

Controlling Cotoneaster

Operational guidance note

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What is this document about?

Advice for site managers on the various methods for controlling *Cotoneaster sp.* with a particular focus on protected sites. It includes helpful guidance on herbicides and their use, non-chemical treatment methods, and descriptions of *Cotoneaster* control in different situations.

We have included a treatment key used to help inform decision making. These situations include:

1. High value limestone grassland and grass-heath,
2. Scree, bare ground, litter, low conservation value grassland,
3. Cliffs, outcrops and escarpments,
4. Woodland, bracken and scrub,
5. Heathland.

This is detailed guidance on how to treat *Cotoneaster* in different situations. However every site must still be treated on a **site-by-site basis**. When controlling *Cotoneaster* on protected sites, there are many factors to consider, including the potential impact on rare species interests (see Appendix 1).

Who is this document for?

Managers of land where *Cotoneaster* control is needed.

Contact for queries and feedback

INNSteam@naturalresourceswales.gov.uk

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Cotoneaster

Non-native Cotoneaster species were originally introduced to the UK from Asia in the 19th century as ornamental garden species. Since then, these species have spread widely across the UK including to limestone crags, cliffs, slopes and dry grasslands of conservation importance.

Seeds are often spread by birds ingesting Cotoneaster berries or by plants growing from berries that fall within a few meters of the parent plant. Berries are produced in the autumn (they can be produced from the end of August till end of December) and are often retained on the plant for much of the following year. Plants can occasionally spread through cuttings or can regrow from cut stumps or from shallow roots.

Seed production from plants varies between species but they are usually produced when plants are 3 years of age, seed longevity (seed bank) also varies but seeds can be viable for up to 5 years.

Approach to Cotoneaster control

Cotoneaster control can only be achieved through long-term management programmes.

An initial 2-3 year treatment programme is needed. In year 1 the treatment should aim to treat at least 90-95% of the Cotoneaster in the given area. There may be repeated treatments in the first year to target any plants which were missed.

In year 2 any further plants which were missed or which have regenerated can be targeted. Any seedlings can also be treated.

Year 3 is a repeat of year 2 with the aim of ensuring that all plants have been killed.

Seedlings may continue to be an issue for several years after the initial 2-3 year programme and may require periodic control.

A site should be monitored until 2 years have passed with no signs of regrowth and seedlings.

On larger sites with Cotoneaster spread over extensive areas at different densities, it is essential to continually monitor the best areas of habitat where Cotoneaster is sparse to prevent further spread or re-invasion and at the same time tackle areas with dense Cotoneaster cover.

It is essential that site managers have detailed information on the location of notable species so that they can plan the work and guide contractors. Where there is insufficient information it is essential that specialist surveys are undertaken prior to treatment. This is particularly an issue for non-vascular plants where survey information is likely to be sparse and site managers are less aware of their significance and sensitivities.

Sites that have sensitive habitat or species are likely to need precision treatment techniques to be deployed and a specialised/experienced/skilled contractor may be needed to prevent accidental damage to the site.

There is limited understanding of the recovery of habitat/species following Cotoneaster control. However limestone grassland regeneration has been successful following treatment, and maintaining even small patches of grassland in large areas of treated Cotoneaster has a positive impact on the rate of re-colonisation. It was also found that sweeping and raking cleared areas helped the rate of recovery/regeneration.

Biosecurity

Biosecurity is a way of working that reduces the risk of introducing or spreading invasive non-native species, pests and diseases.

It is necessary to draw up a biosecurity risk assessment and plan for any control work to prevent:

- the spread of Cotoneaster within and from a site
- other new INNS from being introduced to the site.

Cotoneaster seeds can be transported on muddy boots, equipment, vehicles or through the movement of arisings or soil containing seeds.

You can find up to date biosecurity information and resources on the Great Britain Non-Native Species Secretariat website:

<https://www.nonnativespecies.org/biosecurity/biosecurity-in-the-field/>

Cotoneaster control treatments

Herbicides

Types and dilution

A professional glyphosate herbicide is used for the foliar and stump treatment of Cotoneaster (commercial products contain 2% glyphosate salt). Flotsam and Triclopyr based herbicides have also been tested and found to be effective however glyphosate herbicide is usually used to control Cotoneaster.

