

Identify Mountain Flowers



Cross-leaved Heath, *Erica tetralix*

of
Britain
and
Ireland

Alan R. Walker

*Identify Mountain Flowers
of
Britain and Ireland*

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Notes

- Guide starts with an index of English and Latin species names for convenience when reading on-screen. Next is an introduction to placing a plant in its Family. In the main text are descriptions of the floral structures of nine typical Families.
- Order of presentation here of 102 species follows that of typical comprehensive guides to flowers of Britain and Ireland.
- This guide is distributed online for viewing on screen as an A5 document. For a printed guide take a copy of the Pdf document to a high-street copy-shop and ask for: A5 size, colour, ring-bound.

Index. (Asphodels, Avens, Orchids, etc in English are listed as groups.)

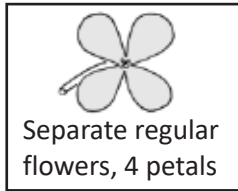
- Achillea millefolium* 102
Ajuga reptans 83
Angelica sylvestris 105
Alchemilla alpina 31
Alchemilla xanthochlora 30
Anemone nemorosa 9
Anemone, Wood 9
Angelica, Wild 105
Antennaria dioica 97
Arctostaphylos uva-ursi 72
Arabis hirsuta 46
Armeria maritima 49
Asphodel, Bog 107
Asphodel, Scottish 106
Avens, Mountain 28
Avens, Water 29
Azalea, Trailing 73
Bearberry 72
Bedstraw, Heath 75
Bedstraw, Lady's 76
Bilberry 70
Bird's-foot-trefoil 20
Bistort, Alpine 51
Bistorta vivipara 51
Bitter-vetch 19
Bogbean 90
Bugle 83
Buttercup, Meadow 5
Butterwort, Com'n 80
Calluna vulgaris 67
Caltha palustris 7
Campanula rotundifolia 89
Campion, Moss 55
Campion, Red 56
Cardamine pratensis 48
Cerastium alpinum 58
Cerastium fontanum 57
Cherleria sedoides 59
Chickweed wintergreen 64
Chrysosplenium oppositifolium 16
Cinquefoil, Alpine 26
Cirsium heterophyllum 101
Cirsium palustre 100
Cloudberry 23
Cochlearia officinalis 47
Coeloglossum viride 111
Colts-foot 93
Cornel, Dwarf 61
Cornus suecica 61
Cowberry 71
Cow-wheat, Com'n 87
Crane's-bill, Wood 40
Crowberry 66
Cuckooflower 48
Cudweed, Dwarf 98
Cyphel 59
Daisy, Ox-eye 92
Dactylorhiza maculata 109
Dactylorhiza purpurella 110
Devil's-bit Scabious 104
Drosera anglica 53
Drosera rotundifolia 52
Dryas octopetala 28
Empetrum nigrum 66
Epilobium anagallidifolium 42
Epilobium brunnescens 43
Erica cinerea 68
Erica tetralix 69
Euphrasia (species) 88
Eyebrights (species) 88
Fairy flax 39
Filipendula ulmaria 24
Fragaria vesca 27
Galium saxatile 75
Galium verum 76
Geranium robertianum 41
Geranium sylvaticum 40
Geum rivale 29
Globeflower 6
Goldenrod 96
Grass-of-Parnassus 33
Gymnadenia borealis 113
Harebell 89
Hawkbit, Autumn 95
Hawkweed, Mouse-ear 94
Heather 67
Heather, Bell 68
Heath, Cross-leaved 69
Helianthemum nummularium 44
Herb-Robert 41
Hypericum pulchrum 35
Kalmia procumbens 73
Lady's-mantle, Alpine 31
Lady's-mantle, Intermediate 30
Lathyrus linifolius 19
Leucanthemum vulgare 92
Linum catharticum 39
Lotus corniculatus 20
Lousewort 85
Lysimachia europaea 64
Marsh marigold 7
Meadow-rue, Alpine 8

Index.

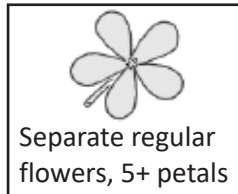
- Meadowsweet 24
Melampyrum
 pratense 87
Menyanthes
 trifoliata 90
Micranthes nivalis 15
Micranthes stellaris 14
Milkwort, Heath 21
Mountain
 Everlasting 97
Mouse-ear, Com'n 57
Mouse-ear, Alpine 58
Narthecium
 ossifragum 107
Omalothea supina 98
 Orchids:
 Early-purple 112
 Frog 111
 Heath-fragrant 113
 Heath-spotted 109
 Northern-marsh 110
 Orchis mascula 112
 Oxalis acetosella 34
 Oxyria digyna 50
 Pansy, Mountain 38
 Parnassia palustris 33
 Pedicularis sylvatica 85
 Pilosella officinarum 94
 Pinguicula vulgaris 80
 Primrose 62
 Primrose,
 Bird's-eye 63
 Prunella vulgaris 82
 Polygala serpyllifolia 21
 Potentilla crantzii 26
 Potentilla erecta 25
 Primula farinosa 63
 Primula vulgaris 62
 Pyrola minor 74
 Ranunculus acris 5
 Rhinanthus minor 86
 Rhodiola rosea 17
 Roseroot 17
 Rubus
 chamaemorus 23
 Rock-cress 46
 Rock-rose 44
 Rumex acetosella
 Saussurea alpina 99
 Saw-wort, Alpine 99
 Saxifraga aizoides 13
 Saxifraga hypnoides 11
 Saxifraga
 oppositifolia 12
 Saxifrages:
 Alpine 15
 Golden 16
 Mossy 11
 Purple 12
 Starry 14
 Yellow 13
 Scorzoneroides
 autumnalis 95
 Scurvygrass 47
 Sedum anglicum 18
 Selfheal 82
 Sibbaldia 32
 Sibbaldia
 procumbens 32
 Silene acaulis 55
 Silene dioica 56
 Solidago virgaurea 96
 Sorrel, Mountain 50
 Speedwell,
 Germander 77
 Speedwell, Heath 78
 Speedwell, Thyme-
 leaved 79
 Stellaria graminea 60
 St John's-wort,
 Slender 35
 Stitchwort, Lesser 60
 Stonecrop, English 18
 Strawberry, Wild 27
 Succisa pratensis 104
 Sundew,
 Round-leaved 52
 Sundew, Great 53
 Thalictrum alpinum 8
 Thistle, Marsh 100
 Thistle,
 Melancholy 101
 Thrift 49
 Thyme, Wild 81
 Thymus drucei 81
 Tormentil 25
 Tofieldia pusilla 106
 Trollius europaeus 6
 Tussilago farfara 93
 Vaccinium myrtillus 70
 Vaccinium vitis-idaea 71
 Valerian, Common 103
 Valeriana officinalis 103
 Veronica chamaedrys 77
 Veronica officinalis 78
 Veronica serpyllifolia 79
 Viola lutea 38
 Viola palustris 37
 Viola riviniana 36
 Violet, Common dog 36
 Violet, Marsh 37
 Willowherb, Alpine 42
 Willowherb,
 New Zealand 43
 Wintergreen, Com'n 74
 Wood-sorrel 34
 Yarrow 102
 Yellow-rattle 86

Guide to 20 commonest plant Families included here.

