county Recorders. Recording individuals in plant populations is highly problematic; for many species it is impossible to separate individuals in a population, for others counts are of flowering spikes rather than individuals, whilst others are usually recorded by square-metre coverage. While this makes interpretation difficult, the population data collected has been used with care and the thresholds between categories applied as stringently as possible.

Continuing decline of a taxon at its sites in Wales (**Ongoing decline?** column) has been assessed primarily from direct observations of locations, populations and individuals from Vice-county Recorder records and comments, rather than using the hectad and AOO decline statistics. This is because these latter decline statistics only take account of trends up to 1999, while Vice-county Recorder records often date to 2005 and 2006. This not only makes the assessment more up-to-date but also takes into account details of small-scale population variability over time. A continuing decline in the total Welsh population is assumed if any population is reported as declining and this trend is not being balanced by other populations increasing.

6.5 Modification of Wales Red Data List categories

The modification of IUCN categories in Wales to take account of possible immigration from England (as described in section 5.2 above) is dealt with in three columns. For all threatened taxa, an assessment is made of the probability that the entire Welsh range could be replaced by immigration from England (**Immigration likely?** column). This is based on each species' ecology, its proximity to England and how dynamic the GB population is. The **Dynamism score** (Preston *et al.*, 2003) ranges from 5 for highly dynamic species whose distributions change rapidly, to 1 for sedentary species whose distributions remain largely static over time.

Taking these considerations into account, the IUCN category may have been modified according to Figure 1 (Section 5.2). If a modification has been made ("Yes" in the **Category modified?** column) the modified category is given in the main Wales Red List column and a note in the **Comments** column indicates what the original category was. This latter column also includes other notes and observations relevant to the taxon in Wales.

7. Analysis

7.1 Comparison of Welsh and GB Red Data Lists

When drawing comparisons between taxa on the Welsh and GB Red Data Lists it is important to remember that identical criteria were used in their selection. Obviously, a much smaller area was under consideration (Wales being only 10% of the size of Great Britain) so it is not surprising that the proportion of taxa in each threat category in each area is so dissimilar (Table 2 and Figures 2 & 3).

	Great Britain		Wales	
	No. of taxa	% of total	No. of taxa	% of total
Extinct (EX+EW+RE)	18	1.0	38	2.6
Critically Endangered (CR)	32	1.9	50	3.4
Endangered (EN)	82	4.7	64	4.4
Vulnerable (VU)	213	12.3	142	9.7
Near Threatened (NT)	95	5.5	28	1.9
Data Deficient (DD)	39	2.3	18	1.2
Least Concern (LC)	1248	72.3	1127	76.8
Total	1727		1467	

Table 2. Number and proportion of taxa in each Red Data List category in Great Britain and Wales. Microspecies of *Hieraceum* and taxa on Waiting Lists are excluded.

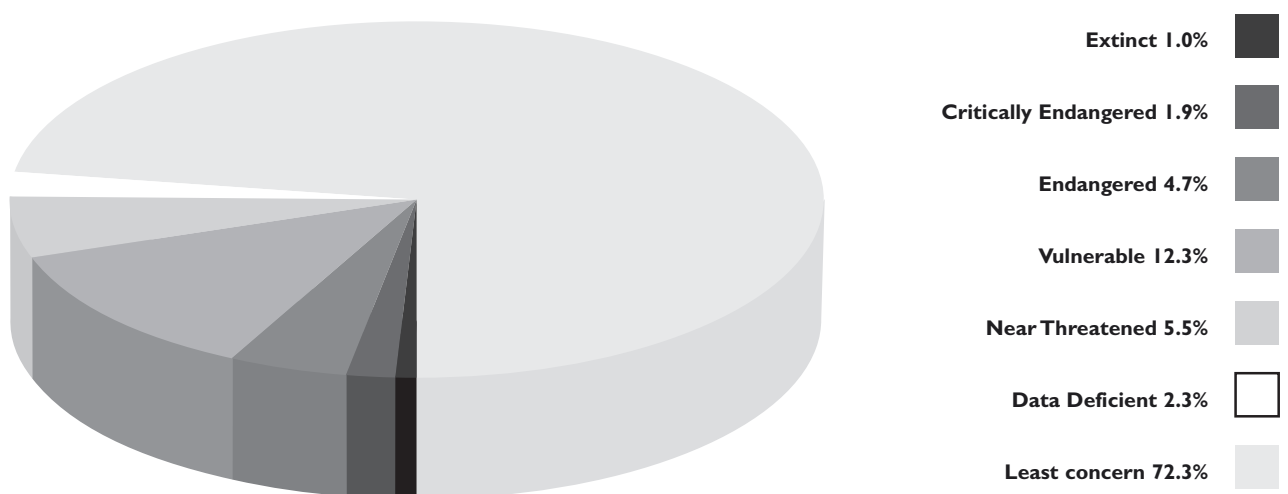


Figure 2. The proportion of taxa in each IUCN category in Great Britain (following Cheffings & Farrell, 2003).

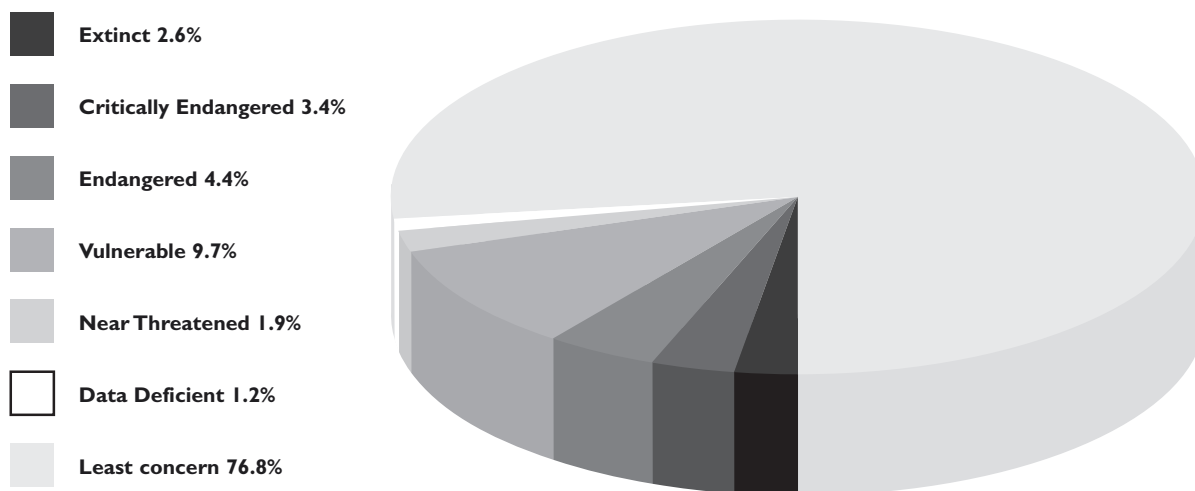


Figure 3. The proportion of taxa in each IUCN category in Wales (Extinct includes both EX and RE taxa).

There is in fact a remarkable dissimilarity between the threat categories of the taxa on each list. Just 34 taxa have the same threat category in both Wales and Great Britain (7 Critically Endangered, 5 Endangered and 22 Vulnerable), while just 6 are Near Threatened on both lists. Of course, most taxa are not threatened, and 1,074 are categorised as being Least Concern on both lists.

The dissimilarity between threat categories is perhaps to be expected when comparing a larger area to a smaller one using the same IUCN criteria. Criteria B, C and D are all based on the number of sites or individuals within the area under consideration, and so the taxa selected will obviously be different. Of perhaps more interest are those taxa that qualify under criterion A (decline) in each area, as these will indicate different rates of decline in these areas (see sections 7.3 and 7.4 for more on this).

The most significant discrepancies between Great Britain and Wales are in the Near Threatened, Critically Endangered, Vulnerable and Extinct categories. For a detailed treatment of the Extinct category see section 7.2 below. The lack of Near Threatened taxa on the Welsh list is perhaps explainable by the fact that site data for this category (less than 30 sites) was not sought from Vice-county Recorders (only data on taxa in less than 10 sites was sought for the Vulnerable, Endangered and Critically Endangered categories). This issue will be addressed in future editions of this Red Data List. Conversely to this, however, a focus on collecting site details for rarer species (found in five or fewer sites) may explain the higher proportion of Critically Endangered taxa in Wales, although this ought to have had a similar effect on the proportion of Vulnerable taxa too. It might be that the figures are a genuine reflection of reality; the number of taxa whose GB ranges just creep into Wales and are therefore regarded as very threatened (e.g. *Arum italicum* subsp. *neglectum*) may bolster this category, as will the high number of endemic *Sorbus* and *Hieracium* taxa that are included – the majority of Critically Endangered taxa on the list are selected using Criterion D (less than 50 plants).

7.2 Taxa extinct in Wales

The higher proportion of extinct taxa (EX+RE+EW) in Wales than in Great Britain (2.6% as opposed to 1.0% for GB, see Table 2) is to be expected. There will always be a higher rate of extinction at the local site level long before extinctions become apparent from larger areas; extinctions are frequent locally, less frequent from Vice-counties and are relatively rare nationally. Welsh Vice-counties have on average lost 50 taxa (using records available from seven Welsh County Rare Plant Registers). The figure of 38 extinctions for Wales fits neatly between this County average for Wales and the GB total of eighteen. Table 3 gives the list of extinctions for Wales with the Vice-county, and the last year that each taxon was recorded.

GB Red List	Taxon	Wales Red List	Year last recorded	Vice-county last recorded	Main habitat in Wales
EN	<i>Adonis annua</i>	RE	1926	Flints	Arable
	<i>Anagallis arvensis</i> subsp. <i>foemina</i>	RE	1962	Glam	Arable
EN	<i>Campanula rapunculus</i>	RE	By 1970	Anglesey	Roadside verges
EN	<i>Carex depauperata</i>	RE	1967	Anglesey	Woodland
CR	<i>Chenopodium urbicum</i>	RE	1950	Caerns	Ruderal
EN	<i>Chenopodium vulvaria</i>	RE	By 1975	Mons	Ruderal
EN	<i>Crepis mollis</i>	RE	1909	Denbs	Upland streamside
	<i>Eryngium campestre</i>	RE	1974	Glam	Ruderal
EX	<i>Euphorbia pepelis</i>	EX	By 1841	Glam	Coastal shingle
VU	<i>Fallopia dumetorum</i>	RE	By 1970	Caerns	Woodland edge
	<i>Fumaria densiflora</i>	RE	1917	Caerns	Arable
EX	<i>Galeopsis segetum</i>	EX	1975	Caerns	Arable
CR	<i>Galium tricornutum</i>	RE	1932	Glam	Arable
	<i>Geranium purpureum</i>	RE	1934	Carms	Hedgerow
VU	<i>Herminium monorchis</i>	RE	1968	Glam	Base-rich grassland
	<i>Hieracium cambricogothicum</i>	EX	By 2006	Caerns	
	<i>Hieracium elevatum</i>	EX	1953	Brecks	
	<i>Lathyrus japonicus</i>	RE	1979	Caerns	Coastal shingle
EN	<i>Lithospermum arvense</i>	RE	1968	Carms	Arable
CR	<i>Lolium temulentum</i>	RE	1986	Carms	Arable
	<i>Lycopodium annotinum</i>	RE	By 1895	Caerns	Upland grassland
EN	<i>Melampyrum sylvaticum</i>	RE	1864	Caerns	Rocky woodland
NT	<i>Mertensia maritime</i>	RE	1989	Denbs	Coastal shingle
	<i>Ophrys sphegodes</i>	RE	1891	Denbs	Base-rich grassland
	<i>Orobancha elatior</i>	RE	1961	Glam	Limestone cliffs
EX	<i>Otanthus maritima</i>	EX	By 1800	Caerns	Sand dunes and shingle
NT	<i>Peucedanum ostruthium</i>	RE	By 1970		Damp grassland
	<i>Potamogeton berchtoldii</i> x <i>coloratus</i> (<i>P. x lanceolatus</i>)	EX	1968	Anglesey	River
	<i>Potamogeton crispus</i> x <i>friesii</i> (<i>P. x lintonii</i>)	RE	1941	Monts	Freshwater
	<i>Potamogeton crispus</i> x <i>praelongus</i> (<i>P. x undulatus</i>)	EX	1945	Rads	Lake
	<i>Potamogeton filiformis</i>	RE	1826	Anglesey	Lakes
VU	<i>Puccinellia fasciculata</i>	RE	c.1950	Carms	Coastal dunes
EW	<i>Saxifraga rosacea</i> subsp. <i>rosacea</i>	EW	1970	Caerns	Upland rocks
	<i>Scilla autumnalis</i>	RE	c.1876	Glam	Grassy sea-cliffs
	<i>Sesleria caerulea</i>	RE	1956	Flints	Base-rich grassland
	<i>Thesium humifusum</i>	RE	1916	Flints	Base-rich grassland
EN	<i>Torilis arvensis</i>	RE	1977	Carms	Arable
	<i>Trifolium suffocatum</i>	RE	1926	Anglesey	Thin, dry grassland

Table 3. (above) The 38 taxa that have become extinct in Wales, along with the Vice-county, and the last year that each taxon was recorded, and their Red Data List status in Great Britain and Wales. Extinct (EX) taxa have been lost from the GB and Welsh flora, Regionally Extinct (RE) taxa have been lost from Wales but occur elsewhere in GB. The single Extinct-in-the-Wild taxon (EW), *Saxifraga rosacea* subsp. *rosacea* has never been refound in the wild but still remains in cultivation.

In a pattern that reflects the national picture, arable species are the largest single group that have been lost from Wales, with 8 (21%) of the 38 extinctions being typical of cultivated fields. Although Wales is not now an arable country (it has an area of approximately 60,000 ha of arable land, Jones *et al.* 2003), this is no surprise as it was much more so in the past. Five species on the list grew in base-rich habitats and it is interesting to note that most of these are typical of low-nutrient grasslands (most have an Ellenberg-N value of 2 or 3). Five other species on the list grow on coastal shingle or dunes. Note also the relative lack of arctic-alpine species on the list.

Between 1800 and 1980 there was a remarkable increase in the rate of species extinction in Wales (Figure 4), culminating in a peak in the period 1961-1980 when 15 species were recorded for the last time. Although this needs to be treated with a certain amount of caution (the precise dates at which some species were lost is unknown, and this may be a cumulative effect of national Atlas recording periods rather than actual dates of losses), the trend is clear even when these uncertainties are removed. The period 1961-1980 coincides with the greatest period of agricultural intensification in Britain (Robinson & Sutherland, 2002) and it is again no surprise that most of the arable and ruderal species that have become extinct in Wales were lost during this time. The relative lack of extinctions since 1980 may reflect a greater awareness of the need for and effort towards species conservation.

Interestingly, the most recent losses (apart from *Hieracium cambricogothicum* that may have become extinct long ago but whose sites have only recently been resurveyed) are of another arable species (*Lolium temulentum*), behaving now as a casual, and of *Mertensia maritima*. This latter appears to have been a victim of a combination of factors including storm damage, vehicle use on the shingle beach and our ameliorating climate. The germination of this European Boreo-arctic Montane species is dependent on winter temperature and duration (Scott, 1963) and seedlings only appeared in quantity at its last Welsh location following hard winters (Green, pers comm.).

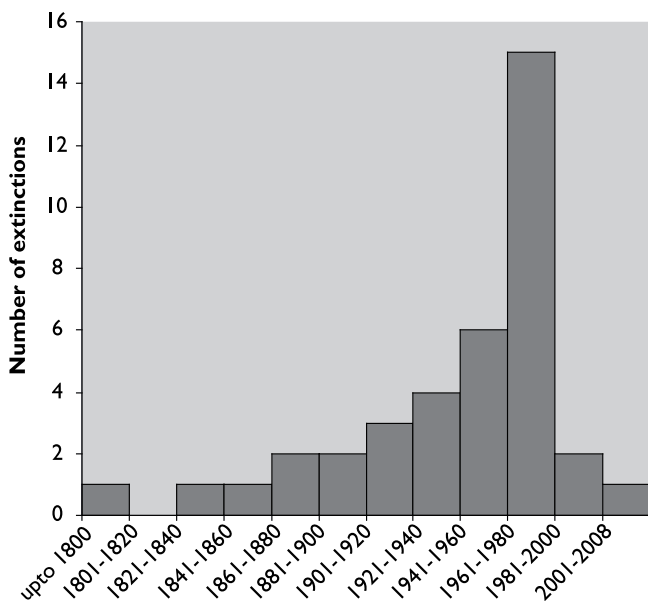


Figure 4. Rates of species extinction in Wales.

7.3 Taxa “doing better” in Wales

Because identical IUCN threat criteria have been used to identify threatened taxa in both Great Britain and Wales, we can compare the two floras directly to see how various taxa are fairing. Some are “doing better” in Wales (in other words, they are less threatened in Wales than they are in Great Britain), while others are “doing worse” (they are more threatened in Wales than Great Britain).

As you would expect when comparing a smaller area with a larger one, there are only a few taxa that are doing better in Wales (Table 4).

Taxon	GB Red List	Wales Red List	Taxon	GB Red List	Wales Red List
<i>Sorbus domestica</i>	CR	EN	<i>Viola lactea</i>	VU	LC
<i>Dianthus armeria</i>	EN	VU	<i>Wolffia arrhiza</i>	VU	LC
<i>Euphrasia anglica</i>	EN	VU	<i>Zostera noltei</i>	VU	LC
<i>Euphrasia pseudokernerii</i>	EN	VU	<i>Anacamptis morio</i>	NT	LC
<i>Lycopodiella inundata</i>	EN	VU	<i>Asplenium obovatum</i>	NT	LC
<i>Potamogeton compressus</i>	EN	VU	<i>Asplenium septentrionale</i>	NT	LC
<i>Silene gallica</i>	EN	VU	<i>Baldellia ranunculoides</i>	NT	LC
<i>Monotropa hypopitys</i> & both subsp.	EN	LC	<i>Baldellia ranunculoides</i> subsp. <i>ranunculoides</i>	NT	LC
<i>Ranunculus tripartitus</i>	EN	LC	<i>Cardamine impatiens</i>	NT	LC
<i>Scleranthus annuus</i> & subsp. <i>annuus</i>	EN	LC	<i>Carex diandra</i>	NT	LC
<i>Bromus secalinus</i>	VU	NT	<i>Colchicum autumnale</i>	NT	LC
<i>Hydrocharis morsus-ranae</i>	VU	NT	<i>Cynoglossum officinale</i>	NT	LC
<i>Spergula arvensis</i>	VU	NT	<i>Cyperus longus</i>	NT	LC
<i>Bupleurum tenuissimum</i>	VU	LC	<i>Cytisus scoparius</i> subsp. <i>maritimus</i>	NT	LC
<i>Chenopodium bonus-henricus</i>	VU	LC	<i>Genista anglica</i>	NT	LC
<i>Chrysanthemum segetum</i>	VU	LC	<i>Hymenophyllum wilsonii</i>	NT	LC
<i>Cicendia filiformis</i>	VU	LC	<i>Hypericum montanum</i>	NT	LC
<i>Euphrasia rostkoviana</i> subsp. <i>rostkoviana</i>	VU	LC	<i>Neottia nidus-avis</i>	NT	LC
<i>Hordeum marinum</i>	VU	LC	<i>Orobanche rapum-genistae</i>	NT	LC
<i>Hyoscyamus niger</i>	VU	LC	<i>Pilularia globulifera</i>	NT	LC
<i>Hypochaeris glabra</i>	VU	LC	<i>Platanthera chlorantha</i>	NT	LC
<i>Matthiola sinuata</i>	VU	LC	<i>Radiola linoidea</i>	NT	LC
<i>Misopates orontium</i>	VU	LC	<i>Sorbus anglica</i>	NT	LC
<i>Oenanthe fistulosa</i>	VU	LC	<i>Spiranthes spiralis</i>	NT	LC
<i>Persicaria minor</i>	VU	LC	<i>Teesdalia nudicaulis</i>	NT	LC
<i>Platanthera bifolia</i>	VU	LC	<i>Tuberaria guttata</i>	NT	LC
<i>Poa glauca</i>	VU	LC	<i>Vicia orobus</i>	NT	LC
<i>Polystichum lonchitis</i>	VU	LC	<i>Viola canina</i> & subsp. <i>canina</i>	NT	LC
<i>Salsola kali</i> subsp. <i>kali</i>	VU	LC	<i>Wahlenbergia hederacea</i>	NT	LC
<i>Saxifraga hypnoides</i>	VU	LC	<i>Zostera marina</i>	NT	LC

Table 4. The 60 taxa that are “doing better” in Wales compared to Great Britain, arranged by decreasing GB threat category. Taxa are included if they are threatened (CR, EN, VU) or near threatened (NT) in GB, but have a lower threat category or are least concern (LC) in Wales.