There are some professional glyphosate products that have a higher concentration and their low volume makes them more suitable for use at remote sites because they are lighter to carry. However these herbicides with higher concentrations can be significantly more expensive.

Surfactants are recommended and are useful as they help herbicides to adhere to the waxy cuticle of plants, this can enhance the efficiency of herbicides by improving their absorption and rain fastness.

Dyes are frequently used as this improves both efficiency and effectiveness by identifying parts of the plant which have not been treated.

The dilution rate can vary depending on the method of application. Table 1 lists the dilution rate of professional standard glyphosate used to effectively control Cotoneaster in practice.

Table 1: application techniques and dilutaion rates used to effectively control Cotoneaster at sites

Application technique	Site	Dilution rate
Brush	New Forest	15%
Foliar spray	Isle of Portland	4%
Foliar spray	Gower	4%
Foliar spray	New Forest	5%
Foliar spray	Penrhyn Mawr	10-20%
Foliar spray	Moel Hiraddug	20-30%
Hatchet scratch/stem abrasion	Great Orme	100%
Scratch and Spray technique	Magnificent meadows	100%
Stump treat	Moel Hiraddug	20%
Stump treat	Great Orme	100%
Weed wipe	Moel Hiraddug	15-20%
Weed wipe	Great Orme	30%

When to use herbicides

Foliar spraying can take place successfully year-round, but March/April until September/October is recommended (during the active growing season prior to seed production).

Treatment of *C. horizontalis* should not take place much beyond September when it starts to lose its leaves.

Weather is critical to success:

- treating during long dry spells should be avoided, for example following 1 or more weeks of hot sun.
- the best results are achieved if it doesn't rain for at least 24 hours after application.

Stump treatment is best carried out in late summer or autumn for the most effective translocation of the herbicide to below-ground tissue.

Herbicide impacts on bees and invertebrates

Some professional glyphosate-based herbicides have been found to have a significant adverse impact on bees. Whilst some research suggests that glyphosate itself is not as harmful to pollinators as originally thought, the commercial formulations which contain glyphosate can be detrimental to them.

When controlling cotoneaster, potential impacts to bees and invertebrates should be considered, particularly when foliar spraying. The potential impact to the invertebrates may be reduced by spraying as soon as the flowering period has ended, which in most cases is August. The flowering period is generally from June to July and so spraying just before the flowering period may also reduce the potential impact to the invertebrates. However, in both cases, the effectiveness of the control may be reduced.

Herbicide treatment before cutting

Treatment with herbicide before the foliage of the plant is cut back enables provides a large surface area for herbicide contact. This has both advantages and disadvantages shown in Table 2.

Table 2: advantages and disadvantages of using herbicide before cutting

Advantages	Disadvantages
Fast and efficient method (lower labour cost)	Can impact on large areas of habitat
Larger areas can be controlled	Can have a greater impact on species of interest
Dead material is easier to remove	Uses larger quantities of herbicide therefore has wider environmental and material cost considerations

There are a number of ways in which the whole plant can be treated: foliar spray (e.g. knapsack spraying), weed wiping, paint brush or gel stick application.

Herbicide treatment after cutting

Herbicide treatment after cutting has the opposite advantages and disadvantages to treatment before cutting. It is slower and less time efficient but uses less herbicide and is more targeted, allowing greater precision and less collateral damage.

Reducing herbicide use has wider environmental benefits, for example by reducing potential soil contamination and human health risks.

It is best to stump treat with herbicide within an hour of cutting and therefore it is most efficient to cut and treat at the same time rather than cut first and treat the whole site later.

Plants can be cut with loppers, secateurs, bow saw, hand-held hedge cutter, chain saw or clearing saw depending on the stem diameter.

Usually stem injecting/treatment is carried out without cutting and removing the plant, however, if the Cotoneaster is particularly dense and the base of the stem difficult to access, it may be necessary to cut first and then stem treat.