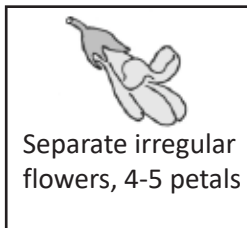
A start to identifying species is through their Family, using basic structure of individual flowers or flower-heads. Regular = radial symmetry through central axis; irregular = bilateral symmetry. Petal includes petaloid sepals and bracts.



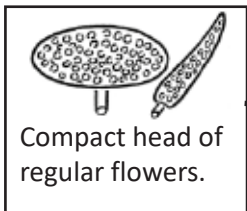
- Willowherbs 42-43
- Brassicacs 45-48
- Bedstraws 75-76
- Speedwells 77-79



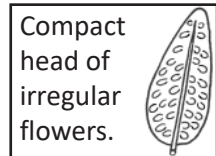
- Buttercups 4-9
- Saxifrages 10-16
- Roses 22-32
- Cranesbills 40-41
- Sundews 52-53
- Campions 54-60
- Primroses 62-64
- Ericas 65-74



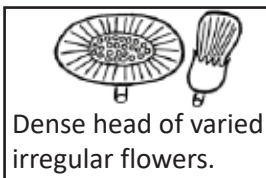
- Peas 19-20
- Violets 36-38
- Louseworts 84-88



- Docks 50-51
- Asphodels 106-107



- Deadnettles 81-83
- Orchids 108-113



- Daisies 91-102

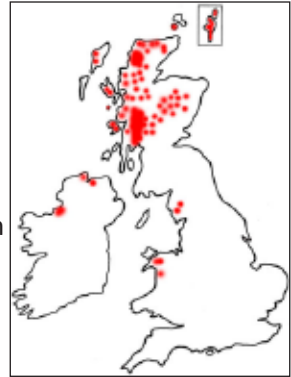


This book is for people who walk on the moors and mountains of the botanical area comprising all islands of Ireland and Britain. This upland habitat supports a wide variety of herbs. Their flowers enhance a walk up a grassy hillside, then onto the alpine tundra of the summits.

What is a mountain flower? This guide includes many species commonly seen on open land above 250m, but lower in the far north. Of the 102 species in this guide about a third are widely distributed over much of this region and will be also found on the lower slopes of mountains. Here, twenty plus species of mountain flowers are too rare for this guide.



Moss
campion



Moss Campion is a montane plant – adapted for life near the summits by a perennial cushion of leaves. **Sea Campion** flourishes along sea-coasts but also can be found growing on mountains. Photograph below was taken on a scree-slope at 700m. Sea campion is adapted for life on rocky ground and probably seed blown uphill onto western mountains is able to establish small colonies, but this species is too uncommon on mountains here to include in this guide. **Red Campion** is included because it is common in this region and often found on moorlands.



Sea
campion



Maps of plant distribution.

These are simplified versions, redrawn from definitive maps produced by the Botanical Society of Britain and Ireland. Published as: *Plant Atlas 2020: mapping changes in the distribution of the British and Irish flora*. P.A.Stroh, K.J.Walker, T.A.Humphrey, O.L.Prescott & R.J.Burkmar, 2023, Princeton University Press, New Jersey. These maps and related information are freely accessible to use [<https://plantatlas2020.org/>]. This information was collected over many decades by thousands of volunteer botanists, and mapped as present or absent in 10km squares. This shows the range of a species but not its density per area. Names of species used here, and information on seasonality and habitat, are from this atlas.

Comprehensive identification guides include:

Wild Flowers of Britain and Ireland, M. Blamey and others, 2013, Bloomsbury, [paintings].
The Wild Flower Key, F. Rose, 2006, Warne, [paintings & keys].
Collins Flower Guide, D. Streeter and others, 2009, Collins [paintings].
Harrap's Wild Flowers, 2013, Bloomsbury, [photographs].

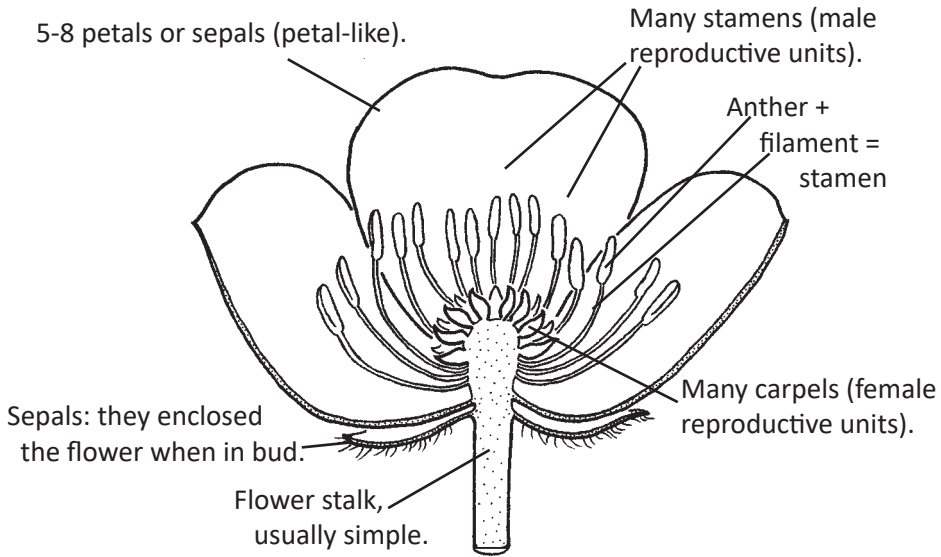
Other sources used for this guide.

New Flora of the British Isles, C. Stace, 2019 (4th ed.) C & M Floristics. [Definitive taxonomic book for naming these plants, has many keys and some illustrations. Order of presentation in *Identify Mountain Flowers* follows Stace, based on studies of evolutionary relationships of plants using molecular methods.]
The Vegetative Key to the British Flora, J. Poland & E. Clement, 2020, Publisher: J. Poland. [much detail of leaf structure and season].
Common Families of Flowering Plants, M. Hickey & C. King, 1997, Cambridge University Press, [line illustrations of structure].
A Botanist's Vocabulary, S.K. Pell & B. Angell, 2016, Timber Press, [well illustrated with line drawings].

Thanks: to staff of Botanical Society of Britain and Ireland; Botanical Society of Scotland; Field Studies Council; Royal Botanic Gardens Edinburgh; National Trust for Scotland; National Trust; many national parks, and nature reserves. This guide owes much to Margaret and Caroline Walker, my botanical companions on the hill.

4 Buttercups, Ranunculaceae: flower structure.

Families selected here as examples of flower structure and botanical terms. Ranunculaceae are first because of their simple form; sequence of Families follows Stace, 2019. The flowers are regular: radially symmetrical along any plane from top to bottom. Petals and sepals are distinct from each other and not fused together. The seed forming structures (the **female** carpels) are separate and numerous. The pollen producing structures (the **male** stamens) are numerous. Pollen is shed from the anthers held high on long filaments. Pollen from another buttercup that sticks to the top of a carpel then migrates within the carpel to its base where an ovum is. After fertilization the ovum develops into a seed.



Marsh marigold.



Sepals are like petals in this species.