Care is needed when interpreting these comparisons as some taxa qualify under different criteria in each area. *Dianthus armeria*, for example, is Endangered in Great Britain due to a decline of 50-80% (criterion A). In Wales, however it qualifies as Vulnerable under criterion D, with five or fewer sites.

As mentioned in section 7.1, those taxa that qualify under criterion A (decline) in both areas but have different threat categories are interesting as they indicate unequal rates of decline. *Silene gallica*, for example, qualifies as threatened under criterion A in both Great Britain and Wales, but is Endangered (50-80% decline) in the former and Vulnerable (30-50% decline) in the latter. An examination of the map of this species in the *New Atlas* (Preston *et al.* 2002) clearly shows this to be the case. Similarly, the decline of *Monotropa hypopitys* in Great Britain (50-80%) is not mirrored in Wales, where it is Least Concern; while there has been some decline it is not of a sufficient magnitude for it to qualify as threatened. This is true of many of the GB Vulnerable and almost all of the GB Near Threatened taxa in Table 4.

7.4 Taxa “doing worse” in Wales

The taxa that are more threatened in Wales than they are in Great Britain are listed in Table 5. Because Wales is a smaller area than Great Britain, many taxa are naturally more threatened than they are in GB under criteria B, C and D (limited number of individuals or populations). In Wales, small populations exist of species that are widespread in Britain, and the categorisation of some of these as highly threatened can be surprising. Examples include *Oenanthe pimpinelloides* (1 plant in Wales), *Atropa belladonna* (c. 10 plants in Wales) and *Geranium sylvaticum* (less than 30 plants). A large number of the taxa in Table 5 that are LC in GB but threatened in Wales qualify for the latter under criterion D (less than 5 sites).

Comparisons again have to be made with some caution if taxa are qualifying under different criteria in each area. *Cephalanthera longifolia*, for example, is Vulnerable in GB under criterion A (decline in area), but is Endangered in Wales due to the small number of plants (c. 210). Similarly, *Pseudorchis albida* is VU in GB because of the decline in its area (criterion A), but is Critically Endangered in Wales because there are very few sites and the decline at these is ongoing (criteria C and D).

Again, of most interest are those taxa that are more threatened in Wales due to a higher level of decline under criterion A. Examples are *Gnaphalium sylvaticum* (EN in GB but CR in Wales), *Chamaemelum nobile* (VU in GB but EN in Wales), *Gentianella campestris* (VU in GB but EN in Wales), *Melittis melissophyllum* (VU in GB but EN in Wales) and *Anagallis minima* (NT in GB but VU in Wales).

Taxon	GB Red List	Wales Red List
<i>Asparagus prostratus</i>	EN	CR
<i>Campanula patula</i>	EN	CR
<i>Gnaphalium sylvaticum</i>	EN	CR
<i>Liparis loeselii</i>	EN	CR
<i>Mentha pulegium</i>	EN	CR
<i>Neotinea ustulata</i>	EN	CR
<i>Potentilla rupestris</i>	EN	CR
<i>Saxifraga cespitosa</i>	EN	CR
<i>Sorbus eminens</i>	EN	CR
<i>Valerianella rimosa</i>	EN	CR
<i>Woodsia ilvensis</i>	EN	CR
<i>Cerastium alpinum</i>	VU	CR
<i>Daphne mezereum</i>	VU	CR
<i>Orobancha purpurea</i>	VU	CR
<i>Pseudorchis albida</i>	VU	CR
<i>Trifolium strictum</i>	VU	CR
<i>Arabis petraea</i>	VU	EN
<i>Carex divisa</i>	VU	EN
<i>Cephalanthera longifolia</i>	VU	EN
<i>Chamaemelum nobile</i>	VU	EN
<i>Chenopodium murale</i>	VU	EN
<i>Dactylorhiza viridis</i>	VU	EN
<i>Euphrasia cambrica</i>	VU	EN
<i>Euphrasia rivularis</i>	VU	EN
<i>Gentianella campestris</i>	VU	EN
<i>Juncus capitatus</i>	VU	EN
<i>Melittis melissophyllum</i>	VU	EN
<i>Myosurus minimus</i>	VU	EN
<i>Papaver argemone</i>	VU	EN
<i>Silene noctiflora</i>	VU	EN
<i>Vicia bithynica</i>	VU	EN
<i>Arum italicum</i> subsp. <i>neglectum</i>	NT	CR
<i>Carex muricata</i> subsp. <i>muricata</i>	NT	CR
<i>Cerastium arcticum</i>	NT	CR
<i>Potamogeton praelongus</i>	NT	CR
<i>Rosa agrestis</i>	NT	CR
<i>Salvia pratensis</i>	NT	CR
<i>Senecio cambrensis</i>	NT	CR
<i>Veronica serpyllifolia</i> subsp. <i>humifusa</i>	NT	CR
<i>Woodsia alpina</i>	NT	CR
<i>Asplenium trichomanes</i> subsp. <i>pachyrachis</i>	NT	EN
<i>Hypochaeris maculata</i>	NT	EN
<i>Juncus compressus</i>	NT	EN
<i>Anagallis minima</i>	NT	VU
<i>Cirsium tuberosum</i>	NT	VU
<i>Drosera anglica</i>	NT	VU
<i>Eriophorum gracile</i>	NT	VU
<i>Filago vulgaris</i>	NT	VU
<i>Frankenia laevis</i>	NT	VU
<i>Genista pilosa</i>	NT	VU
<i>Hypericum linariifolium</i>	NT	VU
<i>Lathyrus palustris</i>	NT	VU
<i>Lychnis viscaria</i>	NT	VU
<i>Meum athamanticum</i>	NT	VU
<i>Minuartia verna</i>	NT	VU

Taxon	GB Red List	Wales Red List
<i>Dryas octopetala</i>	LC	EN
<i>Epipactis atrorubens</i>	LC	EN
<i>Euphorbia platyphyllos</i>	LC	EN
<i>Gagea lutea</i>	LC	EN
<i>Hammarbya paludosa</i>	LC	EN
<i>Impatiens noli-tangere</i>	LC	EN
<i>Juncus triglumis</i>	LC	EN
<i>Lithospermum purpureocaeruleum</i>	LC	EN
<i>Orthilia secunda</i>	LC	EN
<i>Papaver hybridum</i>	LC	EN
<i>Pinguicula lusitanica</i>	LC	EN
<i>Poa alpina</i>	LC	EN
<i>Potamogeton lucens</i>	LC	EN
<i>Potentilla crantzii</i>	LC	EN
<i>Pyrola minor</i>	LC	EN
<i>Rumex palustris</i>	LC	EN
<i>Rumex pulcher</i>	LC	EN
<i>Ruppia maritima</i>	LC	EN
<i>Saussurea alpina</i>	LC	EN
<i>Saxifraga nivalis</i>	LC	EN
<i>Subularia aquatica</i>	LC	EN
<i>Valerianella eriocarpa</i>	LC	EN
<i>Allium ampeloprasum</i>	LC	VU
<i>Aster linosyris</i>	LC	VU
<i>Blysmus rufus</i>	LC	VU
<i>Bromopsis benekenii</i>	LC	VU
<i>Butomus umbellatus</i>	LC	VU
<i>Calamagrostis canescens</i>	LC	VU
<i>Callitriche hermaphroditica</i>	LC	VU
<i>Carex capillaris</i>	LC	VU
<i>Ceratophyllum submersum</i>	LC	VU
<i>Coincya monensis</i> subsp. <i>monensis</i>	LC	VU
<i>Deschampsia setacea</i>	LC	VU
<i>Drosera intermedia</i>	LC	VU
<i>Eleocharis parvula</i>	LC	VU
<i>Empetrum nigrum</i> subsp. <i>hermaphroditum</i>	LC	VU
<i>Epipactis phyllanthes</i>	LC	VU
<i>Festuca rubra</i> subsp. <i>arctica</i>	LC	VU
<i>Gaudinia fragilis</i>	LC	VU
<i>Gentiana pneumonanthe</i>	LC	VU
<i>Gymnocarpium robertianum</i>	LC	VU
<i>Hordelymus europaeus</i>	LC	VU
<i>Juncus filiformis</i>	LC	VU
<i>Lepidium campestre</i>	LC	VU
<i>Lotus subbiflorus</i>	LC	VU
<i>Medicago polymorpha</i>	LC	VU
<i>Mentha arvensis</i>	LC	VU
<i>Ophioglossum azoricum</i>	LC	VU
<i>Persicaria vivipara</i>	LC	VU
<i>Poa bulbosa</i>	LC	VU
<i>Polygonatum odoratum</i>	LC	VU
<i>Rhynchospora fusca</i>	LC	VU
<i>Rumex crispus</i> subsp. <i>uliginosus</i>	LC	VU
<i>Ruscus aculeatus</i>	LC	VU
<i>Sagittaria sagittifolia</i>	LC	VU

Taxon	GB Red List	Wales Red List	Taxon	GB Red List	Wales Red List
<i>Pilosella peleteriana</i> subsp. <i>subpeleteriana</i>	NT	VU	<i>Sarcocornia perennis</i>	LC	VU
<i>Potentilla argentea</i>	NT	VU	<i>Scabiosa columbaria</i>	LC	VU
<i>Ruppia cirrhosa</i>	NT	VU	<i>Silene acaulis</i>	LC	VU
<i>Stachys arvensis</i>	NT	VU	<i>Sinapis arvensis</i>	LC	VU
<i>Viola tricolor</i> & subsp. <i>tricolor</i>	NT	VU	<i>Sorbus rupicola</i>	LC	VU
<i>Artemisia campestris</i> subsp. <i>maritima</i>	LC	CR	<i>Thlaspi caerulescens</i>	LC	VU
<i>Carex pauciflora</i>	LC	CR	<i>Trichomanes speciosum</i> (sporophyte)	LC	VU
<i>Centaurea cyanus</i>	LC	CR	<i>Utricularia intermedia</i> sens.lat.	LC	VU
<i>Dryopteris expansa</i>	LC	CR	<i>Viola tricolor</i> subsp. <i>tricolor</i>	LC	VU
<i>Dryopteris submontana</i>	LC	CR	<i>Vulpia ciliata</i>	LC	VU
<i>Epipactis leptochila</i>	LC	CR	<i>Carex pseudocyperus</i>	LC	NT
<i>Fumaria purpurea</i>	LC	CR	<i>Euphorbia serrulata</i>	LC	NT
<i>Geranium sylvaticum</i>	LC	CR	<i>Hippuris vulgaris</i>	LC	NT
<i>Lamium confertum</i>	LC	CR	<i>Hottonia palustris</i>	LC	NT
<i>Oenanthe pimpinelloides</i>	LC	CR	<i>Jasione montana</i>	LC	NT
<i>Potamogeton alpinus</i>	LC	CR	<i>Kickxia spuria</i>	LC	NT
<i>Astragalus glycyphyllos</i>	LC	EN	<i>Lotus glaber</i>	LC	NT
<i>Atropa belladonna</i>	LC	EN	<i>Malva neglecta</i>	LC	NT
<i>Campanula glomerata</i>	LC	EN	<i>Marrubium vulgare</i>	LC	NT
<i>Carex atrata</i>	LC	EN	<i>Parentucellia viscosa</i>	LC	NT
<i>Carex digitata</i>	LC	EN	<i>Petroselinum crispum</i>	LC	NT
<i>Carex elongata</i>	LC	EN	<i>Puccinellia rupestris</i>	LC	NT
<i>Cerastium arvense</i>	LC	EN	<i>Rubus chamaemorus</i>	LC	NT
<i>Circaea alpina</i>	LC	EN	<i>Salix herbacea</i>	LC	NT
<i>Cirsium heterophyllum</i>	LC	EN	<i>Silene vulgaris</i>	LC	NT
<i>Draba incana</i>	LC	EN	<i>Verbascum nigrum</i>	LC	NT

Table 5. The 162 taxa that are “doing worse” in Wales than they are in Great Britain, arranged by decreasing GB threat category. Taxa are included if they are threatened (EN, VU) or near threatened (NT) in GB but have a higher threat category in Wales, or if they are Least Concern (LC) in GB but are threatened or near threatened in Wales. Taxa that are threatened in GB but extinct in Wales (EX or RE) are excluded (see section 7.2), as are microspecies of *Hieracium*.

7.5 Taxa reaching the edge of their range in Wales

Many taxa reach the southern or northern edges of their UK ranges in Wales (Tables 6 & 7). It is becoming increasingly important to identify such species in order to select priorities for conservation and for monitoring the impacts of climate change. Small, edge-of-range populations of species that might be vulnerable to change are particularly important as they are often genetically distinct.

Taxon	Wales Red List	Taxon	Wales Red List
<i>Alchemilla filicaulis</i> subsp. <i>filicaulis</i>		<i>Impatiens noli-tangere</i>	EN
<i>Alchemilla glabra</i>		<i>Juncus triglumis</i>	EN
<i>Andromeda polifolia</i>		<i>Juniperus communis</i> subsp. <i>nana</i>	
<i>Arabis petraea</i>	EN	<i>Lamium confertum</i>	CR
<i>Asplenium trichomanes</i> subsp. <i>pachyrachis</i>	EN	<i>Lobelia dortmanna</i>	
<i>Asplenium viride</i>		<i>Luronium natans</i>	
<i>Carex aquatilis</i>		<i>Lychnis viscaria</i>	VU
<i>Carex atrata</i>	EN	<i>Melica nutans</i>	
<i>Carex bigelowii</i>		<i>Meum athamanticum</i>	VU
<i>Carex capillaris</i>	VU	<i>Mibora minima</i>	
<i>Carex magellanica</i>		<i>Orthilia secunda</i>	EN
<i>Carex pauciflora</i>	CR	<i>Oxyria digyna</i>	
<i>Centaurium littorale</i>		<i>Persicaria vivipara</i>	VU
<i>Cerastium alpinum</i>	CR	<i>Poa alpina</i>	EN
<i>Cerastium arcticum</i>	CR	<i>Poa glauca</i>	
<i>Circaea alpina</i>	EN	<i>Polystichum lonchitis</i>	
<i>Cirsium heterophyllum</i>	EN	<i>Potentilla crantzii</i>	EN
<i>Coincya monensis</i> subsp. <i>monensis</i>	VU	<i>Potentilla rupestris</i>	CR
<i>Crepis paludosa</i>		<i>Pseudorchis albida</i>	CR
<i>Cryptogramma crispa</i>		<i>Rosa mollis</i>	
<i>Dactylorhiza purpurella</i> subsp. <i>cambrensis</i>	VU	<i>Rubus chamaemorus</i>	
<i>Diphasiastrum alpinum</i>		<i>Salix herbacea</i>	
<i>Dryas octopetala</i>	EN	<i>Saussurea alpina</i>	EN
<i>Dryopteris expansa</i>	CR	<i>Saxifraga cespitosa</i>	CR
<i>Dryopteris oreades</i>		<i>Saxifraga nivalis</i>	EN
<i>Dryopteris submontana</i>	CR	<i>Saxifraga oppositifolia</i>	
<i>Empetrum nigrum</i> subsp. <i>hermaphroditum</i>	EN	<i>Saxifraga stellaris</i>	
<i>Epilobium alsinifolium</i>		<i>Sedum rosea</i>	
<i>Epipactis dunensis</i>	VU	<i>Selaginella selaginoides</i>	
<i>Euphrasia ostenfeldii</i>	EN	<i>Senecio cambrensis</i>	CR
<i>Euphrasia rivularis</i>	EN	<i>Silene acaulis</i>	VU
<i>Euphrasia rostkoviana</i> subsp. <i>montana</i>	VU	<i>Sorbus</i> "Menai Strait form"	CR
<i>Euphrasia rostkoviana</i> subsp. <i>rostkoviana</i>		<i>Subularia aquatica</i>	EN
<i>Euphrasia scottica</i>		<i>Thalictrum alpinum</i>	
<i>Festuca rubra</i> subsp. <i>arctica</i>	VU	<i>Trollius europaeus</i>	
<i>Festuca vivipara</i>		<i>Tuberaria guttata</i>	
<i>Galium boreale</i>		<i>Veronica serpyllifolia</i> subsp. <i>humifusa</i>	CR
<i>Galium sternerii</i>		<i>Woodsia alpina</i>	CR
<i>Geranium sylvaticum</i> *		<i>Woodsia ilvensis</i>	CR
<i>Helianthemum oelandicum</i> subsp. <i>incanum</i>			

Table 6. Taxa that reach the southern edge of their GB distribution in Wales (* reaches an equivalent latitude in England as well).