Cutting prior to herbicide treatment produces a lot of green arisings, which makes collection and disposal more difficult, time consuming and costly.

Applying herbicides

Foliar sprays and controlled droplet sprayers

Spray drift can cause damage to non-target areas and species. However, adjustable nozzles can give either a wide fan or a very concentrated stream depending on sites condition, weather and ecological interest. Using the concentrated stream adjustment combined with low pressure it is possible to target a very small area with minimal damage and drift.

An alternative is a controlled droplet sprayer (CDA) in which the herbicide is delivered via a tube into a spinning disc. In theory, because the application rate of a CDA is lower than with a conventional sprayer and the droplets are larger, there should be less collateral damage.

However, where Cotoneaster is in an intimate mix with non-target rare species or habitats the use of either foliar spray is not normally recommended.

If it is possible to accept some collateral damage, then the impact of herbicide on non-target species/habitat can be minimised by pulling Cotoneaster branches out and gathering them together using a broom or lance with a hook at the end before spraying.

Generally, foliar sprays and CDAs are best used:

- Where there are large areas of Cotoneaster with little or no habitat of interest beneath and no rare plant species e.g. on scree or non-target grassland.
- Where there is sparse cover of many small plants within a grassland habitat such that the accumulative impact of the collateral damage is likely to be small. However, this requires very controlled spraying of each plant to minimise damage.

Although the herbicide is drawn down through the vascular system of the plant, there is anecdotal evidence that on larger dense plants, herbicide contact with only part of the plant can lead to only partial dieback. Spraying is therefore likely to be less effective on very large mounds of Cotoneaster. In these instances, it may be preferable to cut the

Cotoneaster and stump treat, or the plant can be re-sprayed following the first leaf drop to target the less accessible parts of the plant.

Weed wipers, gel wands or sticks, and brushes

Handheld weed wipers are light weight and easy to use; the herbicide is transferred via a rope wick under gravity. They enable the user to precisely target specific plants and come in different sizes, for example micro-wipers are smaller than standard models and therefore enable greater precision. The heads are either straight or angled, and wipers with round sponge heads are also available, although these are more suitable for garden use.

Gel wands such as the Roundup Wand are gardening products which allow gel to be applied directly to target species. The wand has a trigger for easy control and is extendable, allowing easier access. They can be used to target plants within limestone and bryophyte-rich grassland habitats where collateral damage needs to be limited.

Paint brushes are the easiest method and are available in a wide range of sizes so that even very small plants can be targeted precisely.

Stem treatment

Stem treatment can be done by:

- either stripping back a bark patch near the base of each stem to expose the cambium (2-3 inches)
- or do one or more cuts per 5 cm diameter, with a minimum of two cuts.

Then apply neat herbicide with a dye using an adapted spray bottle with a nozzle.

While it has a high kill rate, this method is time consuming.

Non-chemical treatment

Hand pulling and excavation using hand tools

Hand-pulling or excavation of individual plants using hand tools is suitable for smaller plants, although care is needed to avoid:

- destabilising soil particularly on steeper ground.
- fragments being left behind as these will re-grow in following years.

Weeding of small seedlings is also possible and is less damaging to the substrate.

Hand-pulling of plants in the limestone grasslands and excavation of individual small using hand tools does not work unless plants are very small. Cotoneaster roots penetrate the near surface bedrock, making them impossible to pull.

Hand pulling of plants and excavation of individual plants using hand tools in soil is easier when the soil is moist.

This method is time consuming and labour intensive.

Arisings must be disposed of appropriately,

Smothering

Smothering by the use of weed-suppressant fabrics to eliminate light is possible on small swathes of Cotoneaster. However:

- there is no evidence that this has been trialled on Cotoneaster.
- heavy duty fabrics for landscaping are expensive and are likely to be hard to use and ineffective on exposed limestone grassland sites.

Fire

Fire **is not recommended** as a management tool.

There is no evidence that is more effective than other methods and has considerable risk in terms of wildfire. Particularly as many of the sites have a high fuel load and the vegetation is often very dry.