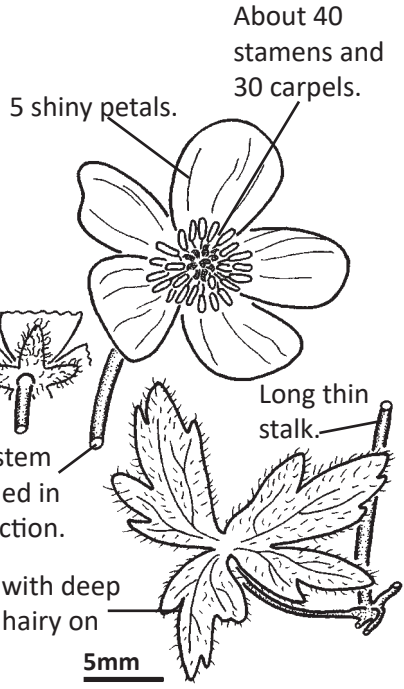
Ring of many stamens, comprising anthers on long filaments.

Cluster of separate carpels.

Meadow Buttercup, *Ranunculus acris*
Buttercups, Ranunculaceae



- Flowers in May to July, leaves in January to December.
- Widespread in most habitats. In uplands on montane flushes and rocky ledges.
- Solitary flowers on simple stem to 50cm; leaves all at base of stem.
- Petals distinctly shiny and curved to form a bowl.
- Leaves deeply palmate (with lobes and veins arising from a single point at top of leaf-stem).
- **Similar:** Creeping Buttercup has furrowed stems and leaves that are hairy on upper surface only.



Globeflower, *Trollius europaeus* Buttercups, Ranunculaceae



- Flowers in May to July, leaves in January to December.
- On uplands on grassy areas, mountain flushes and rocky ledges.
- Conspicuous solitary globes on stems to 70cm, with leaves at base.
- Flower comprises many overlapping sepals. Tiny petals act as nectaries within the globe. Pollinating insects attracted into the globe.



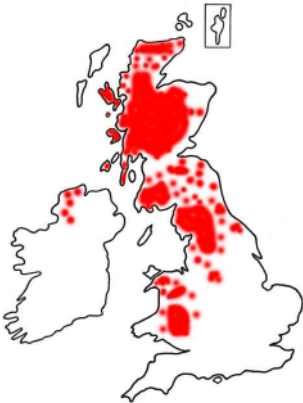
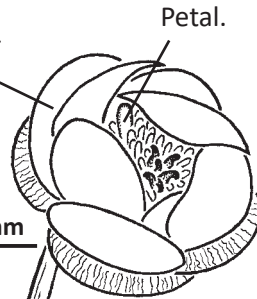
- Fully mature flowers open to reveal a dense mass of stamens and dark tipped stigmas of the carpels.

5-15 sepals (petal-like) form globe.

Scale bar - 5mm
flower only.

Stem distinctly furrowed.

Leaves palmate, deeply divided and toothed, smooth, with distinct veins.

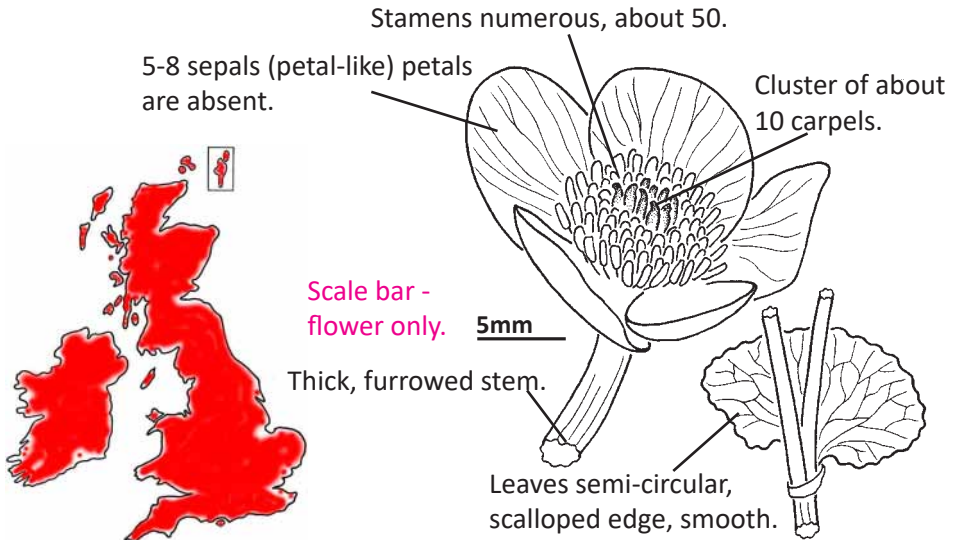


Marsh-marigold, *Caltha palustris*

Buttercups, Ranunculaceae



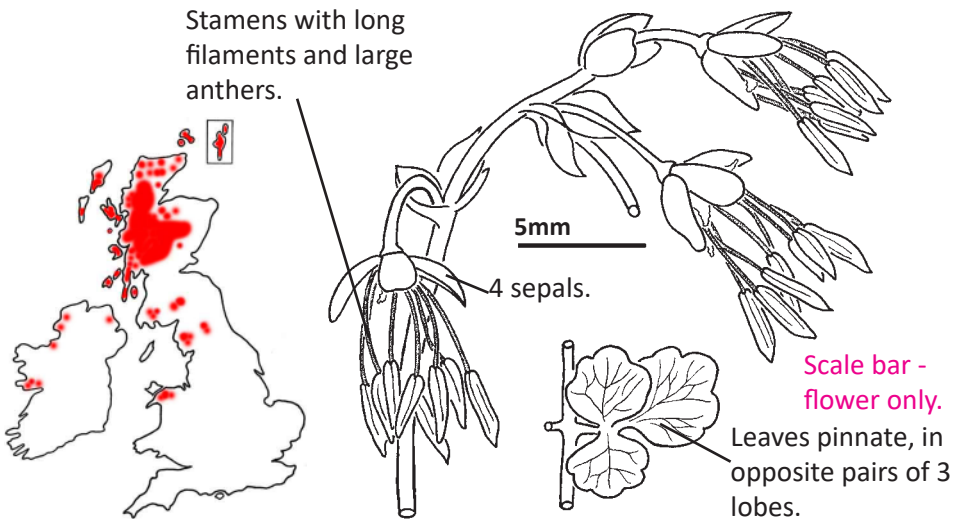
- Flowers in May to July, leaves in January to December.
- Widespread herb of wetlands and mountain flushes.
- Growing as conspicuous patches of bright yellow and green.
- Leaves are semi-circular with scalloped (crenate) edges, clustered at base of stem but also further up.
- Stems are stout, 25-50cm tall.



Alpine Meadow-rue, *Thalictrum alpinum*
Buttercups, Ranunculaceae



- Flowers in June to July, leaves in April to October. On mountain grasslands. A delicate and inconspicuous plant among grass, despite its long stem.
- Flowers mostly comprise clusters of stamens with large anthers.
- Leaves form distinctively shaped shiny green clusters at base of stem.