Taxon	Wales Red List
<i>Agrostis curtisii</i>	
<i>Arum italicum</i> subsp. <i>neglectum</i>	CR
<i>Cerastium pumilum</i>	
<i>Cicendia filiformis</i>	
<i>Cirsium tuberosum</i>	VU
<i>Cyperus longus</i>	
<i>Cytisus scoparius</i> subsp. <i>maritimus</i>	
<i>Epilobium lanceolatum</i>	
<i>Eriophorum gracile</i>	VU
<i>Gastridium ventricosum</i>	
<i>Gaudinia fragilis</i>	VU
<i>Genista pilosa</i>	VU
<i>Helleborus foetidus</i>	
<i>Hypericum linariifolium</i>	VU
<i>Hypericum undulatum</i>	
<i>Juncus capitatus</i>	EN
<i>Juniperus communis</i> subsp. <i>hemisphaerica</i>	CR
<i>Lithospermum purpureocaeruleum</i>	EN
<i>Luzula forsteri</i>	

Taxon	Wales Red List
<i>Marrubium vulgare</i>	
<i>Matthiola sinuata</i>	
<i>Melittis melissophyllum</i>	EN
<i>Pilosella peleteriana</i> subsp. <i>subpeleteriana</i>	VU
<i>Ranunculus tripartitus</i>	
<i>Rubia peregrina</i>	
<i>Rumex rupestris</i>	EN
<i>Scorzonera humilis</i>	VU
<i>Sedum forsterianum</i>	
<i>Sibthorpia europaea</i>	
<i>Sorbus anglica</i>	
<i>Sorbus eminens</i>	CR
<i>Sorbus porrigentifformis</i>	
<i>Trifolium occidentale</i>	
<i>Trifolium strictum</i>	CR
<i>Viola lactea</i>	
<i>Viola palustris</i> subsp. <i>juressi</i>	
<i>Wolffia arrhiza</i>	

Table 7. Taxa that reach the northern edge of their GB distribution in Wales.

7.6 Species for which Wales has a particular responsibility

Consideration is given here to those taxa for which Wales has a particular responsibility for conservation. In the GB Red Data List (Cheffings & Farrell, 2005), taxa for which Great Britain has an international responsibility are indicated by showing those for which we probably or definitely have more than 25% of the world population.

For this study a very crude assessment of responsibility has been made using the number of hectads occupied by each taxon in Great Britain. From this total GB figure, a simple proportion of hectads that occur in Wales was calculated. Where possible, adjustments have been made for hectads that straddle the English-Welsh border. Any taxon for which Wales has 25% or more of the GB population is indicated in the Red Data List. In order to highlight conservation priorities, all of these taxa that are also threatened in Wales are listed in Table 8.

Taxon	Wales Red Data List	% of GB population
<i>Centaurium scilloides</i>	EN	100
<i>Cotoneaster cambricus</i>	CR	100
<i>Draba aizoides</i>	NT	100
<i>Euphrasia cambrica</i>	EN	100
<i>Gagea bohemica</i>	VU	100
<i>Lloydia serotina</i>	VU	100
<i>Scleranthus perennis</i> subsp. <i>perennis</i>	CR	100
<i>Sorbus leptophylla</i>	EN	100
<i>Sorbus leyana</i>	CR	100
<i>Sorbus minima</i>	VU	100
<i>Stellaria nemorum</i> subsp. <i>montana</i>	VU	100
<i>Tephrosia integrifolia</i> subsp. <i>maritima</i>	VU	100
<i>Senecio cambrensis</i>	CR	89
<i>Dactylorhiza purpurella</i> subsp. <i>cambrensis</i>	VU	70
<i>Scorzonera humilis</i>	VU	67
<i>Genista pilosa</i>	VU	64
<i>Asplenium trichomanes</i> subsp. <i>pachyrachis</i>	EN	63
<i>Euphorbia serrulata</i>	NT	60
<i>Eriophorum gracile</i>	VU	57
<i>Juncus capitatus</i>	EN	57
<i>Liparis loeselii</i>	CR	57
<i>Gentianella uliginosa</i>	VU	56
<i>Eleocharis parvula</i>	VU	50
<i>Juniperus communis</i> subsp. <i>hemisphaerica</i>	CR	50
<i>Potentilla rupestris</i>	CR	50
<i>Sorbus domestica</i>	EN	50
<i>Rumex crispus</i> subsp. <i>uliginosus</i>	VU	44
<i>Aster linosyris</i>	VU	43
<i>Woodsia ilvensis</i>	CR	43
<i>Carex muricata</i> subsp. <i>muricata</i>	CR	40
<i>Euphrasia ostenfeldii</i>	EN	36
<i>Lithospermum purpureocaeruleum</i>	EN	33
<i>Trichomanes speciosum</i> (sporophyte)	VU	33
<i>Trifolium strictum</i>	CR	33
<i>Campanula patula</i>	CR	32
<i>Impatiens noli-tangere</i>	EN	31
<i>Jasione montana</i>	NT	31
<i>Hypericum linariifolium</i>	VU	30
<i>Marrubium vulgare</i>	NT	30
<i>Sorbus eminens</i>	CR	29
<i>Asparagus prostratus</i>	CR	27
<i>Euphrasia anglica</i>	VU	27
<i>Euphrasia rivularis</i>	EN	25
<i>Euphrasia rostkoviana</i> subsp. <i>montana</i>	VU	25

Table 8. Threatened Welsh taxa for which Wales has 25% or more of total GB hectads, in order of decreasing proportion.

8. Vascular Plant Red Data List for Wales

See section 6 for an explanation of the columns.

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Acer campestre</i>														
	<i>Achillea millefolium</i>														
	<i>Achillea ptarmica</i>														
WL	<i>Aconitum napellus</i> sens. lat.	WVL								NA	25				Placed on Waiting List (as with GB Red Data List)
	<i>Adiantum capillus-veneris</i>									Arch	25				
EN	<i>Adonis annua</i>	RE													
	<i>Adoxa moschatellina</i>									Arch					
	<i>Aegopodium podagraria</i>									Arch					
	<i>Aethusa cynapium</i>									NA					
WL	<i>Aethusa cynapium</i> subsp. <i>agrestis</i>	WVL								NA					Placed on Waiting List (as with GB Red Data List)
	<i>Aethusa cynapium</i> subsp. <i>cynapium</i>									NA					Assumed to be LC as species, not analysed
	<i>Agrimonia eupatoria</i>														
	<i>Agrimonia procera</i>														
WL	<i>Agrostemma githago</i>	WVL								Arch					Placed on Waiting List (as with GB Red Data List)
	<i>Agrostis canina</i>														
	<i>Agrostis capillaris</i>														
	<i>Agrostis curtisii</i>											N			
	<i>Agrostis gigantea</i>									Arch					
	<i>Agrostis stolonifera</i>														
	<i>Agrostis vinealis</i>														
	<i>Aira caryophyllea</i>														
	<i>Aira praecox</i>														
	<i>Ajuga reptans</i>														
	<i>Alchemilla ficiculis</i> subsp. <i>ficiculis</i>											S			
	<i>Alchemilla ficiculis</i> subsp. <i>vestita</i>											S			
	<i>Alchemilla glabra</i>														
	<i>Alchemilla xanthochlora</i>														
	<i>Alisma lanceolatum</i>														
	<i>Alisma plantago-aquatica</i>														
	<i>Alliaria petiolata</i>														
	<i>Allium ampeloprasum</i>	VU	DI+2	No	3	No	5	c.450	No	Arch					
VU	<i>Allium oleraceum</i>	VU	B lab(v)+2 ab(v)	Yes	5	No	6	1000s	Yes						

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endermic to Wales?	Wales near Endermic?	Comments
	<i>Allium schoenoprasum</i>						12				44				
	<i>Allium ursinum</i>														
	<i>Allium vineale</i>														
	<i>Alnus glutinosa</i>														
	<i>Alopecurus aequalis</i>											W			
	<i>Alopecurus bulbosus</i>														
	<i>Alopecurus geniculatus</i>														
	<i>Alopecurus myosuroides</i>									Arch					
	<i>Alopecurus pratensis</i>														
	<i>Althaea officinalis</i>											W			
	<i>Ammophila arenaria</i>														
NT	<i>Anacamptis morio</i>														
	<i>Anacamptis pyramidalis</i>														
	<i>Anagallis arvensis</i>														
	<i>Anagallis arvensis</i> subsp. <i>arvensis</i>	RE													Assumed to be LC as species, not analysed
	<i>Anagallis arvensis</i> subsp. <i>foemina</i>	VU	A2c	No	5					Arch					
NT	<i>Anagallis minima</i>														
	<i>Anagallis tenella</i>										25				
	<i>Anchusa arvensis</i>									Arch					
	<i>Andromeda polifolia</i>											S			
	<i>Anemone nemorosa</i>														
	<i>Angelica sylvestris</i>														
	<i>Anisantha sterilis</i>									Arch					
	<i>Antennaria dioica</i>														
EN	<i>Anthemis arvensis</i>	EN	A2ac	Possibly	5	No	7			Arch					All modern records are casuals
VU	<i>Anthemis cotula</i>	VU	A2c	Possibly	4	No				Arch					
	<i>Anthoxanthum odoratum</i>														
	<i>Anthriscus caucalis</i>														
	<i>Anthriscus sylvestris</i>														
	<i>Anthyllis vulneraria</i>														
WL	<i>Anthyllis vulneraria</i> subsp. <i>lapponica</i>	WL					1	1 small patch					S		Placed on Waiting List (as with GB Red Data List)
	<i>Anthyllis vulneraria</i> subsp. <i>vulneraria</i>														Assumed to be LC as species, not analysed
	<i>Aphanes arvensis</i>														
	<i>Aphanes australis</i>														
	<i>Apium graveolens</i>														
	<i>Apium inundatum</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Apium nodiflorum</i>														
	<i>Aquilegia vulgaris</i>														
	<i>Arabis thaliana</i>														
	<i>Arabis hirsuta</i>														
VU	<i>Arabis petraea</i>	EN	B1ab(v)+2ab(v), C2a(i), D	No	2		5	<400	Yes	Arch		S		Only 2 populations now with plants	
	<i>Arctium lappa</i>									Arch					
	<i>Arctium minus</i>														
	<i>Arenaria serpyllifolia</i>														
	<i>Arenaria serpyllifolia</i> subsp. <i>leptoclados</i>														
	<i>Arenaria serpyllifolia</i> subsp. <i>serpyllifolia</i>														
	<i>Armeria maritima</i>														
	<i>Armeria maritima</i> subsp. <i>maritima</i>									Arch				Assumed to be LC as species, not analysed	
	<i>Armoracia rusticana</i>									Arch					
	<i>Arrhenatherum elatius</i>									Arch					
	<i>Artemisia absinthium</i>									Arch					
	<i>Artemisia campestris</i> subsp. <i>maritima</i>	CR	B1ab(v)+2ab(v), C2a(i), D	No			1	3	Yes	NA	?	W		Possibly native at Crymlyn Burrows (Glamorgan), BSBI News 104: 21-23.	
NT	<i>Artemisia vulgaris</i>									Arch		N			
	<i>Arum italicum</i> subsp. <i>neglectum</i>	CR	D	No	(4)		1	20+	No						
	<i>Arum maculatum</i>														
	<i>Asparagus officinalis</i>									Arch					
EN	<i>Asparagus prostratus</i>	CR	B1b(v)+2b(v), C2a(i)	No			5	90	Yes	Arch	27				
	<i>Asperula cynanchica</i>														
	<i>Asperula cynanchica</i> subsp. <i>cynanchica</i>														
WL	<i>Asperula cynanchica</i> subsp. <i>occidentalis</i>	WVL													Assumed to be LC as species, not analysed
	<i>Asplenium adiantum-nigrum</i>														Placed on Waiting List (as with GB Red Data List)
	<i>Asplenium marinum</i>														
NT	<i>Asplenium obovatum</i>										29				
	<i>Asplenium ruta-muraria</i>														
NT	<i>Asplenium septentrionale</i>										36				
	<i>Asplenium septentrionale</i> x <i>trichomanes</i> (<i>A. x alternifolium</i>)	VU	D2	No			1	1	No						
	<i>Asplenium trichomanes</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
NT	<i>Asplenium trichomanes</i> subsp. <i>pachyrachis</i>	EN	B1ab(v)+2 ab(v), D	No	(2)		5	<250	Yes		63	S			
	<i>Asplenium trichomanes</i> subsp. <i>quadrivalens</i>										57				
	<i>Asplenium trichomanes</i> subsp. <i>trichomanes</i>														
	<i>Asplenium viride</i>														
	<i>Aster linosyris</i>	VU	D2	No	2		5	1000s	?		43	W			
	<i>Aster tripolium</i>														
	<i>Astragalus glycyphyllos</i>	EN	B1ab(v)+2 ab(v), D	No	3		6	<250	Yes			W			
	<i>Athyrium filix-femina</i>														
	<i>Atriplex glabriuscula</i>														
	<i>Atriplex laciniata</i>														
	<i>Atriplex littoralis</i>														
	<i>Atriplex longipes</i>										33				Probably still under-recorded
	<i>Atriplex patula</i>														
	<i>Atriplex portulacoides</i>														
	<i>Atriplex prostrata</i>														
	<i>Atropa belladonna</i>	EN		Yes	3	Yes	4	c.10	Yes						Downgraded from CR D (would be VU (A2a) native AOO trend)
	<i>Avena fatua</i>									Arch					
NT	<i>Baldellia ranunculoides</i>														
NT	<i>Baldellia ranunculoides</i>														Assumed to be LC as species, not analysed
	subsp. <i>ranunculoides</i>														
DD	<i>Baldellia ranunculoides</i> subsp. <i>repens</i>	VU	D2	No			2								
	<i>Ballota nigra</i>									Arch					
	<i>Barbarea vulgaris</i>														
	<i>Bellis perennis</i>														
	<i>Berula erecta</i>														
	<i>Beta vulgaris</i> subsp. <i>maritima</i>														
	<i>Betula pendula</i>														
	<i>Betula pubescens</i>														
	<i>Bidens cernua</i>														
	<i>Bidens tripartita</i>														
	<i>Blackstonia perfoliata</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
VU	<i>Blechnum spicant</i>	VU	D2	Yes	4		1	c.30m ²							
	<i>Blysmus compressus</i>	VU	A2c	No	3		9								
	<i>Blysmus rufus</i>														
	<i>Bolboschoenus maritimus</i>														
	<i>Botrychium lunaria</i>														
WL	<i>Brachypodium pinnatum</i>	WL								NA					Placed on Waiting List (as with GB Red Data List)
WL	<i>Brachypodium rupestre</i>	WL								NA	29				Placed on Waiting List (as with GB Red Data List)
	<i>Brachypodium sylvaticum</i>									Arch					
	<i>Brassica nigra</i>														
	<i>Brassica oleracea</i>														
	<i>Brassica rapa</i>														
	<i>Brassica rapa</i> subsp. <i>campestris</i>														Assumed to be LC as species, not analysed
	<i>Briza media</i>														
	<i>Bromopsis benekenii</i>	VU	DI+2	Possibly	5	No	5	<1000?							
	<i>Bromopsis erecta</i>														
	<i>Bromopsis ramosa</i>														
	<i>Bromus commutatus</i>														
	<i>Bromus hordeaceus</i>														
	<i>Bromus hordeaceus</i> subsp. <i>ferronii</i>										34				
	<i>Bromus hordeaceus</i> subsp. <i>hordeaceus</i>														Assumed to be LC as species, not analysed
WL	<i>Bromus hordeaceus</i>	WL													Placed on Waiting List (as with GB Red Data List)
	<i>Bromus hordeaceus</i> subsp. <i>longipedicellatus</i>														
	<i>Bromus hordeaceus</i> subsp. <i>thominei</i>										30				
	<i>Bromus racemosus</i>														
VU	<i>Bromus secalinus</i>	NT	D	Yes	5	No	6	<2000		Arch					
	<i>Bryonia dioica</i>														
VU	<i>Bupleurum tenuissimum</i>						15+								
	<i>Butomus umbellatus</i>	VU	A2c	No	3	No						W			
	<i>Cakile maritima</i>														
	<i>Calamagrostis canescens</i>	VU	DI+2	No	4		1	200-1000	No						EN (A2a) on AOO trend but number of hectads too small
	<i>Calamagrostis epigejos</i>														
	<i>Callitriche brutia</i>										39				
	<i>Callitriche hamulata</i> sens.lat.														
	<i>Callitriche hermaphroditica</i>														
	<i>Callitriche obtusangula</i>	VU	A2c	No	4		6								
	<i>Callitriche platycarpa</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Callitriche stagnalis</i> sens.la.														
	<i>Callitriche truncata</i>						6								
	<i>Calluna vulgaris</i>														
	<i>Caltha palustris</i>														
	<i>Calystegia sepium</i>														
	<i>Calystegia sepium</i> subsp. <i>roseata</i>										37				
	<i>Calystegia sepium</i> subsp. <i>sepium</i>														
	<i>Calystegia soldanella</i>										25				Assumed to be LC as species, not analysed
	<i>Campanula glomerata</i>	EN	D	No	2		5	<250				W			
	<i>Campanula latifolia</i>														
EN	<i>Campanula patula</i>	CR	B1b(v)+2b (v), C2a(ii)	Yes	5	No		<150	Yes		32	W			
EN	<i>Campanula rapunculus</i>	RE								Arch					
	<i>Campanula rotundifolia</i>														
	<i>Campanula trachelium</i>														
	<i>Capsella bursa-pastoris</i>									Arch					
	<i>Cardamine amara</i>														
	<i>Cardamine flexuosa</i>														
	<i>Cardamine hirsuta</i>														
NT	<i>Cardamine impatiens</i>											W			
	<i>Cardamine pratensis</i>														
	<i>Carduus crispus</i>														
	<i>Carduus nutans</i>														
	<i>Carduus tenuiflorus</i>														
	<i>Carex acuta</i>														
	<i>Carex acuta</i> x <i>aquatilis</i>	VU	D2	No			1		No						
	<i>Carex acuta</i> x <i>nigra</i>	DD													
	<i>Carex acutiformis</i>														
	<i>Carex aquatilis</i>											S			
	<i>Carex arenaria</i>														
	<i>Carex atrata</i>	EN	D	No	2		4	<100	?			S			
	<i>Carex bigelowii</i>						8					S			
	<i>Carex binervis</i>														
	<i>Carex capillaris</i>	VU	D2	No	2		2	?	?			S			
	<i>Carex caryophyllaea</i>														
	<i>Carex curta</i>														
	<i>Carex curta</i> x <i>paniculata</i> (C. x <i>ludibunda</i>)	VU	D2	No			1								