Mechanical excavation

Excavation using machinery can be used for large stands, it is expensive and very damaging to habitat so is unlikely to be suitable for most protected/sensitive sites. It can remove the seedbank.

Disposal of arisings

Arisings can be disposed of to a suitably licenced waste disposal facility. This can be expensive.

Disposing of arisings on site depends on the availability of suitable land where no sensitive features are present.

Arisings are not suitable for composting if berries are present. If there are no berries present then they could be composted on site in a suitable location.

Smaller quantities could be dried out on a hard standing/impermeable surface and burnt to ash on site. Arisings could be buried on site (2m). However advice would need to be obtained (from the NRW Waste Team) and any necessary exemptions would need to be secured before burial or burning on site could take place.

Access issues

Some techniques can be deployed to reduce the need to use rope access or to make accessing areas by rope safer. For example a pressurised container containing herbicide can be deployed away from a cliff to enable the person applying the herbicide to do so without having to wear a knapsack. Extendable lances (up to 7m long) can be used to treat Cotoneaster from above or below an area that is difficult to access.

However in some cases it may be necessary to deploy experienced contractors with staff that have rope access qualifications.

When drawing up specifications for rope - access contractors you may wish to consult with your health and safety officer to ensure that the contractor adheres to relevant legislation, for example [Work at Height Regulations 2005](#)

Any contractor undertaking work on site should provide a site-specific risk assessment and method statement for how they plan to undertake the work. This should include rope access systems, members of the team involved in the work, their duties and competency, equipment to be used (including personal protective equipment), public safety provisions (exclusion areas), accident response plan in case contracts need to be rescued, location of anchor points, identification of anticipated risks and action taken to mitigate those risks.

Description of control in different situations

The guidance is based on Cotoneaster density in different high value and non-high value habitats.

In this case density is measured using the [Domin Scale](#) at a stand level. Table 3 describes the Domin scale.

Table 3: Domin Scale used to describe the cover of a species in a vegetation community

Domin scale	Cover percentage
1 to 3	Less than 4%
4	5-10%
5	11-25%
6	26-33%
7	34-50%
8	51-75%
9	76-90%
10	91-100%

High value limestone grassland and grass-heath

Treatment key A: high value limestone grassland and grass-heath

1. If Domin Scale 1 to 3 (low density Cotoneaster): Go to 3
2. If Domin Scale 4 or above (high density Cotoneaster): Go to 7
3. Plants/patches are smaller than 30cm diameter and less than 50cm height: Go to 4
Plants/patches are larger than 30cm diameter and/or higher than 50cm height: Go to 6
4. Rare species present (advice from specialist advisor/may require survey): Go to 5
For all other cases (e.g. rare species not present) use foliar spray
5. Weed wipe or apply with a paint brush/weed wand
6. Cut plants and stump treat
7. Plants/patches are less than 30cm diameter and less than 50cm height: Go to 8
Plants/patches are larger than 30cm diameter and/or more than 50cm height: Go to 9
Plants/patches are larger than 100cm diameter: Go to 10
8. Weed wipe or apply with a paint brush/weed wand
9. Cut plants, remove arisings and stump treat/or spray retreat after leaf drop
10. Rare species present (advice from specialist advisor/may require survey). Otherwise, foliar spray the central area leaving a 30cm buffer at the edges. Treat the buffer by weed wiper or apply with a paint brush/weed wand the buffer. For exceptionally large plants/patches, consider cutting the material to reduce the mass before spraying.

Detail: limestone grassland and grass-heath habitats with low percentage cover of Cotoneaster (domin 1 to 3)

Make sure you agree the approach with conservation specialist advisors **before** starting any control measures. Pre-work research or survey may be needed to identify vascular plant, bryophyte and lichen interests.

A full list of vascular plant species of high conservation interest on limestone grassland sites in Wales is given in [Appendix 1: calcareous grassland vascular plants list](#)

Areas of limestone (calcareous) grassland and grass-heath with a low density of Cotoneaster are a priority for management as they can be restored and enhanced before the Cotoneaster becomes a significant problem.