Wood Anemone, *Anemone nemorosa*
Buttercups, Ranunculaceae

9

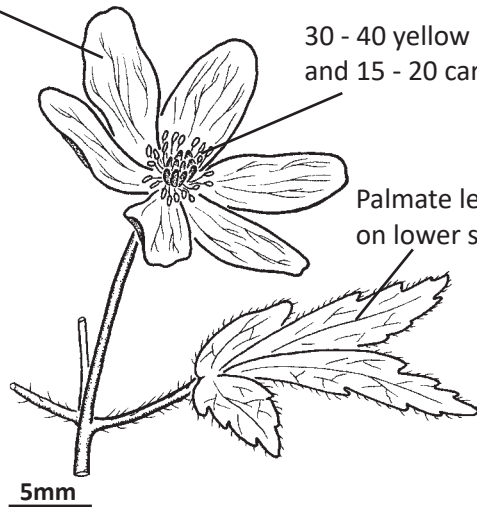
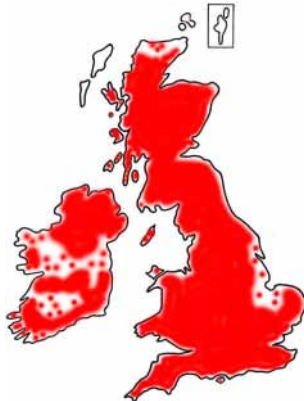


- Flowers in March to May, leaves in March to July.
- Widespread, common on moors and hills as large patches. Strongly associated with woodland but also thrives on wide areas of grassy moors.
- Solitary flowers with sepals that are petal-like, and may be pale pink.
- Stem from 10-30cm, with leaves usually half-way up stem.

6 sepals (petal-like),
faintly veined.

30 - 40 yellow stamens
and 15 - 20 carpels.

Palmate leaves, hairy
on lower surface.



10

Saxifrages, Saxifragaceae: flower structure.

This family is best known for its characteristic genus *Saxifraga* which includes many species of mountain and alpine flowers. This is a variable family and included here species from other genera: Golden Saxifrage, also Starry Saxifrage, and Alpine Saxifrage. These flowers are regular. Their carpels are distinctive: a central pair of flask-shaped structures, each with a projecting style as a short or long stalk. An adhesive stigma is at top of the style. The leaves of saxifrages species are usually in a whorl at the base of the stem and are simple, although often lobed.

Leaves simple or lobed.

5 petals typically.

Stigma + style = carpel

10 stamens typically.

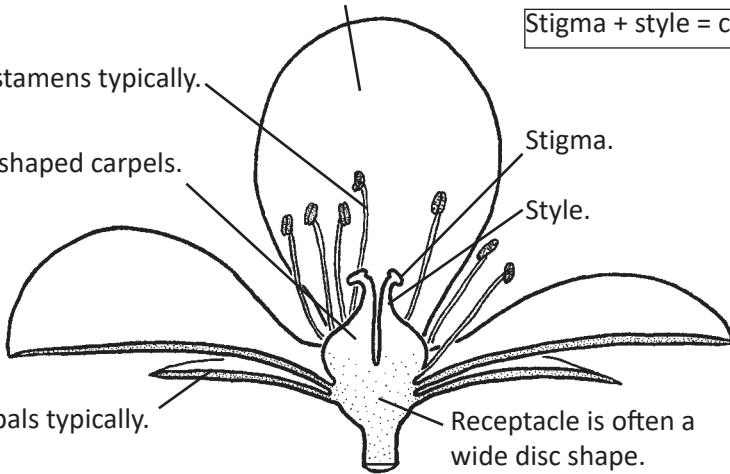
2 flask-shaped carpels.

Stigma.

Style.

5 sepals typically.

Receptacle is often a wide disc shape.



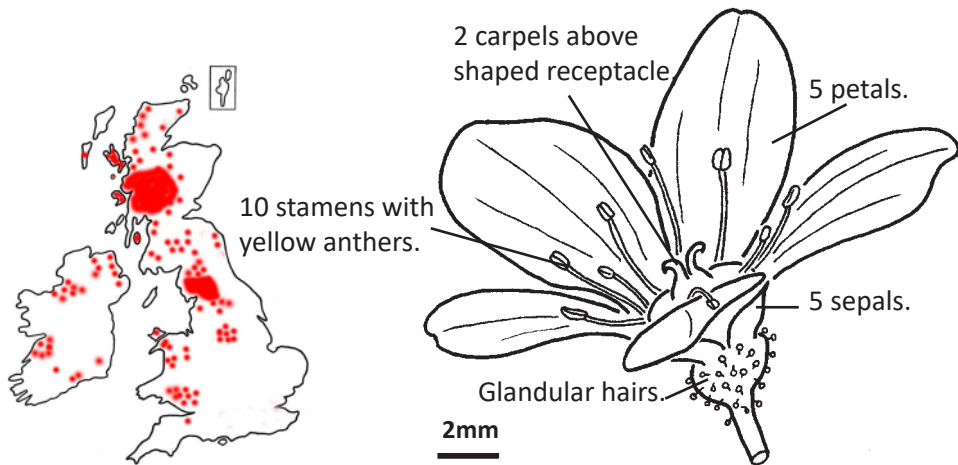
Pair of prominent flask-shaped carpels.

Yellow Saxifrage.





- Flowers in April to July, leaves in January to December.
- An upland plant of vegetated flushes, usually in distinct patches.
- Long stem raises this species above its moss-like group of small leaves.
- **Similar:** Irish Saxifrage, with similar flowers but broader leaves, found on mountains in Connemara and Kerry, western Ireland.



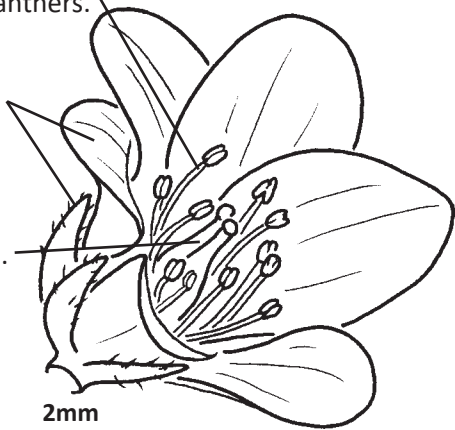


- Flowers in March to August, leaves January to December – a springtime blaze of colour.
- A montane species of rocky cliffs and ledges, also on scree. Masses of tiny ever-green leaves are conspicuous here, firmly rooted to the rock with creeping woody stems.

10 or 12 stamens with orange anthers.

5 or 6 petals and sepals.

2 long styles.