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
EN	<i>Carex depauperata</i>	RE													
NT	<i>Carex diandra</i>														
	<i>Carex digitata</i>	EN	D	No	2		3	<150	?						
	<i>Carex dioica</i>														
	<i>Carex dioica</i> x <i>echinata</i> (<i>C. x gaudiniana</i>)	VU	D2	No			1		No						
	<i>Carex distans</i>														
	<i>Carex distans</i> x <i>viridula</i> subsp. <i>viridula</i> (<i>C. x luteola</i>)	VU	D2				1								
	<i>Carex disticha</i>														
VU	<i>Carex divisa</i>	EN	A2a, B1ab (v)+2ab(v)	No			3		Yes						
	<i>Carex divulsa</i> subsp. <i>divulsa</i>														
	<i>Carex divulsa</i> subsp. <i>leersii</i>											W			
	<i>Carex echinata</i>														
	<i>Carex elata</i>														
	<i>Carex elongata</i>	EN	A2c, B1ab (v)+2ab (v), C2a(i)	No	4		5	<1000	Yes						
	<i>Carex extensa</i>														
	<i>Carex flacca</i>														
	<i>Carex hirta</i>														
	<i>Carex hostiana</i>														
	<i>Carex laevigata</i>														
	<i>Carex laevigata</i> x <i>viridula</i>	DD													
	<i>Carex lasiocarpa</i>														
	<i>Carex limosa</i>														
	<i>Carex magellanica</i>														
	<i>Carex montana</i>												S		
	<i>Carex muricata</i> subsp. <i>lamprocarpa</i>										55				
NT	<i>Carex muricata</i> subsp. <i>muricata</i>	CR	B1ab(v)+2 ab(v)	No			1	100-200	Yes		40				
	<i>Carex nigra</i>														
	<i>Carex otrubae</i>														
	<i>Carex ovalis</i>														
	<i>Carex pallescens</i>														
	<i>Carex panicea</i>														
	<i>Carex paniculata</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Wales? Endemic to	Wales near Endemic?	Comments
	<i>Carex paniculata</i> x <i>C. remota</i>	CR	D	No	3		2	<10?	?		29	S			
	<i>Carex pauciflora</i>														
	<i>Carex pendula</i>														
	<i>Carex pilulifera</i>														
	<i>Carex pseudocyperus</i>	NT	A	No	3										
	<i>Carex pulicaris</i>										35				
	<i>Carex punctata</i>														
	<i>Carex remota</i>														
	<i>Carex riparia</i>														
	<i>Carex rostrata</i>														
	<i>Carex spicata</i>														
	<i>Carex strigosa</i>														
	<i>Carex sylvatica</i>														
	<i>Carex vesicaria</i>														
	<i>Carex viridula</i> subsp. <i>brachyrhyncha</i>														
	<i>Carex viridula</i> subsp. <i>oedocarpa</i>														
	<i>Carex viridula</i> subsp. <i>viridula</i>														
	<i>Carlina vulgaris</i>														
	<i>Carpinus betulus</i>														
	<i>Carum verticillatum</i>									Arch	34				Native only in Monmouthshire
	<i>Castanea sativa</i>														
	<i>Catabrosa aquatica</i>														
	<i>Catapodium marinum</i>														
	<i>Catapodium rigidum</i>														
	<i>Centaurea cyanus</i>	CR	Blab(v)+2 ab(v), C2a (+ii), D	No	5		1		Yes	Arch					Assessment made on true arable sites only
	<i>Centaurea nigra</i>														
	<i>Centaurea scabiosa</i>														
	<i>Centaurium erythraea</i>														
	<i>Centaurium littorale</i>														
	<i>Centaurium pulchellum</i>														
EN	<i>Centaurium scilloides</i>	EN	Blab(v)+2 ab(v)	No			4		Yes		100	All			
VU	<i>Cephalanthera longifolia</i>	EN	D	No	4		4	<210							
VU	<i>Cerastium alpinum</i>	CR	D	No	2		1	10							
NT	<i>Cerastium arcticum</i>	CR	D	No	3		3	<50?							

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Cerastium arvense</i>	EN	D				1	<250?							Regarded as native at Anglesey site
	<i>Cerastium diffusum</i>														
	<i>Cerastium fontanum</i>														
	<i>Cerastium fontanum</i> subsp. <i>holosteoides</i>														Assumed to be LC as species, not analysed
	<i>Cerastium glomeratum</i>														
NT	<i>Cerastium pumilum</i>	NT	D	No	5		10	c.2500				N			
	<i>Cerastium semidecandrum</i>														
	<i>Ceratopogon claviculata</i>														
	<i>Ceratophyllum demersum</i>														
	<i>Ceratophyllum submersum</i>	VU	D2	Possibly	5	No	5	No	No						Possibly more widespread on Gwent Levels
	<i>Ceterach officinarum</i>										26				
	<i>Chaenorhinum minus</i>									Arch					
	<i>Chaerophyllum temulum</i>														
VU	<i>Chamaemelum nobile</i>	EN	A2a	No	3					Arch					AOO trend supports VU, native trend EN
	<i>Chamerion angustifolium</i>														
	<i>Chelidonium majus</i>									Arch					
	<i>Chenopodium album</i> agg.														
VU	<i>Chenopodium bonus-henricus</i>									Arch					
	<i>Chenopodium ficifolium</i>									Arch					
VU	<i>Chenopodium glaucum</i>	VU	D1+2	Yes	5	No	4	<1000?		Arch					AOO trend unreliable
VU	<i>Chenopodium murale</i>	EN	A2a	Possibly	5	No				Arch					Need to check sites with VC Recorders
	<i>Chenopodium polyspermum</i>									Arch					
	<i>Chenopodium rubrum</i>														
CR	<i>Chenopodium urbicum</i>	RE								Arch					
EN	<i>Chenopodium vulvaria</i>	RE								Arch					
VU	<i>Chrysanthemum segetum</i>									Arch					
	<i>Chrysosplenium alternifolium</i>														
	<i>Chrysosplenium oppositifolium</i>														
VU	<i>Cicendia filiformis</i>						16+					N			
	<i>Cichorium intybus</i>									Arch					
	<i>Cicuta virosa</i>			Yes	3	Yes									Downgraded from NTA (AOO trend)
	<i>Circaea alpina</i>	EN	B1ab(v)+2 ab(v)	No			5		Yes			S			Southernmost (JK) population is declining
	<i>Circaea lutetiana</i>														
	<i>Cirsium acaule</i>											W			
	<i>Cirsium arvense</i>														
	<i>Cirsium dissectum</i>										27				

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Cirsium eriophorum</i>											W			
	<i>Cirsium heterophyllum</i>	EN	B1ab(v)+2 ab(v), D	No	3		4	<250	Yes			S			
	<i>Cirsium palustre</i>														
	<i>Cirsium palustre x tuberosum</i> (<i>C. x semidecurrans</i>)	VU	D2	No			1	<6	No						
NT	<i>Cirsium tuberosum</i>	VU	D1	No	3		8	240+ at 4 sites				NW			
	<i>Cirsium vulgare</i>														
	<i>Cladium mariscus</i>														
	<i>Clematis vitalba</i>														
VU	<i>Clinopodium acinos</i>	VU	A2a	No	3		12+					W			
	<i>Clinopodium ascendens</i>														
	<i>Clinopodium vulgare</i>														
	<i>Cochlearia anglica</i>										26				
	<i>Cochlearia danica</i>														
	<i>Cochlearia officinalis sens.lat.</i>														
	<i>Cochlearia officinalis subsp. officinalis</i>														Assumed to be LC as sens. lat., not analysed
	<i>Cochlearia pyrenaica</i>	DD													More detailed records needed
WL	<i>Cochlearia pyrenaica subsp. pyrenaica</i>	WL													Placed on Waiting List (as with GB Red Data List)
	<i>Coicya monensis subsp. monensis</i>	VU	D2	No	(4)		4					S		Yes	
NT	<i>Colchicum autumnale</i>											W			
	<i>Conium maculatum</i>									Arch					
	<i>Conopodium majus</i>														
	<i>Convallaria majalis</i>											W			
	<i>Convulvulus arvensis</i>														
	<i>Cornus sanguinea</i>														
	<i>Coronopus squamatus</i>									Arch					
	<i>Corylus avellana</i>														
CR	<i>Cotoneaster cambricus</i>	CR	D	No			1	6	No		100	All			Population is small and fragile but stable, not declining
	<i>Crambe maritima</i>														
	<i>Crataegus laevigata</i>	DD													May be native in some Flintshire localities
	<i>Crataegus monogyna</i>														
	<i>Crepis biennis</i>	DD		Yes	5	Yes									Native/alien distribution uncertain in Wales
	<i>Crepis capillaris</i>														
EN	<i>Crepis mollis</i>	RE													
	<i>Crepis paludosa</i>											S			

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	<i>Critinum maritimum</i>										32				
	<i>Cruciata laevipes</i>											S			
	<i>Cryptogramma crispa</i>														
VU	<i>Cuscuta epithymum</i>	VU	B1ab(v) +2ab(v)	No	4		9		Yes						
NT	<i>Cynoglossum officinale</i>														
	<i>Cynosurus cristatus</i>														
NT	<i>Cyperus longus</i>						8					N			
	<i>Cystopteris fragilis</i>														
	<i>Cytisus scoparius</i>														
NT	<i>Cytisus scoparius</i> subsp. <i>maritimus</i>										67	N			
	<i>Cytisus scoparius</i> subsp. <i>scoparius</i>														Assumed to be LC as species, not analysed
	<i>Dactylis glomerata</i>														
	<i>Dactylorhiza fuchsii</i>														
	<i>Dactylorhiza fuchsii</i> x <i>D. incarnata</i>										30				
	<i>Dactylorhiza fuchsii</i> x <i>D. maculata</i>										25				
	<i>Dactylorhiza fuchsii</i> x <i>Gymnadenia conopsea</i>	VU	D2	No			3	8							
	<i>Dactylorhiza incarnata</i>														
WL	<i>Dactylorhiza incarnata</i> subsp. <i>coccinea</i>														Although more research is needed on the identity of this taxon, an assessment has been made on the currently defined subspecies
WL	<i>Dactylorhiza incarnata</i> subsp. <i>incarnata</i>														Although more research is needed on the identity of this taxon, an assessment has been made on the currently defined subspecies
WL	<i>Dactylorhiza incarnata</i> subsp. <i>pulchella</i>														Although more research is needed on the identity of this taxon, an assessment has been made on the currently defined subspecies
	<i>Dactylorhiza maculata</i> subsp. <i>ericetorum</i>														
	<i>Dactylorhiza maculata</i> x <i>D. praetermissa</i>										26				
	<i>Dactylorhiza praetermissa</i>														
DD	<i>Dactylorhiza purpurella</i> subsp. <i>cambrensis</i>	VU	B1ab(iv) +2ab(iv)				8	?	Yes		70	S			
	<i>Dactylorhiza purpurella</i> subsp. <i>purpurella</i>														
	<i>Dactylorhiza traunsteinerioides</i>														
VU	<i>Dactylorhiza viridis</i>	EN	A2c	No	4										
	<i>Danthonia decumbens</i>														

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VU	<i>Daphne laureola</i>	CR	D	No	5		1	6	?			W			
	<i>Daphne mezereum</i>														
	<i>Daucus carota</i>														
	<i>Daucus carota</i> subsp. <i>carota</i>														Assumed to be LC as species, not analysed
	<i>Daucus carota</i> subsp. <i>gummifer</i>										31				
	<i>Deschampsia cespitosa</i>														
	<i>Deschampsia cespitosa</i> subsp. <i>cespitosa</i>														Assumed to be LC as species, not analysed
	<i>Deschampsia cespitosa</i> subsp. <i>parviflora</i>														
	<i>Deschampsia flexuosa</i>														
	<i>Deschampsia setacea</i>	VU	D2	No	5		3	>1000	No	Arch					
	<i>Descurainia sophia</i>														
EN	<i>Dianthus armeria</i>	VU	D2	No	5		5	1535	No						
NT	<i>Dianthus deltoides</i>	NT	A	No	5		9					W			
	<i>Digitalis purpurea</i>														
	<i>Diphysastrum alpinum</i>									Arch		S			
	<i>Diplotaxis tenuifolia</i>									NA					
	<i>Dipsacus fullonum</i> sens.lat.														
	<i>Dipsacus pilosus</i>														
NT	<i>Draba aizoides</i>	NT	D	No			13	1000+	No		100	All			Locations = 13 tetrads
	<i>Draba incana</i>	EN	D	No	3		4	<250?	?						
NT	<i>Drosera anglica</i>	VU	D2	No	2		3(4)								
	<i>Drosera anglica</i> x <i>rotundifolia</i>	VU	D2	No			1	1							
	(<i>D. x obovata</i>)														
	<i>Drosera intermedia</i>	VU	A2c	No	4										
	<i>Drosera rotundifolia</i>														
	<i>Dryas octopetala</i>	EN	D	No	2		2	<200				S			
	<i>Dryopteris aemula</i>														
	<i>Dryopteris affinis</i>														
	<i>Dryopteris affinis</i> subsp. <i>affinis</i>														Under-recorded but unlikely to be threatened
	<i>Dryopteris affinis</i> subsp. <i>borreri</i>														Under-recorded but unlikely to be threatened
	<i>Dryopteris affinis</i> subsp. <i>cambrensis</i>														Under-recorded but unlikely to be threatened
	<i>Dryopteris carthusiana</i>														
	<i>Dryopteris dilatata</i>														
	<i>Dryopteris expansa</i>	CR	D	No			5	<10				S			
	<i>Dryopteris filix-mas</i>														
	<i>Dryopteris oreades</i>										26	S			
	<i>Dryopteris submontana</i>	CR	D	No	2		2	<50				S			

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	<i>Echium vulgare</i>														
	<i>Elatine hexandra</i>										36				
	<i>Elatine hydrophiper</i>														
	<i>Eleocharis acicularis</i>														
	<i>Eleocharis multicaulis</i>														
	<i>Eleocharis palustris</i>														
	<i>Eleocharis palustris</i> subsp. <i>palustris</i>														
	<i>Eleocharis parvula</i>	VU	A2c	No	4		2(7)				50				Assumed to be LC as species, not analysed Resurvey of Merionethshire sites needed
	<i>Eleocharis quinqueflora</i>														
	<i>Eleocharis uniglumis</i>														
	<i>Eleogiton fluitans</i>														
	<i>Elymus caninus</i>														
	<i>Elytrigia atherica</i>														
	<i>Elytrigia juncea</i>														
	<i>Elytrigia repens</i>														
	<i>Elytrigia repens</i> subsp. <i>arenosa</i>	DD					1								More detailed records needed
	<i>Empetrum nigrum</i>														
	<i>Empetrum nigrum</i> subsp. <i>hermaphroditum</i>	VU	D2	No			3					S			Probably under-recorded
	<i>Empetrum nigrum</i> subsp. <i>nigrum</i>														
	<i>Epilobium alsinifolium</i>						7+					S			Assumed to be LC as species, not analysed
	<i>Epilobium hirsutum</i>														
	<i>Epilobium lanceolatum</i>											N			
	<i>Epilobium montanum</i>														
	<i>Epilobium obscurum</i>														
	<i>Epilobium palustre</i>														
	<i>Epilobium parviflorum</i>														
	<i>Epilobium roseum</i>														
	<i>Epilobium tetragonum</i>														
	<i>Epipactis atrorubens</i>	EN	D	No	2		4	<250	?						
DD	<i>Epipactis dunensis</i>	VU	D2	No			2		No			SW		Yes	
	<i>Epipactis helleborine</i>														
DD	<i>Epipactis leptochila</i>	CR	D	No	4		1	18							AOO unreliable
	<i>Epipactis palustris</i>														
	<i>Epipactis phyllanthos</i>	VU	D2	No	4		5					W			
	<i>Equisetum arvense</i>														
	<i>Equisetum arvense</i> x <i>fluviatile</i> (<i>E. x litorale</i>)														

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	<i>Equisetum arvense</i> x <i>palustre</i> (E. x <i>rothmaleri</i>)	DD													
VU	<i>Equisetum arvense</i> x <i>telmateia</i> (E. x <i>robertsii</i>)	VU	D2	No			1		No						
	<i>Equisetum fluviatile</i>														
	<i>Equisetum fluviatile</i> x <i>palustre</i> (E. x <i>dycei</i>)	VU	D2	No			3		No						
	<i>Equisetum hyemale</i>						6		No						
	<i>Equisetum hyemale</i> x <i>variegatum</i> (E. x <i>trachyodon</i>)	VU	D2	No			1		No						
	<i>Equisetum palustre</i>														
	<i>Equisetum palustre</i> x <i>telmateia</i> (E. x <i>font-queri</i>)	VU	D2	No			1		No						
	<i>Equisetum sylvaticum</i>														
	<i>Equisetum telmateia</i>										33				
	<i>Equisetum variegatum</i>														
	<i>Erica cinerea</i>														
	<i>Erica tetralix</i>														
	<i>Erigeron acer</i>														
	<i>Eriophorum angustifolium</i>														
NT	<i>Eriophorum gracile</i>	VU	D2	No	5		5		No		57	NW			
	<i>Eriophorum latifolium</i>														
	<i>Eriophorum vaginatum</i>														
	<i>Erodium cicutarium</i> agg.														
	<i>Erodium lebelii</i>										36				Trend statistics support NT but are unreliable due to under-recording
	<i>Erodium maritimum</i>										38				
	<i>Erodium moschatum</i>									Arch					
	<i>Erophila glabrescens</i>														
	<i>Erophila majuscula</i>														
	<i>Erophila verna</i> sens.lat.														
	<i>Erophila verna</i> sensu Stace														
CR	<i>Eryngium campestre</i>	RE								Arch					
	<i>Eryngium maritimum</i>														
	<i>Erysimum cheiranthoides</i>									Arch	29				
	<i>Erysimum cheiri</i>									Arch					
	<i>Euonymus europaeus</i>														
	<i>Eupatorium cannabinum</i>														

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	<i>Euphorbia amygdaloides</i>														
NT	<i>Euphorbia exigua</i>	NT	A	No	3					Arch					
	<i>Euphorbia helioscopia</i>									Arch					
	<i>Euphorbia lathyris</i>									Arch					
	<i>Euphorbia paralias</i>										37				
	<i>Euphorbia paralias</i> x <i>portlandica</i>	VU	D2				1	1							Probably more frequent than the one extant record suggests
EX	<i>Euphorbia peplis</i>	EX													
	<i>Euphorbia peplus</i>									Arch					
	<i>Euphorbia platyphyllus</i>	EN		Yes	4	Yes	2	4		Arch					Downgraded from CR (D)
	<i>Euphorbia portlandica</i>									Arch					
	<i>Euphorbia serrulata</i>	NT		Yes	5	Yes	1	c.950	Yes	NA	60	W			Downgraded from VU (C2a(f), D1)
EN	<i>Euphrasia anglica</i>	VU	A2c	No	(1)						27			Yes	
DD	<i>Euphrasia arctica</i> subsp. <i>borealis</i>	NT	A	No	(1)										
VU	<i>Euphrasia cambrica</i>	EN	B lab(v)+2 ab(v), C2b	No	(1)		4	<2500	Yes		100		Yes		
DD	<i>Euphrasia confusa</i>	VU	A2c	No	(1)										
DD	<i>Euphrasia micrantha</i>	VU	A2c	No	(1)										
	<i>Euphrasia nemorosa</i>														
	<i>Euphrasia officinalis</i> agg.														
DD	<i>Euphrasia ostenfeldii</i>	EN	D	No	(1)		8	c.220			36	S			
EN	<i>Euphrasia pseudokernerii</i>	VU	D2	No	(1)		2					W	Yes		
VU	<i>Euphrasia rivularis</i>	EN	A2a	No	(1)		8				25	SW	Yes		
VU	<i>Euphrasia rostkoviana</i> subsp. <i>montana</i>	VU	D2	No	(1)		4				25	SW			
VU	<i>Euphrasia rostkoviana</i> subsp. <i>rostkoviana</i>										77	S			
	<i>Euphrasia scottica</i>											S			
DD	<i>Euphrasia tetraquetra</i>										29				
	<i>Fagus sylvatica</i>														
	<i>Fallopia convolvulus</i>									Arch					
VU	<i>Fallopia dumetorum</i>	RE													
	<i>Festuca altissima</i>														
	<i>Festuca arenaria</i>														
	<i>Festuca arundinacea</i>														
	<i>Festuca filiformis</i>														
	<i>Festuca gigantea</i>														
	<i>Festuca lemarii</i>	DD								NA					Although not recorded since 1970, this species is very under-recorded