Where Cotoneaster cover is low and there are no species of particular conservation interest collateral damage can be kept to a minimum whilst allowing swift treatment of plants.

[Foliar spray](#) will be the most efficient method of control for small plants (less than 30cm diameter and 50cm height) but needs to be well-targeted to minimise collateral damage.

If species of particular conservation interest are present herbicide should be applied by [brush, weed wiper or weed wand](#)

Where there are scattered large plants (larger than 30 cm diameter and 50 cm height) within high value habitat, the bushes should be cut back, the arisings removed and the plants stump treated. For more information on this approach see [Herbicide treatment after cutting](#)

Small areas of immature Cotoneaster plants or seedlings near to the locations where rare plants are present could potentially be treated using hand pulling or excavation of individual plants using hand tools, however this is very labour intensive and care would need to be taken not to disturb the rare plants.

Advice for limestone grassland and grass-heath habitats with high percentage cover of Cotoneaster (domin 4 or above)

On these areas there is potential for considerable collateral damage to the habitat as a result of control.

Even at lower levels of density there is the possibility of impacting on rare communities and species.

At higher levels of density, where there is very little remaining habitat, extreme care is needed to ensure that these remaining areas are protected to provide a source for re-colonisation.

The possible persistence of habitat beneath the Cotoneaster should also be considered.

Small plants (less than 30 cm diameter and less than 50 cm height) can be treated by [weed wiping, brush application or weed wand](#)

Larger plants (larger than 30 cm diameter and/or 50 cm height) should either be [stem treated](#) or [cut back, arisings removed and the plants stump treated](#).

To speed up management at the higher density end of the scale, where there are very large plants (larger than 100 cm circumference and 50 cm height) it should be possible to spray the bulk of the Cotoneaster bush/patch but treat the edges immediately adjacent to the high value grassland by weed wiper, brush application or weed wand.

This will not work if the Cotoneaster is very dense and matted, in which case cutting and stump treating remains the best option.

Scree, bare ground, litter, low conservation value grassland

Treatment key B: Scree, bare ground, litter, non-limestone grassland

1. Rare species present: Go to 2
Rare species not present: Go to 3
2. [Weed wipe or apply with a paint brush/weed wand](#)
3. Very large plants larger than 100cm diameter and 50cm height: Go to 4
All other cases use [foliar spray](#)
4. Cut large dense plants by hand or mechanically, remove arisings and stump treat

Detail

Cotoneaster on areas of scree, bare ground, non-limestone grassland or where there is only litter beneath may not be a high priority for management unless they support species of particular conservation interest. However, in the long-term if a site is to be cleared of Cotoneaster these areas will have to be tackled. Limestone pavement, which is a particularly rare rock habitat, should be [treated as limestone grassland](#).

In most instances, spraying would be the most efficient treatment. Exceptions are where there is a particular species of conservation interest, where more careful weed wiping or brush/weed wand application is required, for example:

- limestone fern
- immediately adjacent to high value grassland

Another possible exception would be where the bushes are so large, dense and matted that it is unlikely that the herbicide will penetrate far enough. In these instances, the plants should be cut mechanically or by hand and arisings removed before stump treatment. Alternatively, the bushes may have to be sprayed at least twice to allow herbicide to penetrate after the first leaf drop (following the first application of herbicide).

Cliffs, outcrops and escarpments

Treatment key C: cliffs, outcrops and escarpments

1. If Domin Scale 1 to 6: Go to 3
2. If Domin Scale 7 or above: Go to 5
3. Rare species present on or below cliff: Go to 4
All other cases – use any herbicide application method appropriate for the access method used (e.g. spray, wipe, brush/wand)
4. Weed wipe or apply with a paint brush/weed wand

5. Cut Cotoneaster at top and bottom of cliff, remove arisings, stump treat. Treat any remaining Cotoneaster use any herbicide application method appropriate for the access method used (e.g. spray, wipe, brush/wand)

Detail

Steep, rocky limestone habitats are very easily colonised by Cotoneaster and there is a clear link between Cotoneaster growing on cliffs/outcrops and the colonisation of grassland below by seed rain.