2mm

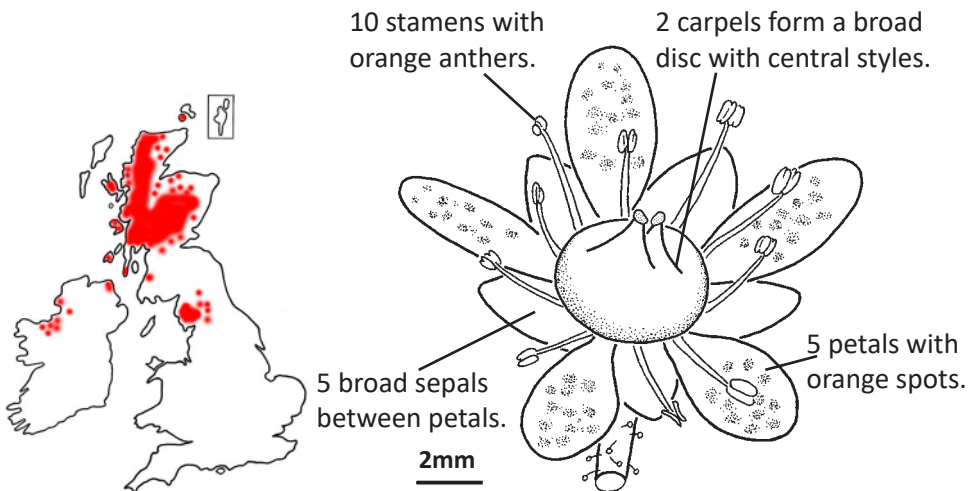


Yellow Saxifrage, *Saxifraga aizoides*
Saxifrages, Saxifragaceae

13



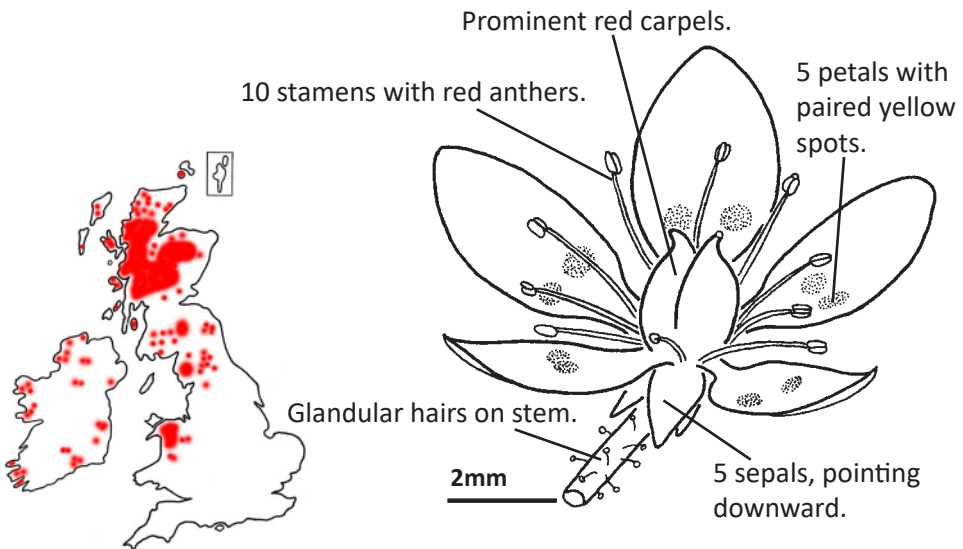
- Flowers in June to August, leaves in May to October.
- Dense patches of these flowers grow typically where water flows over limey soil on moorlands and mountains.
- Petals are widely spaced, revealing large sepals in the same plane. Flower colour is enhanced by orange anthers and spots on the petals.
- Leaves are narrow and grow densely along lower part of stems.
- **Similar:** Marsh Saxifrage, a rare moorland plant of a few northern sites.



Starry Saxifrage, *Micranthes stellaris*
Saxifrages, Saxifragaceae



- Flowers in June to August, leaves in January to December.
- On rocky ground of hills and mountains, as conspicuous patches.
- Branching stems reach to 30cm; basal leaves are broad.
- Five petals each have a distinctive pair of yellow spots. Red anthers and prominent red carpels contrast with white petals.





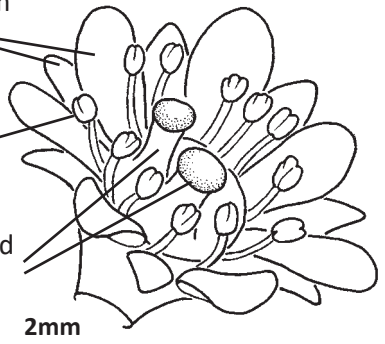
- Flowers in July to August, leaves in January to December.
- Near tops of rocky mountains, a scarce but distinctive plant.
- Carpels as a broad green disc surrounded by orange anthers.
- Leaves broad, in basal rosette and with red lower surface.



Petals & sepals from
5 or more.

Anthers are
yellow to orange.

2 carpels with broad
styles and stigmas.



Opposite-leaved Golden-saxifrage, *Chrysosplenium oppositifolium*, Saxifragaceae

- Flowers in April to July, leaves in January to December.
- In the uplands grows on wet rocks and mountain ledges.
- Flowering stems to 15cm with leaves in opposite pairs up stem.
- Leaves at base of stem, heart shaped and glossy.
- Flowers without petals but with 4 sepals and also bracts.
- Carpels are obscured by a film of nectar held in the wide bowl formed by sepals and base of paired carpels.
- **Also:** Alternate-leaved Golden-saxifrage may be in same area.



Several bracts
around each flower.

4 sepals.

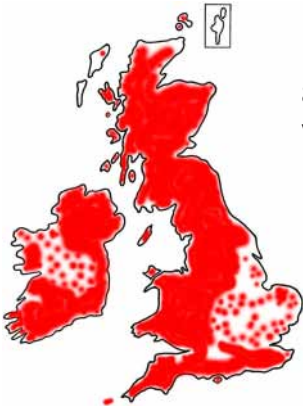
8 stamens with
yellow anthers.

Pair of styles.

Opposite leaves
along stem.

Base of carpels with
wide bowl shape.

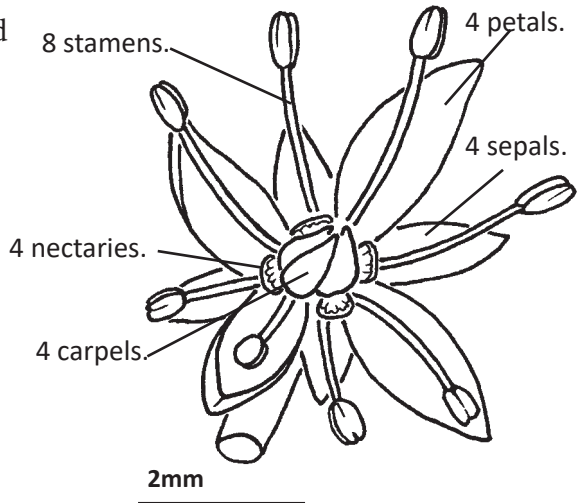
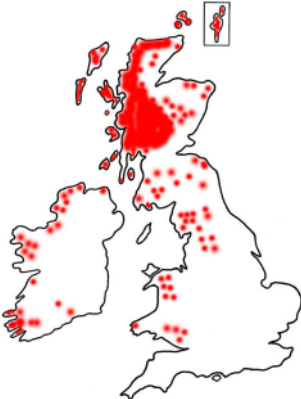
1mm





- Flowers in May to August, leaves in April to October. A bulky plant of mountain ledges, also on sea-coasts in far north.
- Single stems of 30-40cm and a rounded flower-head (inflorescence) of about 50 separate flowers (florets).
- Florets each with 4 or 5 petals and sepals, and stamens or carpels.
- Leaves are simple, thick and often with a red tinge.

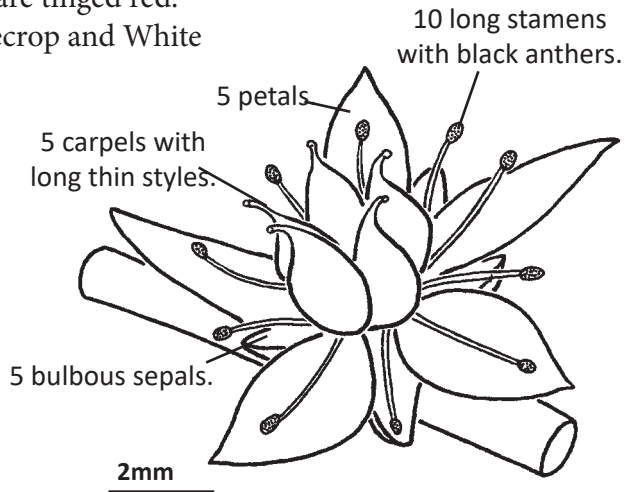
Below: single floret of the inflorescence. Note – these plants normally have florets either female or male but this drawn specimen from Perthshire was bisexual.