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	<i>Festuca ovina</i>														
	<i>Festuca ovina</i> agg.						4								Very under-recorded - is dominant in the uplands
	<i>Festuca ovina</i> subsp. <i>ophiolicola</i>														
	<i>Festuca pratensis</i>														
	<i>Festuca rubra</i> agg.														
	<i>Festuca rubra</i> subsp. <i>arctica</i>	VU	D2				2				S				Under-recorded and likely to be in more than 2 sites
	<i>Festuca rubra</i> subsp. <i>commutata</i>														Under-recorded
	<i>Festuca rubra</i> subsp. <i>juncea</i>										25				
	<i>Festuca rubra</i> subsp. <i>litoralis</i>										42				
	<i>Festuca rubra</i> subsp. <i>rubra</i>														Assumed to be LC as species, not analysed
	<i>Festuca vivipara</i>											S			
	<i>Filago minima</i>														
NT	<i>Filago vulgaris</i>	VU	A2c	No	4										
	<i>Filipendula ulmaria</i>														
	<i>Filipendula vulgaris</i>														
	<i>Foeniculum vulgare</i>									Arch					
	<i>Fragaria vesca</i>														
	<i>Frangula alnus</i>														
NT	<i>Frankenia laevis</i>	VU	D2	No			2								Native in Glamorgan
	<i>Fraxinus excelsior</i>														
	<i>Fumaria bastardii</i>										33				
	<i>Fumaria capreolata</i>														
	<i>Fumaria capreolata</i> subsp. <i>babingtonii</i>														
	<i>Fumaria densiflora</i>	RE								Arch					Assumed to be LC as species, not analysed
	<i>Fumaria muralis</i>														
	<i>Fumaria officinalis</i>									Arch					
	<i>Fumaria officinalis</i> subsp. <i>officinalis</i>														Assumed to be LC as species, not analysed
	<i>Fumaria officinalis</i> subsp. <i>wirtgenii</i>														Assumed to be LC as species, not analysed
	<i>Fumaria purpurea</i>	CR	A2ac, C2a(i), D	Possibly	5	No	3	?	Yes					Yes	Usually casual now
VU	<i>Gagea bohemica</i>	VU	D2	No			1					All			
	<i>Gagea lutea</i>	EN	D	No	4		1	c.150	?						
CR	<i>Galeopsis angustifolia</i>	CR	A2c	No	5		4		Yes	Arch		W			
	<i>Galeopsis bifida</i>														
EX	<i>Galeopsis segetum</i>	EX								Arch					
VU	<i>Galeopsis speciosa</i>	VU	A2ac	Possibly	4	No				Arch					

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	<i>Galeopsis tetrahit</i>														
	<i>Galeopsis tetrahit</i> agg.														
	<i>Galium aparine</i>														
	<i>Galium boreale</i>											S			
	<i>Galium mollugo</i>														
	<i>Galium mollugo</i> x <i>G. verum</i>	VU	D2	No			1								
	<i>Galium odoratum</i>														
	<i>Galium palustre</i>														
	<i>Galium palustre</i> subsp. <i>elongatum</i>														Assumed to be LC as species, not analysed
	<i>Galium palustre</i> subsp. <i>palustre</i>														Assumed to be LC as species, not analysed
	<i>Galium saxatile</i>														
	<i>Galium sternerii</i>														
CR	<i>Galium tricornutum</i>	RE								Arch					
	<i>Galium uliginosum</i>														
	<i>Galium verum</i>														
	<i>Gastroidium ventricosum</i>	DD					4/5								Ten additional old (1985) sites - survey needed
	<i>Gaudinia fragilis</i>	VU	D2	No			1	?	?	NA		N			May be under-recorded
NT	<i>Genista anglica</i>										25				
NT	<i>Genista pilosa</i>	VU	A2c	No	2						64	NE			
	<i>Genista tinctoria</i>														
	<i>Genista tinctoria</i> subsp. <i>tinctoria</i>														
	<i>Gentiana pneumonanthe</i>	VU	Blab(v) +2ab(v)	No	2		10	3-4000	Yes			W			Assumed to be LC as species, not analysed
	<i>Gentiana amarella</i>														
	<i>Gentiana amarella</i> subsp. <i>amarella</i>														
WL	<i>Gentiana anglica</i>	VU	D2	No	3		1	<700	No						Assumed to be LC as species, not analysed
															Although more research is needed on the identity of this taxon, an assessment has been made on the currently defined species
VU	<i>Gentiana campestris</i>	EN	A2c	No	4										
VU	<i>Gentiana uliginosa</i>	VU	Blab(v)+2 ab(v), D2	No			5	5-6000	Yes		56				
	<i>Geranium columbinum</i>														
	<i>Geranium dissectum</i>									Arch					
	<i>Geranium lucidum</i>														
	<i>Geranium molle</i>														
	<i>Geranium pratense</i>														
	<i>Geranium purpureum</i>	RE													Recent Mons records are alien, formerly native in Carmarthen & Pembrokeshire

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	<i>Geranium pusillum</i>														
	<i>Geranium robertianum</i>														
WL	<i>Geranium robertianum</i> subsp. <i>celticum</i>	WL													Placed on Waiting List (as with GB Red Data List)
	<i>Geranium rotundifolium</i>														
	<i>Geranium sanguineum</i>														
	<i>Geranium sylvaticum</i>	CR	D	No			4	<30				(S)			Not seen since c.1987
	<i>Geum rivale</i>														
	<i>Geum urbanum</i>														
	<i>Glaucium flavum</i>														
	<i>Glaux maritima</i>														
	<i>Glechoma hederacea</i>														
	<i>Glyceria declinata</i>														
	<i>Glyceria fluitans</i>														
	<i>Glyceria maxima</i>														
	<i>Glyceria notata</i>														
EN	<i>Gnaphalium sylvaticum</i>	CR	A2a	Possibly	5	No	2	?	Yes						Detailed up-to-date records needed
	<i>Gnaphalium uliginosum</i>														
VU	<i>Groenlandia densa</i>	VU	D2	No			2								
	<i>Gymnadenia borealis</i>	DD													
	<i>Gymnadenia conopsea</i>														Assumed LC as aggregate, species not analysed separately
	<i>Gymnadenia conopsea</i> agg.														
DD	<i>Gymnadenia densiflora</i>	DD					6								
	<i>Gymnocarpium dryopteris</i>														
	<i>Gymnocarpium robertianum</i>	VU	A2c	No	3										
	<i>Hammarbya paludosa</i>	EN	A2c	No	5										
	<i>Hedera helix</i>														
	<i>Hedera helix</i> subsp. <i>helix</i>														
	<i>Hedera helix</i> subsp. <i>hibernica</i>										40				
	<i>Helianthemum nummularium</i>														
	<i>Helianthemum oelandicum</i> subsp. <i>incanum</i>										76	S			
	<i>Helictotrichon pratense</i>														
	<i>Helictotrichon pubescens</i>														
	<i>Helleborus foetidus</i>														
	<i>Helleborus viridis</i>														
	<i>Heracleum sphondylium</i>									NA					

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VU	<i>Herminium monorchis</i>	RE													
	<i>Hieracium acroleucum</i>														
	<i>Hieracium acuminatum</i>														
	<i>Hieracium</i> spp.														
	<i>Hieracium anglicum</i>												Yes		
	<i>Hieracium anglorum</i>												Yes		
	<i>Hieracium angustatifolium</i>	CR	D	No			1	1				Yes			
WL	<i>Hieracium aphelae</i>	VU	D2	No			1								
	<i>Hieracium argenteum</i>														
WL	<i>Hieracium argillaceum</i>	WL											Yes		Native status uncertain.
	<i>Hieracium arvonense</i>														
WL	<i>Hieracium asperatum</i>	WL											Yes		Native status uncertain.
VU	<i>Hieracium asteridiophyllum</i>	VU	D1+2	No			5	512					Yes		Native status uncertain.
WL	<i>Hieracium avicula</i>	WL													
VU	<i>Hieracium breconense</i>	CR	D	No			2	<50?							
WL	<i>Hieracium breconicola</i>	VU	D2	No			3								
	<i>Hieracium britanniciforme</i>	VU	D2	No			3								
WL	<i>Hieracium britannicoideis</i>	VU	D2	No			1								
VU	<i>Hieracium cacuminum</i>	EN	D	No			3	240							
	<i>Hieracium caesiomurorum</i>														
	<i>Hieracium calcaricola</i>														
	<i>Hieracium caledonicum</i>												Yes		
VU	<i>Hieracium cambricogothicum</i>	EX					(1)						Yes		
VU	<i>Hieracium cambricum</i>	VU	D1+2	No			2	c.350					Yes		
	<i>Hieracium cantianum</i>												Yes		
	<i>Hieracium carneddorum</i>														
WL	<i>Hieracium charitodon</i>	VU	D2	No			3						Yes		
VU	<i>Hieracium cillense</i>	VU	D1+2	No			<5	659	No				Yes		
	<i>Hieracium cinderella</i>												Yes		
	<i>Hieracium clivicola</i>														
	<i>Hieracium consociatum</i>														
	<i>Hieracium cravoniense</i>												Yes		
	<i>Hieracium cuneifrons</i>												Yes		
NT	<i>Hieracium cyathis</i>	NT	D	No			8	1328					Yes		
	<i>Hieracium cymbifolium</i>												Yes		
	<i>Hieracium daedalepioides</i>														
	<i>Hieracium deganwyense</i>												Yes		

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	<i>Hieracium diaphanoides</i>														
	<i>Hieracium dicella</i>												Yes		
	<i>Hieracium discophyllum</i>	DD											Yes		
WL	<i>Hieracium downwardense</i>	WVL											Yes		Native status uncertain.
	<i>Hieracium eboraense</i>														
EX?	<i>Hieracium elevatum</i>	EX											Yes		Last seen in 1953.
	<i>Hieracium eustomon</i>												Yes		
WL	<i>Hieracium festinum</i>	WVL													Native status uncertain.
WL	<i>Hieracium glvense</i>														
VU	<i>Hieracium griffithii</i>	VU	D2	No			1						Yes		
	<i>Hieracium holophyllum</i>												Yes		
	<i>Hieracium hypochaeroides</i>													Yes	
WL	<i>Hieracium insissatum</i>	VU	D2	No			2						Yes		
	<i>Hieracium lasiophyllum</i>														
	<i>Hieracium latibrigorum</i>														
	<i>Hieracium leyanum</i>	VU	D1	No			12	800					Yes		
	<i>Hieracium leyi</i>												Yes		
EN	<i>Hieracium linguans</i>	EN	D	No			1	c.80					Yes		
	<i>Hieracium lintonii</i>												Yes		
	<i>Hieracium lissolepium</i>														
	<i>Hieracium lortetiae</i>	VU	D2	No			5								
WL	<i>Hieracium microspilum</i>	WVL													Native status uncertain.
	<i>Hieracium nemophilum</i>														
EN	<i>Hieracium neocoracinum</i>	EN	D	No			1	147					Yes		
	<i>Hieracium nidense</i>	CR	D	No				c.30					Yes		
	<i>Hieracium oenophyllum</i>	VU	D2	No			3						Yes		
	<i>Hieracium oistophyllum</i>														
	<i>Hieracium orimeles</i>												Yes		
	<i>Hieracium pachyphyloides</i>	CR	C2a(i)	No			2	73					Yes		
	<i>Hieracium pellucidum</i>														
	<i>Hieracium placherophyloides</i>												Yes		
	<i>Hieracium prenanthoides</i>														
VU	<i>Hieracium pseudoleyi</i>	VU	D2	No			3						Yes		
	<i>Hieracium pulchrius</i>	DD											Yes		
VU	<i>Hieracium pusillifolium</i>	VU	D2	No			1						Yes		
CR	<i>Hieracium radylene</i>	EN	B1ab(iv) +2ab(iv)	No			2	819	Yes				Yes		

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	<i>Hieracium rectulum</i>	WL													
	<i>Hieracium repandulare</i>	VU	D1+2	No			5	c.1000					Yes		
	<i>Hieracium rhomboides</i>														
VU	<i>Hieracium riddelsdellii</i>	EN	B1ab(iv) +2ab(iv)	No			2	870	Yes				Yes		
	<i>Hieracium rigens</i>														
VU	<i>Hieracium robertsii</i>	VU	D2	No			1						Yes		
	<i>Hieracium rubicundiforme</i>												Yes		
	<i>Hieracium rubiginosum</i>												Yes		
WL	<i>Hieracium salicicola</i>	WL											Yes		
VU	<i>Hieracium sanguineum</i>	VU	D2	No			1						Yes		Native status uncertain.
	<i>Hieracium saxorum</i>												Yes		
	<i>Hieracium scabrisetum</i>														
WL	<i>Hieracium scanicum</i>	WL													Native status uncertain.
	<i>Hieracium schmidtii</i>														
	<i>Hieracium scoticum</i>														
	<i>Hieracium siluriense</i>												Yes		
CR	<i>Hieracium snowdoniense</i>	CR	D	No			1	3							
	<i>Hieracium sparsifolium</i>														
VU	<i>Hieracium stenolepiforme</i>	EN	D	No			1	c.67					Yes		
	<i>Hieracium stenopholidium</i>														
	<i>Hieracium stenstroemii</i>														
	<i>Hieracium stewartii</i>														
	<i>Hieracium strictiforme</i>														
	<i>Hieracium subampifolium</i>												Yes		
	<i>Hieracium subbritannicum</i>	NT	D	No				c.2000					Yes		
VU	<i>Hieracium subminutidens</i>	VU	D2	No			2						Yes		
	<i>Hieracium submutabile</i>												Yes		
	<i>Hieracium substrigosum</i>												Yes		
	<i>Hieracium subumbellatiforme</i>												Yes		
	<i>Hieracium surrejanum</i>												Yes		
CR	<i>Hieracium tavense</i>	CR	D	No			1	13					Yes		
	<i>Hieracium trichocaulon</i>														
	<i>Hieracium triviale</i>														
	<i>Hieracium uiginskyense</i>													Yes	
	<i>Hieracium umbellatum</i> subsp. <i>bichlorophyllum</i>													Yes	

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	<i>Hieracium umbellatum</i> subsp. <i>ogwenii</i>												Yes		
	<i>Hieracium umbellatum</i> subsp. <i>umbellatum</i>												Yes		
	<i>Hieracium vagense</i>											W			
	<i>Hieracium vagum</i>														
	<i>Hieracium vulgatum</i>														
	<i>Hippocrepis comosa</i>														
	<i>Hippuris vulgaris</i>	NT	A	No	3										
	<i>Holcus lanatus</i>														
	<i>Holcus mollis</i>														
	<i>Honckenya peploides</i>														
	<i>Hordeium europaeus</i>	VU	D2	Possibly	4	No	4	?	?						
VU	<i>Hordeum marinum</i>						8	>100000		Arch		W			Abundant at some Monmouthshire sites
	<i>Hordeum murinum</i>														
	<i>Hordeum secalinum</i>														
	<i>Hornungia petraea</i>										58	W			
	<i>Hottonia palustris</i>	NT	A	No	3										
	<i>Humulus lupulus</i>														
	<i>Huperzia selago</i>														
	<i>Hyacinthoides non-scripta</i>														
VU	<i>Hydrocharis morsus-ranae</i>	NT	A	No	3										
	<i>Hydrocotyle vulgaris</i>														
	<i>Hymenophyllum tunbrigense</i>														
NT	<i>Hymenophyllum wilsonii</i>									Arch					
VU	<i>Hyoscyamus niger</i>														
	<i>Hypericum androsaemum</i>														
	<i>Hypericum elodes</i>										40				
	<i>Hypericum hirsutum</i>														
	<i>Hypericum humifusum</i>														
NT	<i>Hypericum linarifolium</i>	VU	D2	No	4		5	200-1000+			30	N			
	<i>Hypericum linarifolium</i> x <i>humifusum</i>	VU	D1	No			10	c. 340	?						
	<i>Hypericum maculatum</i>										28				
	<i>Hypericum maculatum</i> subsp. <i>obtusiusculum</i>														
NT	<i>Hypericum montanum</i>										28	W			
	<i>Hypericum perforatum</i>														

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	<i>Hypericum pulchrum</i>														
	<i>Hypericum tetrapterum</i>														
	<i>Hypericum undulatum</i>										27	N			
VU	<i>Hypochoeris glabra</i>														
NT	<i>Hypochoeris maculata</i>	EN	D	No	2		1	<250							8 sub-sites on Gt Orme
	<i>Hypochoeris radicata</i>														
	<i>Ilex aquifolium</i>														
	<i>Impatiens noli-tangere</i>	EN	C2a(i)	No	5		2 (8)	<2500	Yes		31	S			Need to resurvey 6 additional Merioneth sites – most were last recorded in 1977
	<i>Inula conyzae</i>														
	<i>Inula crithmoides</i>										30				
	<i>Inula helenium</i>									Arch					
	<i>Iris foetidissima</i>														
	<i>Iris pseudacorus</i>														
	<i>Isoetes echinospora</i>														
	<i>Isoetes echinospora x lacustris (l. hickeyi)</i>	VU	D2	No			3	Many	No						
	<i>Isoetes lacustris</i>														
	<i>Isolepis cernua</i>										35				
	<i>Isolepis setacea</i>														
	<i>Jasione montana</i>	NT	A	No	2						31				
	<i>Juncus acutiflorus</i>														
	<i>Juncus acutus</i>										66				
	<i>Juncus ambiguus</i>														
	<i>Juncus articulatus</i>														
	<i>Juncus bufonius</i>														
	<i>Juncus bufonius sens.lat.</i>														
	<i>Juncus bulbosus</i>														
VU	<i>Juncus capitatus</i>	EN	B1ac(iv) +2ac(iv)	No			2	800	No		57	N			
NT	<i>Juncus compressus</i>	EN	A2c	No	5		4								
	<i>Juncus conglomeratus</i>														
	<i>Juncus effusus</i>														
	<i>Juncus effusus x J. inflexus</i>														
	<i>Juncus filiformis</i>	VU	D1+2	No	5		1	<300	?		26				
	<i>Juncus foliosus</i>										35				
	<i>Juncus gerardii</i>														
	<i>Juncus inflexus</i>														