For this reason it may be beneficial to start management on the higher cliffs and work downwards to control seeding from above. Cliffs and outcrops may have both botanical interest, e.g. dark red helleborine, and faunal interest, e.g. nesting birds. A pre-works research or survey may be needed.

In general, at lower densities, Domin <7, plants can be herbicide treated by the easiest method for the location and requirements of rope access work/extendable lance. This includes spraying, weed wiping, brush application etc. However, where there are species of interest in close proximity spraying should be avoided or notable species can be physically protected through use of a tarpaulin or sheeting for screening.

If there is a very dense/matted cover of Cotoneaster, Domin 7-10, such that most of the cliff is obscured, it is likely to be beneficial to cut first. Some plants may be rooted at the top and grow down, others will be rooted at the bottom and grow up. These can be stump treated and once the dead material has been removed it will be possible to spray any remaining plants rooted on the cliff.

Woodland, bracken and scrub

Treatment key D: woodland, scrub and bracken

1. Trees/scrub/bracken to be removed as well as Cotoneaster: Go to 2
Only Cotoneaster to be treated: Go to 3
2. Scrub removed first and then: Got to 3
3. High value grassland remnants remain: Go to 4
No high value grassland remnants: Go to 5
4. Follow [Treatment key A: high value limestone grassland and grass-heath](#)
5. Follow [Treatment key B: Scree, bare ground, litter, non-limestone grassland](#)

Detail

Woodland, bracken or scrub may be a desirable component of some limestone sites although in many instances the invasion by both native and non-native trees is the result of lack of appropriate grazing management rather than planned woodland expansion.

Management of Cotoneaster in these areas may not be a high priority but in the long-term the Cotoneaster should be tackled as it remains a seed source.

In addition, where the woodland, bracken or scrub has invaded formerly important grassland areas there may be a desire to clear both native colonisers and non-native invasives.

Where it is planned to restore grassland by removing trees, bracken or scrub it would be preferable to do this work before managing the Cotoneaster, to make access easier and to reduce disturbance after treatment of the Cotoneaster.

In areas of scrub and woodland with remnants of high value grassland follow the guidance for [High value limestone grassland and grass-heath](#)

Domin scale	Cover percentage
1 to 3	Less than 4%
4	5-10%
5	11-25%
6	26-33%
7	34-50%
8	51-75%
9	76-90%
10	91-100%

High value limestone grassland and grass-heath
In areas of scrub and woodland with non-high value habitats or no remnants of grassland beneath follow the guidance for [Scree, bare ground, litter, low conservation value grassland](#)

Heathland

Treatment key E: heathland

1. Heath on cliffs, rock outcrops, quarries: Go to 2
Heath not on the above: Go to 3
2. Treat as Cliffs and Escarpment Section C
3. Dwarf-shrub canopy less than 25% density: Go to 4
Dwarf-shrub canopy greater than 25% density: Go to 7
4. Heath/grass mosaic - high value grassland (maritime, limestone etc.): Go to 5
Heath/grass mosaic - other grassland: Go to 6

5. Treat as [High value limestone grassland and grass-heath](#)
6. Treat as [Scree, bare ground, litter, low conservation value grassland](#)
7. Sparse Cotoneaster Domin 1-3 - stem inject, cut/stump treat, weed wipe
Dense Cotoneaster Domin 4-10 – mow/cut heath with Cotoneaster then cut/stump treat, stem inject or dig-out roots

Detail

There is very little information available on management of Cotoneaster on heathland. Cotoneaster is recorded on some maritime and coastal heath sites and on cliffs, rock outcrops and quarries with dry heath.

On calcareous or maritime heath sites where the dwarf-shrub canopy is less than 25%, management should follow the guidelines for limestone grassland/grass-heath. Where there is a well-developed dwarf-shrub canopy (at least 25% density), treatment will depend on the density and distribution of Cotoneaster.

Where the Cotoneaster is sparse, <Domin 3, individual plants can be stem treated, cut/stump treated or weed wiped.