English Stonecrop, *Sedum anglicum*
Stonecrops, Crassulaceae



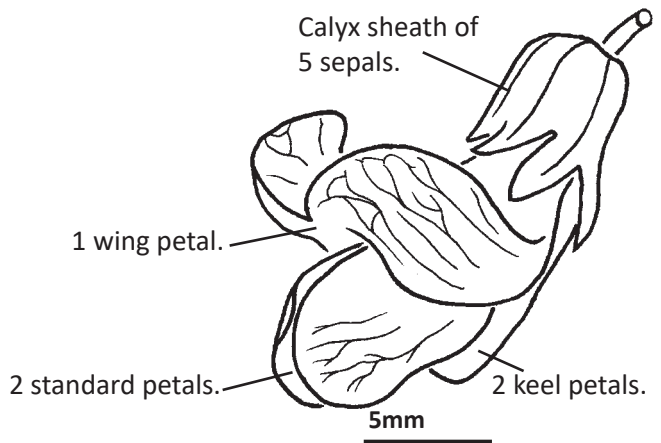
- Flowers June to August, leaves January to December.
- On dry upland grasslands and rocks.
- Creeping red stems form a mat of foliage on rocky surfaces, slate tips.
- Flowers grow directly from the stems and their flask-shaped carpels are tinged red.
- **Also:** Thick-leaved Stonecrop and White Stonecrop.



Bitter-vetch, *Lathyrus linifolius*
Peas, Fabaceae

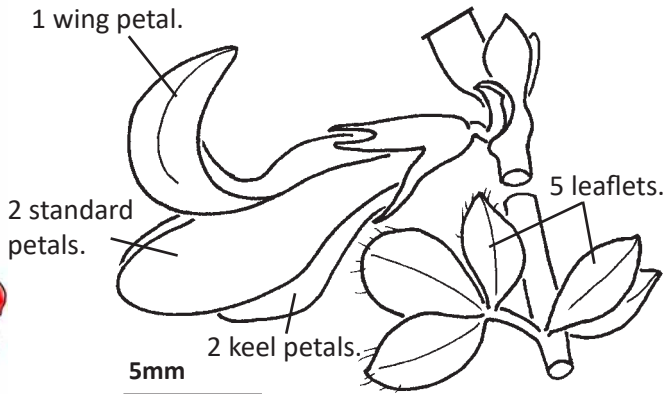


- Flowers in April to July, leaves January to December.
- Wide distribution on moorlands and upland heaths.
- Pea Family flowers are irregular: with bilateral symmetry along central plane. The five petals have special names, shown in the drawing.
- The pair of petals forming the keel contains a single carpel surrounded by ten stamens.



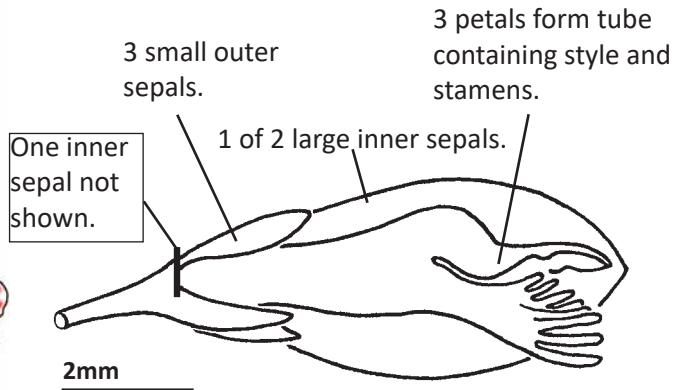
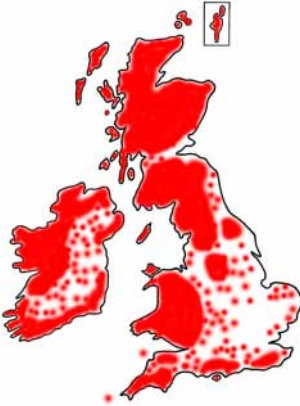


- Flowers in June to September, leaves in October to June.
- Common in uplands on grasslands and mountain ledges.
- A low lying plant to 10cm; creeping stems may stretch to 50cm.
- Flower is irregular, as for Bitter-vetch. Carpels develop into a pea-pod and a cluster of these gives the “bird’s foot”.
- Leaves are slightly hairy and comprise five leaflets with two of them bent back from the stem (these plants are not truly trifoliate or trefoil).





- Flowers March to August, leaves January to December.
- On grassy heathlands, moors, and rocky ground.
- A creeping herb with stems rising to 20cm.
- Flower is irregular as shown below (white flowers are common).
- Leaves smooth and in opposite pairs up the stem.
- **Similar:** Common Milkwort, with leaves alternating (not in opposite pairs) up the stem.

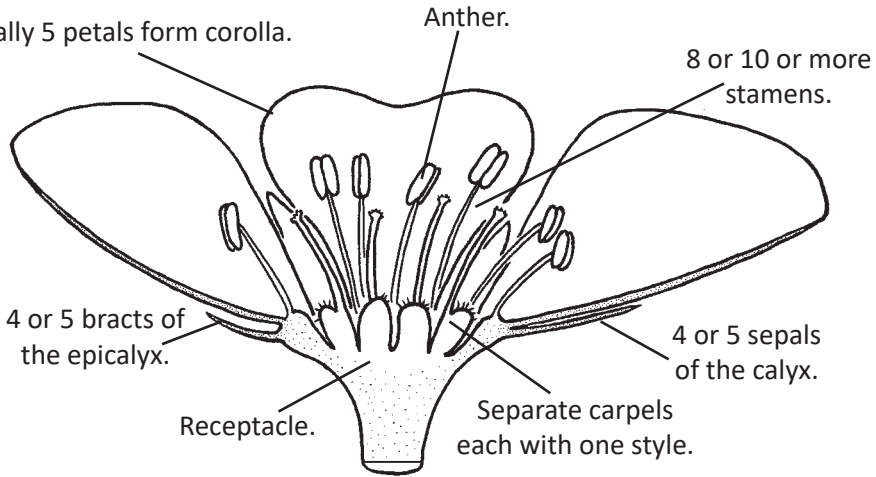


A large and varied family; some species can be confused with Buttercups. Flowers are regular and four to eight petalled but some species may have individual plants growing with a double whorl of petals. See Water Avens, page 29, for an example.

Sepals, petals and stamens are borne on a wide receptacle-cup. Numerous carpels are usually on the same level as the receptacle-cup. Carpels are often free, and their individual styles cluster centrally. A receptacle may mature into a large edible part, as in strawberry plants. Petals are positioned individually and alternate with the sepals. Stamens may be double or more the number of petals.

Leaves palmate or pinnate.

Usually 5 petals form corolla.