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	<i>Juncus maritimus</i>														
	<i>Juncus squarrosus</i>														
	<i>Juncus subnodulosus</i>														
	<i>Juncus triglumis</i>	EN	D	No	2		6	<100?				S			
	<i>Juniperus communis</i>														
	<i>Juniperus communis</i> subsp. <i>communis</i>														
CR	<i>Juniperus communis</i> subsp. <i>hemisphaerica</i>	CR	C2a(i), D	No	(2)		1	4 bushes	No		50	N			
	<i>Juniperus communis</i> subsp. <i>nana</i>						33					S			
	<i>Kickxia elatine</i>									Arch					
	<i>Kickxia spuria</i>	NT	A	No	3					Arch					
	<i>Knautia arvensis</i>														
	<i>Koeleria macrantha</i>														
	<i>Lactuca serriola</i>									Arch					
	<i>Lactuca virosa</i>														
	<i>Lamium galeobdolon</i> subsp. <i>montanum</i>														
	<i>Lamium album</i>									Arch					
	<i>Lamium amplexicaule</i>									Arch					
	<i>Lamium confertum</i>	CR	B1ac(iv) +2ac(iv)	No	5		1	?	?	Arch		S			
	<i>Lamium hybridum</i>									Arch					
	<i>Lamium purpureum</i>									Arch					
	<i>Lapsana communis</i>									NA					
	<i>Lathraea squamaria</i>														
	<i>Lathyrus japonicus</i>	RE													
	<i>Lathyrus linifolius</i>														
	<i>Lathyrus nissolia</i>														
NT	<i>Lathyrus palustris</i>	VU	D2	No	4		3	<2500	No						
	<i>Lathyrus pratensis</i>														
	<i>Lathyrus sylvestris</i>														
	<i>Lavatera arborea</i>														37
	<i>Lemna gibba</i>														
	<i>Lemna minor</i>														
	<i>Lemna trisulca</i>														
	<i>Leontodon autumnalis</i>														
	<i>Leontodon hispidus</i>														

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	<i>Leontodon saxatilis</i>	VU	A2c	No	4					Arch					
	<i>Lepidium campestre</i>														
	<i>Lepidium heterophyllum</i>														
	<i>Lepidium latifolium</i>						8	1000s		Arch		W			Only sites in 2 "native" hectads included
	<i>Lepidium ruderale</i>														
	<i>Leucanthemum vulgare</i>														
	<i>Leymus arenarius</i>														
	<i>Ligustrum vulgare</i>														
	<i>Limonium binervosum</i> agg.							35							
	<i>Limonium humile</i>														
	<i>Limonium vulgare</i>										W				
	<i>Limosella aquatica</i>														
WL	<i>Limosella australis</i>	WL									100	All			Native status uncertain – may be a neophyte
	<i>Linaria repens</i>									Arch					
	<i>Linaria vulgaris</i>														
	<i>Linum bienne</i>														
	<i>Linum catharticum</i>														
EN	<i>Liparis loeselii</i>	CR	C2a(i), D	No	2		4	<50	Yes		57				
	<i>Listera cordata</i>														
	<i>Listera ovata</i>														
EN	<i>Lithospermum arvense</i>	RE					2			Arch					Last recorded in 1990 – not seen at site since
	<i>Lithospermum officinale</i>														
	<i>Lithospermum purpureocaeruleum</i>	EN	A2a	No	4		12	Many 1000s			33	N			
	<i>Littorella uniflora</i>														
VU	<i>Lloydia serotina</i>	VU	D2	No			6	3600	No		100	All			
	<i>Lobelia dortmanna</i>											S			
	<i>Lolium perenne</i>														
CR	<i>Lolium temulentum</i>	RE								Arch					Included as was formerly established, but not seen since 1986
	<i>Lonicera periclymenum</i>														
	<i>Lotus corniculatus</i>														
	<i>Lotus glaber</i>	NT		Yes	4	Yes	3	c.2000							Downgraded from VU D2
	<i>Lotus pedunculatus</i>														
	<i>Lotus subbiflorus</i>	VU	B1ab(v) +2ab(v)	No	3		7		Yes						
	<i>Luronium natans</i>										58	SW			

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	<i>Luzula campestris</i>														
	<i>Luzula forsteri</i>														
	<i>Luzula forsteri</i> x <i>L. pilosa</i>	VU	D2	No			2	16				N			
	<i>Luzula multiflora</i>														
	<i>Luzula multiflora</i> subsp. <i>congesta</i>														Assumed to be LC as species. not analysed
	<i>Luzula multiflora</i> subsp. <i>multiflora</i>														Assumed to be LC as species. not analysed
	<i>Luzula pilosa</i>														
	<i>Luzula sylvatica</i>														
	<i>Lychnis flos-cuculi</i>														
NT	<i>Lychnis viscaria</i>	VU	D2	No	3		2	<2000				S			
EN	<i>Lycopodiella inundata</i>	VU	B1ab(iv) +2ab(iv)	No	4		7	5000+	Yes						Pembs site huge with 40+ sub-sites
	<i>Lycopodium annotinum</i>	RE													
	<i>Lycopodium clavatum</i>														
	<i>Lycopus europaeus</i>														
	<i>Lysimachia nemorum</i>														
	<i>Lysimachia nummularia</i>														
	<i>Lysimachia vulgaris</i>														
	<i>Lythrum portula</i>														
	<i>Lythrum salicaria</i>														
	<i>Malus sylvestris</i> sens.lat.														
	<i>Malva moschata</i>														
	<i>Malva neglecta</i>	NT	A	No	2					Arch					
	<i>Malva sylvestris</i>	NT	A	No	5					Arch					
	<i>Marrubium vulgare</i>										30	N			
	<i>Matricaria recutita</i>									Arch					
VU	<i>Matthiola sinuata</i>						13			NA	75	NE			
	<i>Meconopsis cambrica</i>										76				
	<i>Medicago arabica</i>														
	<i>Medicago lupulina</i>														
	<i>Medicago polymorpha</i>	VU	D2	No	4		1	?	?						AOO trend unreliable - need pop'n size
	<i>Melampyrum pratense</i>														
EN	<i>Melampyrum sylvaticum</i>	RE													
	<i>Melica nutans</i>														
	<i>Melica uniflora</i>														
	<i>Melilotus altissimus</i>														
VU	<i>Melittis melissophyllum</i>	EN	A2c	No	3		6	<1000	Yes	Arch					

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	<i>Mentha aquatica</i>	VU	A2c	No	2										
	<i>Mentha arvensis</i>	CR	A2ac	No	5		3	<1000? varies							
EN	<i>Mentha pulegium</i>														
	<i>Mentha spicata</i>									Arch	44				Native/alien distribution uncertain
DD	<i>Mentha suaveolens</i>	DD													
	<i>Menyanthes trifoliata</i>									Arch					
	<i>Mercurialis annua</i>														
	<i>Mercurialis perennis</i>														
NT	<i>Mertensia maritima</i>	RE													
NT	<i>Meum athamanticum</i>	VU	D2	No	3		1								Last recorded 1982
	<i>Mibora minima</i>						12		No		83	S			EN (A2a) on AOO trend, but this probably unreliable
	<i>Milium effusum</i>														
NT	<i>Minuartia verna</i>	VU	A2c	No	2										
VU	<i>Misopates orontium</i>									Arch					
	<i>Moehringia trinervia</i>														
	<i>Moenchia erecta</i>										25				
	<i>Molinia caerulea</i>														
WL	<i>Molinia caerulea</i> subsp. <i>arundinacea</i>	WL													Placed on Waiting List (as with GB Red Data List)
	<i>Molinia caerulea</i> subsp. <i>caerulea</i>														Assumed to be LC as species, not analysed
EN	<i>Monotropa hypopitys</i>														
EN	<i>Monotropa hypopitys</i> subsp. <i>hypophegea</i>														Assumed to be LC as species, not analysed
EN	<i>Monotropa hypopitys</i> subsp. <i>hypopitys</i>														Assumed to be LC as species, not analysed
	<i>Montia fontana</i>														
WL	<i>Montia fontana</i> subsp. <i>amporitana</i>										64				Welsh data of sufficient quality for an assessment to be made
	<i>Montia fontana</i> subsp. <i>chondrosperma</i>														
	<i>Montia fontana</i> subsp. <i>fontana</i>														
WL	<i>Montia fontana</i> subsp. <i>variabilis</i>										35				Welsh data of sufficient quality for an assessment to be made
	<i>Mycelis muralis</i>														
	<i>Myosotis arvensis</i>									Arch					
	<i>Myosotis discolor</i>														
	<i>Myosotis laxa</i>														
	<i>Myosotis ramosissima</i>														
	<i>Myosotis scorpioides</i>														
	<i>Myosotis secunda</i>														

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	<i>Myosotis sylvatica</i>														
	<i>Myosoton aquaticum</i>														
VU	<i>Myosurus minimus</i>	EN	B1ac(iv) +2ac(iv)	No	4		2		?	NA					
	<i>Myrica gale</i>														
	<i>Myriophyllum alterniflorum</i>														
	<i>Myriophyllum spicatum</i>														
VU	<i>Myriophyllum verticillatum</i>	VU	D2	No	4		2								Small number of hectads so decline trends unreliable
	<i>Narcissus pseudonarcissus</i> subsp. <i>pseudonarcissus</i>														
	<i>Nardus stricta</i>														
	<i>Narthecium ossifragum</i>														
EN	<i>Neotinea ustulata</i>	CR	D	No	4		1	10	?						
NT	<i>Neottia nidus-avis</i>														
VU	<i>Nepeta cataria</i>	VU		Yes	5	Yes				Arch					Downgraded from EN A2a (AOO Trend). Casual archeophyte of non-threatened habitats in Wales
	<i>Nuphar lutea</i>														
	<i>Nymphaea alba</i>														
	<i>Odontites vernus</i>														
	<i>Odontites vernus</i> subsp. <i>litoralis</i>	WL													Not refound at single locality (2005) and there is doubt over the record
	<i>Odontites vernus</i> subsp. <i>serotinus</i>														Assumed to be LC as species, not analysed
	<i>Odontites vernus</i> subsp. <i>vernus</i>														Assumed to be LC as species, not analysed
	<i>Oenanthe aquatica</i>														
	<i>Oenanthe crocata</i>														
	<i>Oenanthe fistulosa</i>														
VU	<i>Oenanthe lachenalii</i>														
	<i>Oenanthe pimpinelloides</i>														
	<i>Oenanthe pinnatifida</i>	CR	D	Possibly	2	No	1	1							
	<i>Oenone reclinata</i>						16	1375	No		56				
	<i>Oenone repens</i>														
	<i>Oenone repens</i> subsp. <i>maritima</i>														
	<i>Oenone spinosa</i>	WL													Status of this subspecies in Wales is uncertain
	<i>Onopordum acanthium</i>									Arch					
	<i>Ophioglossum azoricum</i>	VU	D2	No			3								
	<i>Ophioglossum vulgatum</i>														
	<i>Ophrys apifera</i>														
VU	<i>Ophrys insectifera</i>	VU	A2a, D1+2	No	3		2	<300							

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	<i>Ophrys sphegodes</i>	RE													
	<i>Orchis mascula</i>														
	<i>Oreopteris limbosperma</i>														
	<i>Origanum vulgare</i>														
	<i>Ornithopus perpusillus</i>														
	<i>Orobanche elatior</i>	RE													
	<i>Orobanche hederac</i>										38				
	<i>Orobanche minor</i>														
VU	<i>Orobanche purpurea</i>	CR	Blab(v), +2ab(v), C2a(i), D	No	4		1	7	Yes			W			
NT	<i>Orobanche rapum-genistae</i>										31				
	<i>Orthilia secunda</i>	EN	D	No	4		1	<250?	?			S			
	<i>Osmunda regalis</i>														
EX	<i>Otanthus maritimus</i>	EX													
	<i>Oxalis acetosella</i>														
	<i>Oxyria digyna</i>											S			
VU	<i>Papaver argemone</i>	EN	A2a	No	4					Arch					
	<i>Papaver dubium</i>									Arch					
	<i>Papaver dubium</i> subsp. <i>dubium</i>									Arch					
	<i>Papaver dubium</i> subsp. <i>lecoqii</i>									Arch					
	<i>Papaver hybridum</i>	EN	Blab(v)c (iv)+2ab (v)c(iv), C2a(i), D	No	4		2	250	Yes	Arch					
	<i>Papaver rhoeas</i>									Arch					
	<i>Papaver somniferum</i>									Arch					
	<i>Papaver somniferum</i> subsp. <i>segitum</i>	WVL													
	<i>Papaver somniferum</i> subsp. <i>somniferum</i>														
	<i>Parapholis incurva</i>						7		No			W			
	<i>Parapholis strigosa</i>														
	<i>Parentucella viscosa</i>														
	<i>Parietaria judaica</i>	NT	A	No	4										
	<i>Paris quadrifolia</i>														
	<i>Parnassia palustris</i>														
	<i>Pastinaca sativa</i>														
	<i>Pedicularis palustris</i>														

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	<i>Pedicularis sylvatica</i>														
	<i>Pedicularis sylvatica</i> subsp. <i>hibernica</i>														
	<i>Pedicularis sylvatica</i> subsp. <i>sylvatica</i>														Assumed to be LC as species, not analysed
	<i>Persicaria amphibia</i>														
	<i>Persicaria bistorta</i>														
	<i>Persicaria hydro Piper</i>														
	<i>Persicaria lopathifolia</i>														
	<i>Persicaria maculosa</i>														
VU	<i>Persicaria minor</i>														
VU	<i>Persicaria mitis</i>	VU	D2	Yes	5	No	2	?	?						EN on AOO + hectad trend but this is unreliable
	<i>Persicaria vivipara</i>	VU	D2	No	2		4					S			
	<i>Petasites hybridus</i>														
	<i>Petroselinum crispum</i>	NT		Yes	5	Yes				Arch					Downgraded from VU A2ac (AOO + Hectad Trend). Casual archeophyte of non-threatened habitats in Wales
	<i>Petroselinum segetum</i>														
NT	<i>Peucedanum ostruthium</i>	RE								Arch					
	<i>Phalaris arundinacea</i>														
	<i>Phegopteris connectilis</i>										31				
	<i>Phleum arenarium</i>														
	<i>Phleum bertolonii</i>														
	<i>Phleum pratense</i>														
	<i>Phleum pratense</i> sens.lat.														
	<i>Phragmites australis</i>														
	<i>Phyllitis scolopendrium</i>														
	<i>Picris echioides</i>									Arch					
	<i>Picris hieracioides</i>														
	<i>Pilosella officinarum</i>														
NT	<i>Pilosella peleteriana</i> subsp. <i>subpeleteriana</i>	VU	D2	No			1	4000+							NW
NT	<i>Pilularia globulifera</i>														
	<i>Pimpinella saxifraga</i>														
	<i>Pinguicula lusitanica</i>	EN	A2ac	No	2		11	<4000	No						
	<i>Pinguicula vulgaris</i>														
	<i>Plantago coronopus</i>														
	<i>Plantago lanceolata</i>														
	<i>Plantago major</i>														

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	<i>Plantago major</i> subsp. <i>intermedia</i>														
	<i>Plantago major</i> subsp. <i>major</i>														Assumed to be LC as species, not analysed
	<i>Plantago maritima</i>														
	<i>Plantago media</i>														
VU	<i>Platanthera bifolia</i>														
NT	<i>Platanthera chrorantha</i>														
	<i>Poa alpina</i>	EN	D	No	3		7	<250?				S			
	<i>Poa angustifolia</i>														
	<i>Poa annua</i>														
	<i>Poa bulbosa</i>	VU	D2	Possibly	4	No	2	?	?						
	<i>Poa compressa</i>														
VU	<i>Poa glauca</i>						9	?	?			S			EN on AOO trend but this is unreliable
	<i>Poa humilis</i>														
	<i>Poa nemoralis</i>														
	<i>Poa pratensis</i> sens.lat.														
	<i>Poa pratensis</i> sens.str.														
	<i>Poa trivialis</i>														
	<i>Polygala serpyllifolia</i>														
	<i>Polygala vulgaris</i>														
	<i>Polygonatum multiflorum</i>														
	<i>Polygonatum odoratum</i>	VU	D2	Possibly	4	No	1	?		Arch		W			
	<i>Polygonatum arenastrum</i>														
	<i>Polygonatum aviculare</i>														
	<i>Polygonatum aviculare</i> agg.														The distribution of <i>P. aviculare</i> agg. (including <i>P. rurivagum</i>) is under review following the recognition of new taxa.
	<i>Polygonum oxyspermum</i>														
	<i>Polygonum rurivagum</i>	DD								Arch					Taxon confused and needs more work following recognition of new species in the <i>P. aviculare</i> agg.
	<i>Polypodium cambricum</i>										38				
	<i>Polypodium cambricum</i> x <i>P. interjectum</i> (<i>P. x shivasiae</i>)	VU	D2	No			3								
	<i>Polypodium cambricum</i> x <i>vulgare</i> (<i>P. x font-queri</i>)	DD													
	<i>Polypodium interjectum</i>														
	<i>Polypodium interjectum</i> x <i>vulgare</i> (<i>P. x mantoniae</i>)										34				

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	<i>Polypodium vulgare</i>														
	<i>Polypodium vulgare sens.lat.</i>														
	<i>Polystichum aculeatum</i>														
	<i>Polystichum aculeatum x setiferum (P. x bicknellii)</i>														
VU	<i>Polystichum lonchitis</i>						7	?	?			S			
	<i>Polystichum setiferum</i>														
	<i>Populus nigra subsp. betulifolia</i>														
	<i>Populus tremula</i>														
	<i>Potamogeton alpinus</i>	CR	A2c	No	5		4								
VU	<i>Potamogeton alpinus x crispus (P. x olivaceus)</i>	VU	D2				1								Resurvey required but plentiful in R. Teifi. All sites in 1 management unit.
	<i>Potamogeton alpinus x praelongus (P. x griffithii)</i>	VU	D2	No			1		No						
	<i>Potamogeton berchtoldii</i>														
	<i>Potamogeton berchtoldii x coloratus (P. x lanceolatus)</i>	EX													
	<i>Potamogeton coloratus</i>						13+								
EN	<i>Potamogeton compressus</i>	VU	A2ac, D2	Yes	5	No	1					W			All sites (5 hectads) in Montgomery Canal (=1 management unit)
	<i>Potamogeton crispus</i>														
	<i>Potamogeton crispus x friesii (P. x lintonii)</i>	RE													
	<i>Potamogeton crispus x perfoliatus (P. x cooperi)</i>	VU	D2	No			1								
VU	<i>Potamogeton crispus x praelongus (P. x undulatus)</i>	EX													
	<i>Potamogeton filiformis</i>	RE													
NT	<i>Potamogeton friesii</i>	NT		Yes	5	Yes	1								Downgraded from VU D2. All sites (5 hectads) in Montgomery Canal (=1 management unit).
	<i>Potamogeton gramineus</i>						6								
	<i>Potamogeton gramineus x lucens (P. x zizii)</i>	VU	D2	No			3								
	<i>Potamogeton gramineus x natans (P. x sparganiiifolius)</i>	VU	D2				2								
	<i>Potamogeton gramineus x perfoliatus (P. x nitens)</i>	VU	D2	No			1								
	<i>Potamogeton lucens</i>	EN	B1ab(v) +2ab(v)	Possibly	4	No	2		Yes						