Where there is a higher cover of Cotoneaster and the ground is sufficiently level, all the vegetation including the ericoids can be mown to ground level as part of the heathland management cycle and the Cotoneaster stump treated, stem injected or on some sites it may be possible to dig out the roots.

On rock faces, outcrops and quarry habitats follow the guidance for [Cliffs, outcrops and escarpments](#)

Appendix 1: calcareous grassland vascular plants list

The list in Table 4 includes those species which are listed as qualifying species or part of a species assemblage on SSSI.

Note that the presence of these species does not necessarily prohibit the use of herbicide on Cotoneaster, as site context needs to be considered. For example, *Helianthemum canum* is very abundant on some sites, for example Great Orme, and therefore herbicides spray can be used with care in the vicinity of plants.

However, on other sites *H. canum* is very scarce and any herbicide use should be carried out using direct application by brush or wiper or by cutting and stump treatment to avoid collateral damage to the rockrose population.

This list **does not include** bryophyte and lichen interest.

Table 4: qualifying species or part of a species assemblage on SSSI

Scientific name	English name
<i>Allium schoenoprasum</i>	Chives
<i>Antennaria dioica</i>	Mountain Everlasting
<i>Aster linosyris</i>	Goldilocks Aster
<i>Brassica oleracea</i>	Wild Cabbage
<i>Campanula glomerata</i>	Clustered Bellflower
<i>Carex montana</i>	Soft-leaved Sedge
<i>Cerastium pumilum</i>	Dwarf Mouse-ear
<i>Cirsium acaule</i>	Stemless Thistle
<i>Cirsium tuberosum</i>	Tuberous Thistle
<i>Coeloglossum viride</i>	Frog Orchid
<i>Cotoneaster cambricus</i>	Wild Cotoneaster
<i>Draba aizoides</i>	Yellow Whitlowgrass
<i>Epilates atrorubens</i>	Dark-red Helleborine
<i>Gastridium ventricosum</i>	Nit-grass
<i>Genista tinctoria</i>	Dyer's Greenweed
<i>Gentianella campestris</i>	Field Gentian
<i>Gymnadenia conopsea</i>	Fragrant Orchid
<i>Gymnocarpium robertianum</i>	Limestone Fern

Scientific name	English name
<i>Helianthemum nummularium</i>	Common Rock-rose
<i>Helianthemum oelandicum</i>	Hoary Rock-rose
<i>Hieracium asteridiophyllum</i>	a hawkweed
<i>Hieracium breconense</i>	a hawkweed
<i>Hieracium britannicoides</i>	a hawkweed
<i>Hieracium cambricum</i>	a hawkweed
<i>Hieracium cilense</i>	a hawkweed
<i>Hieracium cyathis</i>	a hawkweed
<i>Hippocrepis comosa</i>	Horseshoe Vetch
<i>Hornungia petraea</i>	Hutchinsia
<i>Hypochaeris maculata</i>	Spotted Cat's-ear
<i>Juniperus communis</i>	Juniper
<i>Marrubium vulgare</i>	White Horehound
<i>Minuatia verna</i>	Spring Sandwort
<i>Ononis reclinata</i>	Small Restharrow
<i>Orchis morio</i>	Green-winged Orchid
<i>Platanthera bifolia</i>	Lesser Butterfly-orchid
<i>Potentilla tabernaemontani</i>	Spring Cinquefoil
<i>Scabiosa columbaria</i>	Small Scabious
<i>Sedum forsteranum</i>	Rock Stonecrop
<i>Silene nutans</i>	Nottingham Catchfly
<i>Sorbus anglica</i>	a whitebeam
<i>Sorbus cambrensis</i>	a whitebeam
<i>Sorbus leptophylla</i>	a whitebeam
<i>Sorbus leyana</i>	a whitebeam
<i>Sorbus minima</i>	a whitebeam
<i>Sorbus porrigentiformis</i>	a whitebeam
<i>Sorbus rupicola</i>	a whitebeam
<i>Spiranthes spiralis</i>	Autumn Lady's-tresses
<i>Veronica spicata</i>	Spiked Speedwell