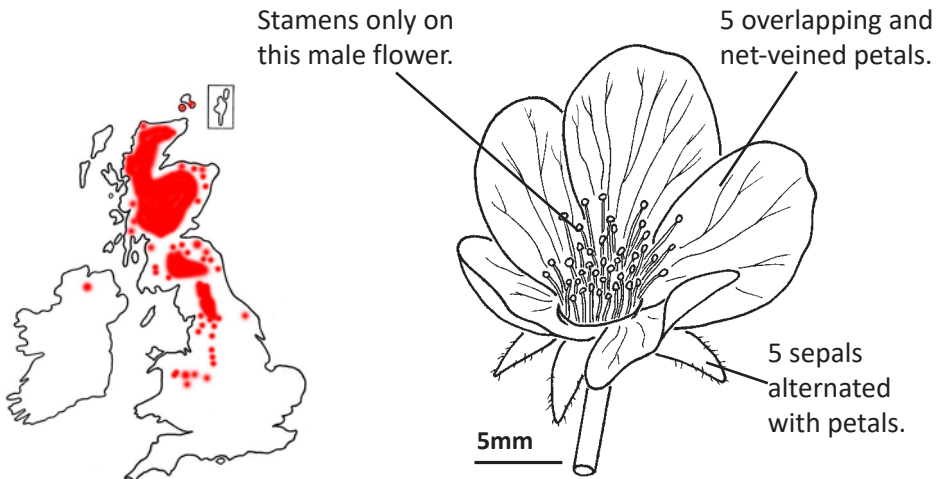
Alpine cinquefoil.



Regular shape; many yellow stamens; central cluster of carpels with long styles.



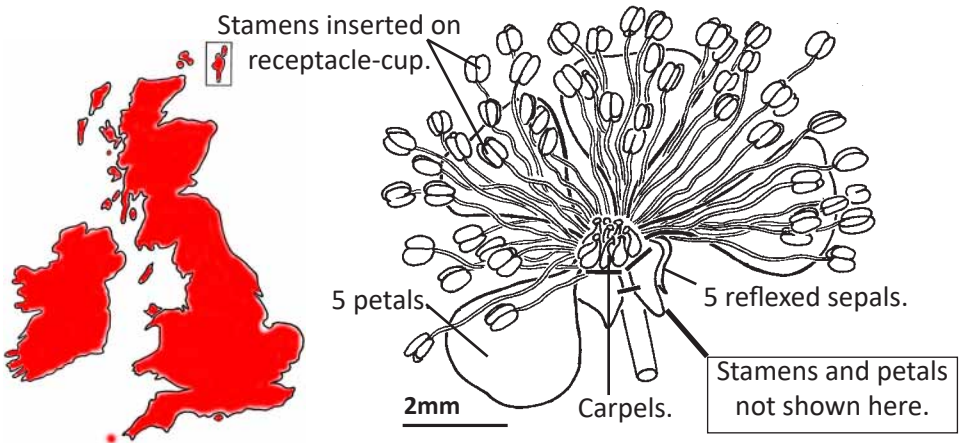
- Flowers in May to June, leaves in April to October.
- Grows in large patches on upland grasslands and heather moors.
- Can be conspicuous as a ground covering herb with distinctly toothed palmate leaves. Seldom found in flower and the fruits in this south westerly botanical region are scarce, although prominent when fully ripe.
- Sexes are separate – photograph at left and drawing below are of male plants bearing only long stamens with yellow anthers.



Meadowsweet, *Filipendula ulmaria*
Roses, Rosaceae



- Flowers in June to October, leaves in March to October.
- Conspicuous in uplands, growing tall within communities of herbs.
- Many small flowers, each of them with about fifty long wavy stamens.
- Leaves are pinnate, with the paired leaflets each distinctly toothed.

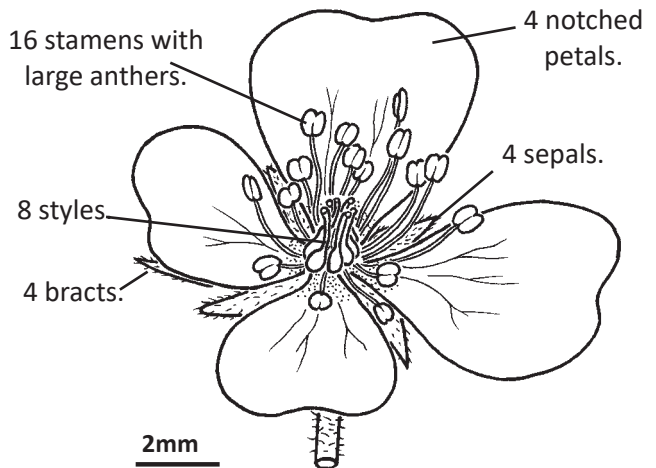


Tormentil, *Potentilla erecta*
Roses, Rosaceae

25



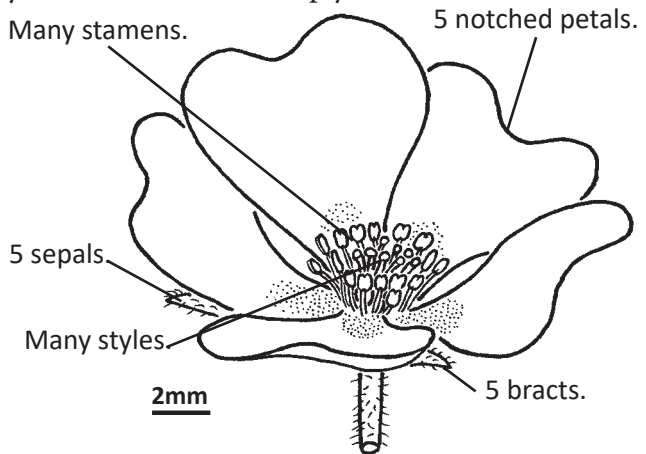
- Flowers in June to September, leaves in August to March.
- Common on moors and upland grasslands. Usually only four petals.
- Plant is often low or creeping but may rise to 40cm.
- **Similar:** Trailing Tormentil and Creeping Cinquefoil.



Alpine Cinquefoil, *Potentilla crantzii*
Roses, Rosaceae



- Flowers in June to July, leaves in January to December.
- A scarce plant of mountain cliffs; stems project out to 25cm.
- Five petals with a distinct notch and an orange patch at base.
- Leaves are palmately divided into three deeply notched lobes.





- Flowers in April to July, leaves January to December.
- In the uplands they are found on mountain rocks and screes.
- Five rounded petals without notches. Many carpels grow into pips of the tasty red portion developed from the receptacle.
- Leaves are trifoliate, distinctly toothed and folded.

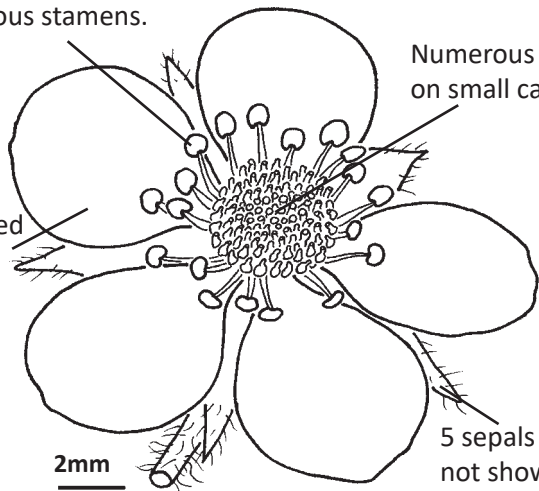
Numerous stamens.