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
VU	<i>Potamogeton natans</i>	VU	D2	No			3								
	<i>Potamogeton natans</i> x <i>polygonifolius</i> (<i>P. x gessnacensis</i>)														
	<i>Potamogeton obtusifolius</i>														
	<i>Potamogeton pectinatus</i>														
	<i>Potamogeton perfoliatus</i>														
	<i>Potamogeton polygonifolius</i>														
NT	<i>Potamogeton praelongus</i>	CR	A2c	Possibly	5	No	2								
	<i>Potamogeton pusillus</i>														
	<i>Potamogeton trichoides</i>														
	<i>Potentilla anglica</i>							26							
	<i>Potentilla anserina</i>														
NT	<i>Potentilla argentea</i>	VU	D1	Possibly	3	No	7	<1000							
	<i>Potentilla crantzii</i>	EN	D	No	2		5		<250			S			
	<i>Potentilla erecta</i>														
	<i>Potentilla erecta</i> subsp. <i>erecta</i>														Assumed to be LC as species, not analysed
	<i>Potentilla erecta</i> subsp. <i>strictissima</i>														
	<i>Potentilla neumanniana</i>														
	<i>Potentilla palustris</i>														
	<i>Potentilla reptans</i>														
EN	<i>Potentilla rupestris</i>	CR	D	No			2	c. 22 plants			50	S			
	<i>Potentilla sterilis</i>														
	<i>Primula veris</i>														
	<i>Primula vulgaris</i>														
	<i>Prunella vulgaris</i>														
	<i>Prunus avium</i>														
	<i>Prunus cerasus</i>									Arch					
	<i>Prunus domestica</i>									Arch					
	<i>Prunus domestica</i> subsp. <i>domestica</i>														Assumed to be LC as species, not analysed
	<i>Prunus domestica</i> subsp. <i>institia</i>														Assumed to be LC as species, not analysed
	<i>Prunus domestica</i> subsp. <i>italica</i>														Assumed to be LC as species, not analysed
	<i>Prunus padus</i>														
	<i>Prunus spinosa</i>														
VU	<i>Pseudorchis albida</i>	CR	C2a(i)b, D	No	5		4	<50	Yes			S			EN on AOO trend
	<i>Pteridium aquilinum</i>														
	<i>Puccinellia distans</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Puccinellia distans</i> subsp. <i>distans</i>														Assumed to be LC as species, not analysed
VU	<i>Puccinellia fasciculata</i>	RE													
	<i>Puccinellia maritima</i>						11								
	<i>Puccinellia rupestris</i>	NT	A2c												
	<i>Pulicaria dysenterica</i>														
	<i>Pyrola minor</i>	EN	B1ab(v)+2ab(v), D	No	4		3	5 patches	Yes						
	<i>Pyrola rotundifolia</i> subsp. <i>maritima</i>									Arch	61				
	<i>Pyrus communis</i> sens. lat.														
	<i>Quercus petraea</i>														
	<i>Quercus robur</i>														
NT	<i>Radiola linoides</i>														
	<i>Ranunculus acris</i>														
	<i>Ranunculus aquatilis</i>														
CR	<i>Ranunculus arvensis</i>	CR	B1ab(v)c(i)v)+2ab(v)c(iv), C2b, D	Possibly	5	No	1	22		Arch					
	<i>Ranunculus auricomus</i>														
	<i>Ranunculus baudotii</i>														
	<i>Ranunculus bulbosus</i>														
	<i>Ranunculus circinatus</i>														
	<i>Ranunculus ficaria</i>														
	<i>Ranunculus ficaria</i> subsp. <i>bulbilifer</i>														
	<i>Ranunculus ficaria</i> subsp. <i>ficaria</i>														
	<i>Ranunculus flammula</i>														
	<i>Ranunculus fluitans</i>														
	<i>Ranunculus hederaceus</i>														
	<i>Ranunculus lingua</i>														
	<i>Ranunculus omiophyllus</i>										33				
	<i>Ranunculus omiophyllus</i> x <i>tripartitus</i> (<i>R. x novae-forestae</i>)						7								
	<i>Ranunculus parviflorus</i>														
	<i>Ranunculus peltatus</i>														
	<i>Ranunculus penicillatus</i>														
	<i>Ranunculus penicillatus</i> subsp. <i>penicillatus</i>										68				
	<i>Ranunculus penicillatus</i> subsp. <i>pseudofluitans</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Ranunculus repens</i>									NA					
	<i>Ranunculus sardous</i>														
	<i>Ranunculus sceleratus</i>														
	<i>Ranunculus trichophyllus</i>														
EN	<i>Ranunculus tripartitus</i>						28				44	N			
	<i>Raphanus raphanistrum</i> subsp. <i>maritimus</i>									Arch					
	<i>Raphanus raphanistrum</i> subsp.									NA					
	<i>Reseda lutea</i>									Arch					
	<i>Reseda luteola</i>														
	<i>Rhamnus cathartica</i>														
	<i>Rhinanthus minor</i>														
WL	<i>Rhinanthus minor</i> subsp. <i>minor</i>	WL									28				Placed on Waiting List (as with GB Red Data List)
WL	<i>Rhinanthus minor</i> subsp. <i>stenophyllus</i>	WL													Placed on Waiting List (as with GB Red Data List)
	<i>Rhynchospora alba</i>														
	<i>Rhynchospora fusca</i>	VU	D2	No	3		1	c.3000							
	<i>Ribes rubrum</i>									NA					
	<i>Rorippa amphibia</i>														
	<i>Rorippa islandica</i> sens.str.										43				
	<i>Rorippa microphylla</i>														
	<i>Rorippa nasturtium-aquaticum</i>														
	<i>Rorippa nasturtium-aquaticum</i> agg.														
	<i>Rorippa palustris</i>														
	<i>Rorippa sylvestris</i>														
NT	<i>Rosa agrestis</i>	CR	D	No			6	27 max							
	<i>Rosa arvensis</i>														
	<i>Rosa caesia</i> subsp. <i>caesia</i>														Under-recorded
	<i>Rosa caesia</i> subsp. <i>vosagiata</i>														
	<i>Rosa canina</i> sens.str.														
	<i>Rosa micrantha</i>														
	<i>Rosa mollis</i>											S			
	<i>Rosa obtusifolia</i>														Almost certainly under-recorded
	<i>Rosa pimpinellifolia</i>														
	<i>Rosa rubiginosa</i>														
	<i>Rosa sherardii</i>														
	<i>Rosa stylosa</i>														
	<i>Rosa tomentosa</i>														

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	<i>Rubia peregrina</i>										27	N			
	<i>Rubus caesius</i>														
	<i>Rubus chamaemorus</i>	NT	A, D	No	2		7	<2000				S			
	<i>Rubus fruticosus</i> agg.														
	<i>Rubus idaeus</i>														
	<i>Rubus saxatilis</i>														
	<i>Rumex acetosa</i>														
	<i>Rumex acetosa</i> subsp. <i>acetosa</i>														
DD	<i>Rumex acetosa</i> subsp. <i>hibernicus</i>	DD													Assumed to be LC as species, not analysed
	<i>Rumex acetosella</i>														
	<i>Rumex acetosella</i> subsp. <i>acetosella</i>														Assumed to be LC as species, not analysed
	<i>Rumex acetosella</i> subsp. <i>pyrenaica</i>														Assumed to be LC as species, not analysed
	<i>Rumex conglomeratus</i>														
	<i>Rumex crispus</i>														
	<i>Rumex crispus</i> subsp. <i>crispus</i>														
	<i>Rumex crispus</i> subsp. <i>littoreus</i>														
	<i>Rumex crispus</i> subsp. <i>uliginosus</i>	VU	D2	No	(1)		5				44				
	<i>Rumex hydroalpathum</i>														
	<i>Rumex maritimus</i>														
	<i>Rumex obtusifolius</i>														
	<i>Rumex palustris</i>	EN		Yes	4	Yes	3	<10	Yes						Downgraded from CR A2a, B1b(v)c(iv)+2b(v)c(iv), C2a(i)b, D
	<i>Rumex pulcher</i>	EN		Yes	4	Yes	1	50	No						Downgraded from CR D
EN	<i>Rumex rupestris</i>	EN	D	No	3		6	<250	No			N			
	<i>Rumex sanguineus</i>														
NT	<i>Ruppia cirrhosa</i>	VU	D2	No	5		2								
	<i>Ruppia maritima</i>	EN	A2c	No	4										
	<i>Ruscus aculeatus</i>	VU	A2a, D2	No	4		5								Only native sites included
	<i>Sagina apetala</i>														
	<i>Sagina apetala</i> subsp. <i>apetala</i>														
	<i>Sagina apetala</i> subsp. <i>erecta</i>														
	<i>Sagina maritima</i>														
	<i>Sagina nodosa</i>														
	<i>Sagina procumbens</i>														
	<i>Sagina subulata</i>														
	<i>Sagittaria sagittifolia</i>	VU	A2c	Yes	2	No									
	<i>Salicornia</i> agg.														

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	<i>Salicornia dolichostachya</i>														
	<i>Salicornia europaea</i>														
	<i>Salicornia fragilis</i>														
DD	<i>Salicornia nitens</i>	EN	B1a(v)	No +2a(v)	2		1	Several sq km	Yes			W			Plentiful at last site but one lost recently. Small number of hectads so decline trends unreliable.
	<i>Salicornia pusilla</i>														
	<i>Salicornia ramosissima</i>														
	<i>Salix alba</i>									Arch					
	<i>Salix aurita</i>														
	<i>Salix caprea</i>														
	<i>Salix cinerea</i>														
	<i>Salix cinerea</i> subsp. <i>cinerea</i>														
	<i>Salix cinerea</i> subsp. <i>oleifolia</i>														Under-recorded
	<i>Salix fragilis</i>									Arch					
	<i>Salix herbacea</i>	NT	A	No			10+					S			Monitoring underway (summer 2007)
	<i>Salix pentandra</i>	WVL										S			Alien/native status uncertain in Wales
	<i>Salix purpurea</i>														
	<i>Salix repens</i>														
	<i>Salix triandra</i>									Arch					
	<i>Salix viminalis</i>									Arch					
VU	<i>Salsola kali</i> subsp. <i>kali</i>														
NT	<i>Salvia pratensis</i>	CR	D	No	5		1	2	No	NA		W			
	<i>Salvia verbenaca</i>														
	<i>Sambucus ebulus</i>									Arch					
	<i>Sambucus nigra</i>														
	<i>Samolus valerandi</i>														
	<i>Sanguisorba minor</i> subsp. <i>minor</i>														
	<i>Sanguisorba officinalis</i>														
	<i>Sanicula europaea</i>														
	<i>Saponaria officinalis</i>									Arch					
	<i>Sarcocornia perennis</i>	VU	D2	No	2		1					W			
	<i>Saussurea alpina</i>	EN	D	No	3		7	<250?				S			
EN	<i>Saxifraga cespitosa</i>	CR	D	No	3		1	12				S			
	<i>Saxifraga granulata</i>														
VU	<i>Saxifraga hypnoides</i>														
	<i>Saxifraga nivalis</i>	EN	D	No	3		5	<250?				S			
	<i>Saxifraga oppositifolia</i>											S			

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EW	<i>Saxifraga rosacea</i> subsp. <i>rosacea</i>	EW													
	<i>Saxifraga stellaris</i>											S			
	<i>Saxifraga tridactylites</i>														
	<i>Scabiosa columbaria</i>	VU	A2c	No	2										
CR	<i>Scandix pecten-veneris</i>	CR	A2ac	Possibly	4	No	5	Many 1000s		Arch					
	<i>Schoenoplectus lacustris</i>														
	<i>Schoenoplectus tabernaemontani</i>														
	<i>Schoenus nigricans</i>														
	<i>Scilla autumnalis</i>	RE													
	<i>Scilla verna</i>														
	<i>Scirpus sylvaticus</i>														
EN	<i>Scleranthus annuus</i>														
EN	<i>Scleranthus annuus</i> subsp. <i>annuus</i>														
CR	<i>Scleranthus perennis</i> subsp. <i>perennis</i>	CR	B1ab(v)+2 ab(v), C2a(ii)	No	1		1	c. 88 plants	Yes		100	All			Assumed to be LC as species. not analysed
VU	<i>Scorzonera humilis</i>	VU	D2	No			2	1000s		NA	67	NW			
	<i>Scrophularia auriculata</i>														
	<i>Scrophularia nodosa</i>														
	<i>Scutellaria galericulata</i>														
	<i>Scutellaria minor</i>										32				
	<i>Sedum acre</i>														
	<i>Sedum album</i>									Arch					
	<i>Sedum anglicum</i>														
	<i>Sedum forsterianum</i>										67	N			
	<i>Sedum rosea</i>											S			
	<i>Sedum telephium</i>														
	<i>Selaginella selaginoides</i>											S			
	<i>Senecio aquaticus</i>														
NT	<i>Senecio cambrensis</i>	CR	D				1	36			89	SW	Yes		
	<i>Senecio erucifolius</i>														
	<i>Senecio jacobaea</i>														
	<i>Senecio sylvaticus</i>														
	<i>Senecio vulgaris</i>														
	<i>Seriphidium maritimum</i>														
	<i>Serratula tinctoria</i>														

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	<i>Sesleria caerulea</i>	RE													
	<i>Sherardia arvensis</i>														
	<i>Sibthorpia europaea</i>											N			
	<i>Silaum silaus</i>														
	<i>Silene acaulis</i>	VU	D2	No	2		4	<1000?	No			S			Probably under-recorded and sites under-estimated
VU	<i>Silene conica</i>	VU	D1	No	4		8					W			
	<i>Silene dioica</i>														
EN	<i>Silene gallica</i>	VU	A2a	No	5					Arch					
	<i>Silene latifolia</i>									Arch					
VU	<i>Silene noctiflora</i>	EN	A2ac	No	4		1	?	?	Arch					1998 was last record, may be RE
NT	<i>Silene nutans</i>	NT		No	3		11	c.1500				W			
	<i>Silene uniflora</i>														
	<i>Silene vulgaris</i>	NT	A	No	2										
	<i>Silybum marianum</i>									Arch					
	<i>Sinapis alba</i>									Arch					
	<i>Sinapis arvensis</i>	VU	A2c	No	1					Arch					
	<i>Sison amomum</i>														
	<i>Sisymbrium officinale</i>									Arch					
	<i>Smyrniium olusatrum</i>									Arch					
	<i>Solanum dulcamara</i>														
	<i>Solanum nigrum</i>									NA					
	<i>Solidago virgaurea</i>														
	<i>Sonchus arvensis</i>														
	<i>Sonchus asper</i>														
	<i>Sonchus oleraceus</i>														
NT	<i>Sorbus anglica</i>						14					N		Yes	
	<i>Sorbus aria</i>														
	<i>Sorbus aria</i> x <i>S. aucuparia</i> (<i>S. x thuringiaca</i>)	VU	D2	No			1	1-5				W			
	<i>Sorbus aria</i> x <i>terminalis</i> (<i>S. x vagensis</i>)	VU	D2	No			4	5							
	<i>Sorbus aucuparia</i>														
CR	<i>Sorbus domestica</i>	EN	D	No			2	c.84				W		Yes	Watsonia 20: 379-384
EN	<i>Sorbus eminens</i>	CR	D	No			3	4				NW		Yes	
	<i>Sorbus "Menai Strait Form"</i>	CR	D	No			1	12				SE		Yes	Menai Strait trees, vc49
EN	<i>Sorbus leptophylla</i>	EN	D	No			4	75				All	Yes		
CR	<i>Sorbus leyana</i>	CR	D	No			2	12	Yes			All	Yes		
VU	<i>Sorbus minima</i>	VU	D1+2	No			3	779				All	Yes		

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	<i>Sorbus porrigentiformis</i>	VU	A2c	No							69	NW	Yes	Yes	
	<i>Sorbus rupicola</i>														
	<i>Sorbus torminalis</i>														
EN	<i>Sorbus whiteana</i>	WVL		Yes	?	No	I	I						Yes	Watsonia 26: 1-7; requires confirmation
	<i>Sparganium angustifolium</i>														
	<i>Sparganium emersum</i>														
	<i>Sparganium erectum</i>														
WL	<i>Sparganium erectum</i> subsp. <i>erectum</i>	WL													Placed on Waiting List (as with GB Red Data List)
WL	<i>Sparganium erectum</i> subsp. <i>microcarpum</i>	WL													Placed on Waiting List (as with GB Red Data List)
WL	<i>Sparganium erectum</i> subsp. <i>neglectum</i>	WL													Placed on Waiting List (as with GB Red Data List)
WL	<i>Sparganium erectum</i> subsp. <i>oocarpum</i>	WL													Placed on Waiting List (as with GB Red Data List)
	<i>Sparganium natans</i>														
	<i>Spartina anglica</i>														
VU	<i>Spergularia arvensis</i>	NT	A	No	2					Arch	27			Yes	
	<i>Spergularia marina</i>														
	<i>Spergularia media</i>														
	<i>Spergularia rubra</i>														
	<i>Spergularia rupicola</i>														
NT	<i>Spiranthes spiralis</i>														
	<i>Spirodela polyrhiza</i>														
WL	<i>Stachys alpina</i>	WL													
NT	<i>Stachys arvensis</i>	VU	A2c	No	3					Arch					Placed on Waiting List (as with GB Red Data List)
	<i>Stachys officinalis</i>														
	<i>Stachys palustris</i>														
	<i>Stachys sylvatica</i>														
	<i>Stellaria graminea</i>														
	<i>Stellaria holostea</i>														
	<i>Stellaria media</i>														
	<i>Stellaria neglecta</i>														
	<i>Stellaria nemorum</i>														
DD	<i>Stellaria nemorum</i> subsp. <i>montana</i>	VU	B1ab(iv) +2ab(iv)	No			c.10		Yes		100	All			
	<i>Stellaria nemorum</i> subsp. <i>memorum</i>														Assumed to be LC as species, not analysed
	<i>Stellaria pallida</i>														
VU	<i>Stellaria palustris</i>	VU	A2c	No	4		10								
	<i>Stellaria uliginosa</i>														
	<i>Suaeda maritima</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Subularia aquatica</i>	EN	A2c	No	5							S			
	<i>Succisa pratensis</i>														
	<i>Symphytum officinale</i>														
	<i>Tamus communis</i>									Arch					
	<i>Tanacetum parthenium</i>														
	<i>Tanacetum vulgare</i>														
	<i>Taraxacum</i> agg.														
	<i>Taxus baccata</i>														
NT	<i>Teesdalia nudicaulis</i>														
VU	<i>Tephrosia integrifolia</i> subsp. <i>maritima</i>	VU	D2	No	(2)		5	<10000	No		100	All	Yes		
EN	<i>Teucrium scordium</i>	WL		No	4		1	7			33	NW			Native/alien status uncertain
	<i>Teucrium scorodonia</i>														
	<i>Thalictrum alpinum</i>														
	<i>Thalictrum flavum</i>														
	<i>Thalictrum minus</i>														
	<i>Thelypteris palustris</i>														
	<i>Thesium humifusum</i>	RE													
	<i>Thlaspi arvense</i>														
	<i>Thlaspi caerulescens</i>	VU	Blab(iv) +2ab(iv)	No			8	<10000	Yes	Arch					
	<i>Thymus polytrichus</i>														
	<i>Thymus pulegioides</i>														
	<i>Tilia cordata</i>														
	<i>Tilia platyphyllos</i>														
EN	<i>Torilis arvensis</i>	RE								Arch					
	<i>Torilis japonica</i>														
	<i>Torilis nodosa</i>														
	<i>Tragopogon pratensis</i>														
	<i>Trichomanes speciosum</i> (gametophyte)														
	<i>Trichomanes speciosum</i> (sporophyte)	VU	D2	No	5		5	<2000 fronds	No		33				
	<i>Trichophorum cespitosum</i>														
	<i>Trichophorum cespitosum</i> subsp. <i>germanicum</i>														Assumed to be LC as species, not analysed
	<i>Trifolium arvense</i>														
	<i>Trifolium campestre</i>														
	<i>Trifolium dubium</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Trifolium fragiferum</i>														
	<i>Trifolium medium</i>														
	<i>Trifolium micranthum</i>														
	<i>Trifolium occidentale</i>						7					NW			
	<i>Trifolium ornithopodioides</i>														
	<i>Trifolium pratense</i>														
	<i>Trifolium repens</i>														
	<i>Trifolium scabrum</i>														
	<i>Trifolium squamosum</i>														
	<i>Trifolium striatum</i>														
VU	<i>Trifolium strictum</i>	CR	D	No			1	6 plants			33	NE			
	<i>Trifolium subterraneum</i>														
	<i>Trifolium suffocatum</i>	RE													
	<i>Triglochin maritimum</i>														
	<i>Triglochin palustre</i>									Arch					
	<i>Tripurospermum inodorum</i>														
	<i>Tripurospermum maritimum</i>														
	<i>Trisetum flavescens</i>														
	<i>Trollius europaeus</i>														
NT	<i>Tuberaria guttata</i>						9	33000			83	S			
	<i>Tussilago farfara</i>														
	<i>Typha angustifolia</i>														
	<i>Typha latifolia</i>														
	<i>Typha x glauca (T. angustifolia x latifolia)</i>	VU	D2	No			2								
	<i>Ulex europaeus</i>														
	<i>Ulex galii</i>										34				
	<i>Ulmus glabra</i>														
	<i>Ulmus minor sensu Stace</i>									NA					
	<i>Ulmus procera</i>														
	<i>Umbilicus rupestris</i>										37				
	<i>Urtica dioica</i>														
	<i>Urtica urens</i>									Arch					
	<i>Utricularia australis</i>														
	<i>Utricularia intermedia sens.lat.</i>	VU	D2	No	4		1	?	?						Small number of hecctads so decline trends unreliable
	<i>Utricularia minor</i>														
	<i>Utricularia vulgaris sens.lat.</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Utricularia vulgaris sens.str.</i>	DD		No			4								All four sites are unlocalised 1987+ records
	<i>Vaccinium myrtillus</i>	VU	D2	No			2								
	<i>Vaccinium myrtillus</i> x <i>vitis-idaea</i> (<i>V. x intermedium</i>)														
	<i>Vaccinium oxycoccos</i>														
	<i>Vaccinium vitis-idaea</i>														
	<i>Valeriana dioica</i>														
	<i>Valeriana officinalis</i>														
	<i>Valerianella carinata</i>									Arch					
EN	<i>Valerianella dentata</i>	EN	A2ac	No	4		8			Arch					
	<i>Valerianella eriocarpha</i>	EN	D	No	5		3	c.100	No	NA					
	<i>Valerianella locusta</i>														
EN	<i>Valerianella rimosa</i>	CR	A2ac	No	5		1			Arch					
	<i>Verbascum nigrum</i>	NT	A	No	4										
	<i>Verbascum thapsus</i>														
	<i>Verbena officinalis</i>									Arch					
	<i>Veronica agrestis</i>														
	<i>Veronica anagallis-aquatica</i>														
	<i>Veronica arvensis</i>														
	<i>Veronica beccabunga</i>														
	<i>Veronica catenata</i>														
	<i>Veronica chamaedrys</i>														
	<i>Veronica hederifolia</i>									Arch					
	<i>Veronica hederifolia</i> subsp. <i>hederifolia</i>									Arch					
	<i>Veronica hederifolia</i> subsp. <i>lucorum</i>									Arch					
	<i>Veronica montana</i>														
	<i>Veronica officinalis</i>														
	<i>Veronica scutellata</i>														
	<i>Veronica serpyllifolia</i>														
NT	<i>Veronica serpyllifolia</i> subsp. <i>humifusa</i>	CR	D	No	(1)		1	4-10				S			Assumed to be LC as species, not analysed
	<i>Veronica serpyllifolia</i> subsp. <i>serpyllifolia</i>														
	<i>Veronica spicata</i>														
	<i>Viburnum lantana</i>														
	<i>Viburnum opulus</i>														
VU	<i>Vicia bithynica</i>	EN	A2ac, D	No	5		2	<250							
	<i>Vicia cracca</i>														
	<i>Vicia hirsuta</i>														

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
NT	<i>Vicia lathyroides</i>										62				
	<i>Vicia orobus</i>														
	<i>Vicia sativa</i>														
	<i>Vicia sativa</i> subsp. <i>nigra</i>														
	<i>Vicia sativa</i> subsp. <i>sativa</i>									Arch					NT on AOO & Hectad trend but this due to under-recording
	<i>Vicia sativa</i> subsp. <i>segetalis</i>									Arch					
	<i>Vicia sepium</i>														
	<i>Vicia sylvatica</i>														
	<i>Vicia tetrasperma</i>														
	<i>Vinca minor</i>									Arch					
	<i>Viola arvensis</i>									Arch					
NT	<i>Viola canina</i>														
NT	<i>Viola canina</i> subsp. <i>canina</i>														Assumed to be LC as species, not analysed
	<i>Viola hirta</i>														
VU	<i>Viola lactea</i>										33	N			
	<i>Viola lactea</i> x <i>V. riviniana</i>										29				
	<i>Viola lutea</i>														
	<i>Viola odorata</i>														
	<i>Viola palustris</i>														
	<i>Viola palustris</i> subsp. <i>juressi</i>										28	N			
	<i>Viola palustris</i> subsp. <i>palustris</i>														
	<i>Viola reichenbachiana</i>														
	<i>Viola riviniana</i>														
NT	<i>Viola tricolor</i>	VU	A2c	No	4										
	<i>Viola tricolor</i> subsp. <i>curtisii</i>										29				
NT	<i>Viola tricolor</i> subsp. <i>tricolor</i>	VU		No	4										Assumed to be VU as species, not analysed
	<i>Viscum album</i>														
	<i>Vulpia bromoides</i>														
	<i>Vulpia ciliata</i>	VU	D2	No			2					W			
	<i>Vulpia fasciculata</i>										45				
	<i>Vulpia myuros</i>									Arch					
NT	<i>Wahlenbergia hederacea</i>										54				
VU	<i>Wolffia arrhiza</i>						11								
NT	<i>Woodсия alpina</i>	CR	D	No	3		4	<50							Small number of hectads so decline trends unreliable
EN	<i>Woodсия ilvensis</i>	CR	D	No	3		3	<50			43	S			

GB Red List	Taxon	Wales Red list	Criteria	Immigration likely?	Dynamism score	Category modified?	Locations	Individuals	Ongoing decline?	Native/alien status	Prop of GB population	Edge of GB range?	Endemic to Wales?	Wales near Endemic?	Comments
	<i>Zannichellia palustris</i>						6								
NT	<i>Zostera marina</i>														
VU	<i>Zostera noltei</i>														

9. Excluded Taxa

All taxa that are neophytes and casuals in the UK (Preston *et al.*, 2002) are excluded from this analysis. The following native and archaeophyte taxa have also been excluded for the reasons stated. They are all given the IUCN category of Not Applicable (NA) for the purpose of this study.

Taxon	UK Status	Red List Wales	Reason(s) for exclusion
<i>Allium scorodoprasum</i>		NA	Alien in Wales
<i>Apera spica-venti</i>	Archaeophyte	NA	Was only casual in Wales
<i>Arabis glabra</i>		NA	Was only casual in Wales
<i>Arbutus unedo</i>		NA	Alien in Wales
<i>Armeria arenaria</i>		NA	Alien in Wales
<i>Asplenium onopteris</i>		NA	Alien in Wales
<i>Atriplex pedunculata</i>		NA	Alien (and casual) in Wales
<i>Berberis vulgaris</i>	Native or alien	NA	Alien in Wales
<i>Bupleurum rotundifolium</i>	Archaeophyte	NA	Was only casual in Wales
<i>Buxus sempervirens</i>	Native or alien	NA	Alien in Wales
<i>Camelina sativa</i>	Archaeophyte	NA	Casual
<i>Carex humilis</i>		NA	Border hectad – has never been recorded from Wales
<i>Carum carvi</i>	Archaeophyte	NA	Was only casual in Wales
<i>Centaurea calcitrapa</i>	Archaeophyte	NA	Was only casual in Wales
<i>Cephalanthera damasonium</i>		NA	Border hectad – has never been recorded from Wales
<i>Chenopodium hybridum</i>	Archaeophyte	NA	Was only casual in Wales
<i>Clinopodium calamintha</i>		NA	Was only casual in Wales
<i>Corynephorus canescens</i>		NA	Alien in Wales
<i>Crassula tillaea</i>		NA	Alien in Wales
<i>Cynodon dactylon</i>	Native or alien	NA	Alien in Wales
<i>Draba muralis</i>		NA	Alien in Wales
<i>Echium plantagineum</i>	Archaeophyte	NA	Neophyte in UK (native only to Channel Islands)
<i>Epipactis purpurata</i>		NA	Border hectad – has never been recorded from Wales
<i>Erica vagans</i>		NA	Alien in Wales
<i>Frankenia laevis</i>		NA	Alien in Wales
<i>Fritillaria meleagris</i>	Native or alien	NA	Alien in Wales
<i>Fumaria vaillantii</i>	Archaeophyte	NA	Occurred once as a weed with a garden shrub
<i>Galium parisiense</i>	Native or alien	NA	Was only casual in Wales
<i>Gentianella amarella x uliginosa</i>		NA	Hybrid not a valid taxon (Tim Rich)
<i>Helianthemum apenninum</i>		NA	Alien in Wales
<i>Herniaria glabra</i>		NA	Alien in Wales
<i>Hippophae rhamnoides</i>		NA	Alien in Wales
<i>Iberis amara</i>		NA	Alien in Wales
<i>Illecebrum verticillatum</i>		NA	Alien in Wales
<i>Isatis tinctoria</i>	Archaeophyte	NA	Was only casual in Wales
<i>Lathyrus aphaca</i>		NA	Alien in Wales

Taxon	UK Status	Red List Wales	Reason(s) for exclusion
<i>Leucosium aestivum</i>		NA	Alien in Wales
<i>Limonium britannicum</i> subsp.celticum		NA	Part of <i>Limonium binervosum</i> agg.
<i>Limonium britannicum</i> subsp.transcanalis		NA	Part of <i>Limonium binervosum</i> agg.
<i>Limonium paradoxum</i>		NA	Part of <i>Limonium binervosum</i> agg.
<i>Limonium parvum</i>		NA	Part of <i>Limonium binervosum</i> agg.
<i>Limonium procerum</i> subsp.cambrense		NA	Part of <i>Limonium binervosum</i> agg.
<i>Limonium procerum</i> subsp.procerum		NA	Part of <i>Limonium binervosum</i> agg.
<i>Limonium transwallianum</i>		NA	Part of <i>Limonium binervosum</i> agg.
<i>Lythrum hyssopifolium</i>	Archaeophyte	NA	Casual
<i>Medicago sativa</i> subsp.falcata		NA	Alien in Wales
<i>Mespilus germanica</i>	Archaeophyte	NA	All Welsh trees planted & not regenerating
<i>Minuartia hybrida</i>		NA	Alien in Wales
<i>Muscari neglectum</i>	Native or alien	NA	Alien in Wales
<i>Nymphoides peltata</i>		NA	Alien in Wales
<i>Onobrychis viciifolia</i>	Native or alien	NA	Alien in Wales
<i>Ornithogalum pyrenaicum</i>		NA	Alien in Wales
<i>Petrorhagia nanteuilii</i>		NA	Alien in Wales
<i>Pimpinella major</i>		NA	Casual
<i>Pinguicula grandiflora</i>		NA	Alien in Wales
<i>Pinus sylvestris</i>		NA	Alien in Wales
<i>Polemonium caeruleum</i>		NA	Alien in Wales
<i>Polypogon monspeliensis</i>		NA	Alien in Wales
<i>Potentilla fruticosa</i>		NA	Alien in Wales
<i>Pulicaria vulgaris</i>		NA	Was only casual in Wales
<i>Pulmonaria longifolia</i>		NA	Alien in Wales
<i>Pyrus cordata</i>	Native or alien	NA	Border hectad – has never been recorded from Wales
<i>Ribes alpinum</i>		NA	Alien in Wales
<i>Ribes spicatum</i>		NA	Alien in Wales
<i>Rumex longifolius</i>		NA	Was only casual in Wales
<i>Saxifraga hirsuta</i>		NA	Alien in Wales
<i>Saxifraga spathularis</i>		NA	Alien in Wales
<i>Scirpoides holoschoenus</i>		NA	Alien in Wales
<i>Scleranthus annuus</i> subsp. polycarpus		NA	Border hectad – has never been recorded from Wales
<i>Scrophularia umbrosa</i>		NA	Alien in Wales
<i>Silene otites</i>		NA	Alien (and casual) in Wales
<i>Sisyrinchium bermudiana</i>		NA	Alien in Wales
<i>Sium latifolium</i>		NA	Border hectad – has never been recorded from Wales
<i>Sorbus devoniensis</i>		NA	Alien in Wales
<i>Stratiotes aloides</i>		NA	Alien in Wales
<i>Suaeda vera</i>		NA	Alien in Wales
<i>Symphytum tuberosum</i>		NA	Alien in Wales
<i>Trifolium glomeratum</i>		NA	Was only casual in Wales
<i>Ulex minor</i>		NA	Alien in Wales
<i>Ulmus plotii</i>		NA	A form of <i>Ulex minor</i>
<i>Verbascum lychnitis</i>		NA	Alien in Wales
<i>Verbascum pulverulentum</i>	Native or Alien	NA	Alien in Wales
<i>Vicia lutea</i>		NA	Alien in Wales

10. Acknowledgements

Compilation of this Red Data List would have been impossible without the help, advice and support of the Botanical Society of the British Isles Vice-county Recorders in Wales and the members of the BSBI Committee for Wales, namely Ian Bonner, Arthur Chater, Paul Day, Trevor Evans, Stephen Evans, Jean Green, David Humphreys, Andy Jones, Quentin Kay, Wendy McCarthy, Julian Woodman, Mike Porter, Richard Pryce, Kate Thorne, Marjorie Wainwright, Delyth Williams, Ray Woods and Goronwy Wynne. Their diligent supply of accurate records and advice on various aspects of the Red Data List analysis throughout its development is very much appreciated and I apologise to them again for the barrage of queries that I have submitted to them throughout the project.

Enormous thanks are also due to Chris Cheffings at JNCC for the considerable task of supplying the hectad and “area of occupation” decline statistics for Criterion A in Wales, and also for her valuable comments on the text and her help and encouragement with the project along the way.

Thanks must also go to various other individuals for providing extremely useful records and observations to the project, namely Tristan Hatton-Ellis, Gabrielle Wyn, Annie Seddon, Barbara Jones, John Osley, Liz Howe, Tim Rich (especially for supplying threat statuses for *Hieraceum* microspecies in Wales), Kevin Walker, Alex Lockton and David Pearman.

Finally, we would like to acknowledge the generous financial assistance of the Countryside Council for Wales, which contributed to both the production and publication of this report. The project formed part of the objectives of the “*Back from the Brink – Plantlife Wales Officer 2005-2007*” CCW Grant GU8071. The project would not have been possible without this help.

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Featured Species

Two species have been selected to illustrate the value of producing a Vascular Plant Red Data List for Wales.

Bog Orchid (*Hammarbya paludosa*)

Least Concern in Great Britain but **Endangered** in Wales

Bog Orchid is a diminutive species of very wet acidic sites where there is some movement of water. It is usually found on saturated sphagnum moss but also occurs on peaty mud and amongst grasses on the edges of runnels and flushes.

This species has declined considerably in Great Britain, especially as a result of drainage in the lowlands before 1930, and it has been lost from many English counties. Losses still occur throughout its range and declines in the uplands are usually attributed to overgrazing. Resent surveys have shown it to be more frequent than previously thought, but it is also quite a dynamic species and appears to move around in the environment. Despite these losses and the dynamism, this species is regarded as Least Concern in Great Britain, as its range has been more stable recently and new populations have been found.

In Wales, Bog Orchid is an enigmatic species, with most records coming from upland flushes. Plants appear only sporadically at some sites, while at others it is known to have reappeared following the cessation of grazing. Other sites have become very degraded through overgrazing and few plants are now recorded. The recent loss of sites in Caernarfonshire and Merioneddshire means it is regarded as Endangered in Wales and is in need of specific conservation action.



BOB GIBBONS / NATURAL IMAGE

Three-lobed Water-crowfoot (*Ranunculus tripartitus*)

Endangered in Great Britain but **Least Concern** in Wales

Three-lobed Water-crowfoot is an annual plant of bare damp mud, drainage ditches, shallow pools and pond edges that dry out in summer, and also in sphagnum bogs. It prefers sites where peat overlies nutrient-poor mineral clays. It is most frequent where heathland grades into rushy pasture and where poaching by cattle keeps muddy areas open for germination.

In Great Britain, this species has suffered a very significant decline, mainly through habitat destruction and a reduction in disturbance by undergrazing. Losses have been especially marked in Devon and Cornwall, and from Surrey and Kent, where many populations have become extinct. Again, this is a dynamic species and can appear or disappear from sites within a few years. Better surveying, however, has uncovered new populations and many sites are monitored regularly. In Great Britain, this species is regarded as Endangered, primarily because of the losses in southern England.

In Wales, this species has always been more frequent than in England, and does not exhibit such a severe pattern of decline. Although it has been lost historically from 20 sites, a combination of improved surveying (which has revealed new sites) and the restoration of appropriate management (a reintroduction of grazing onto heaths along with 'pinch-point' management to create the open mud necessary for germination) means that 28 sites are now known, many of which are in favourable condition. This UK BAP species is increasing in Wales and it is regarded here as Least Concern.



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ISBN 1-904749-92-5