Numerous styles
on small carpels.

5 rounded
petals.

2mm

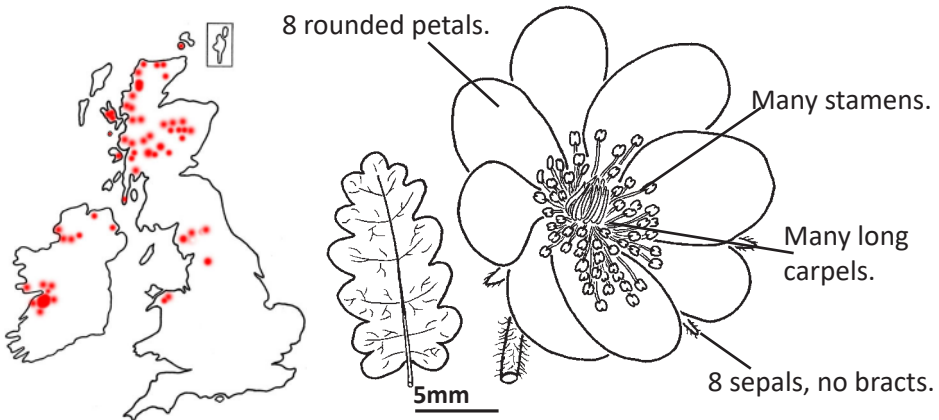
5 sepals (bracts
not shown).



Mountain Avens, *Dryas octopetala*
Roses, Rosaceae

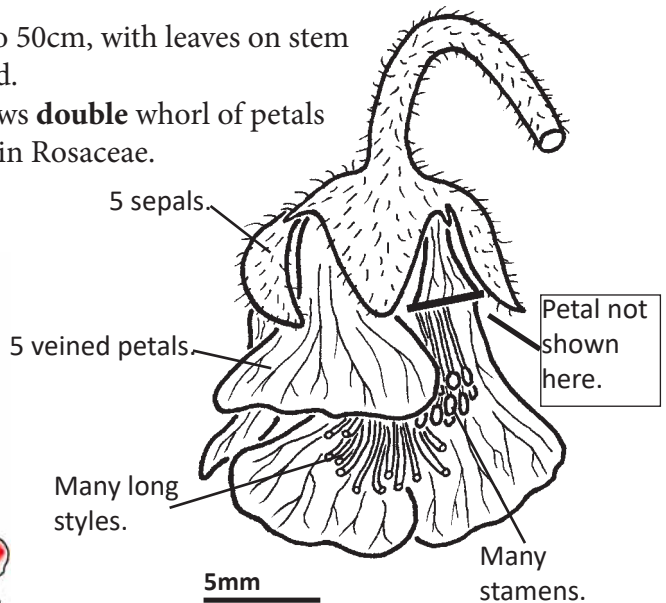
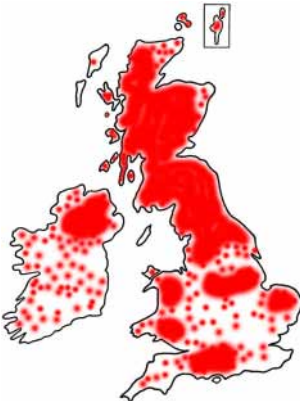


- Flowers in June to July, leaves in January to December.
- A scarce plant of base rich upland soils, except where it grows in profusion on westerly limestone pavements of Ireland.
- Flowers on stems to 20cm, petals usually eight, or doubled.
- Small, hairless, evergreen and shiny leaves are distinctive.





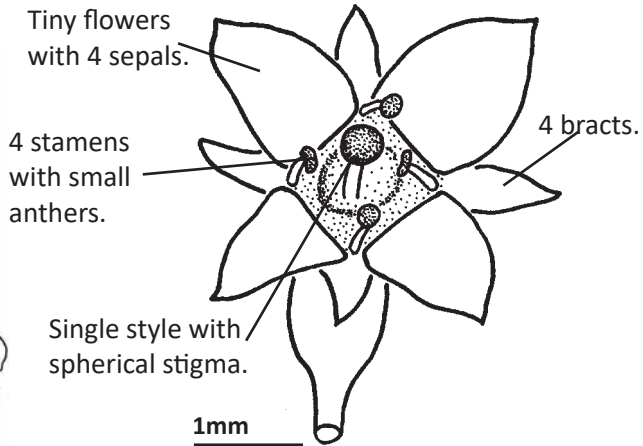
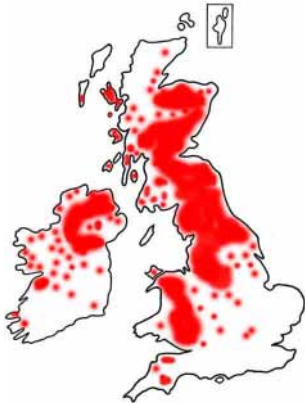
- Flowers in May to September, leaves in January to December.
- Widely distributed; in uplands usually amongst tall herb communities.
- Distinctive plant, to 50cm, with leaves on stem trifoliate and serrated.
- Flower at right shows **double** whorl of petals as sometimes found in Rosaceae.



30 Intermediate Lady's Mantle, *Alchemilla xanthochlora*
Roses, Rosaceae

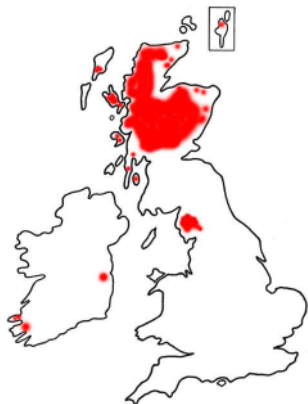


- Flowers in May to September, leaves in April to October.
- Widely distributed on grassy hillsides. Lady's mantle species are many and similar – this species has leaves with hairless upper surface and six or seven lobes. Glands at leaf margin can secrete a watery liquid, but rain-drops also bead on the leaf surface.





- Flowers in June to September, leaves in April to October.
- Grows on mountain grasslands, rocks and scree.
- This is a species of Lady's Mantle easy to identify with its shiny palmate leaves as five to nine long, toothed, lobes.
- Flowers are closely similar to those of Intermediate Lady's Mantle drawn on previous page.



Sibbaldia, *Sibbaldia procumbens*
Roses, Rosacea



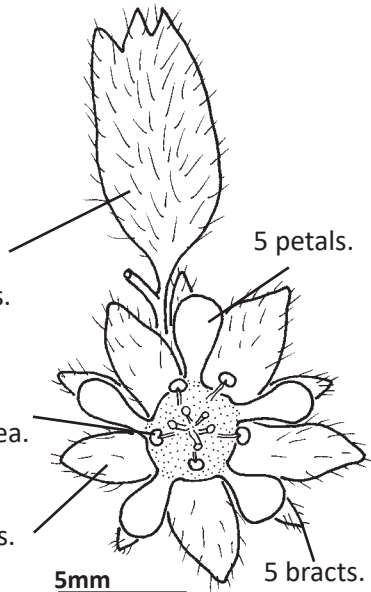
- Flowers in July to August, leaves in March to October.
- Grows low on the ground of alpine tundra: a fully montane plant.
- Scarce, but distinctive even when no flowers found: look for a procumbent growth-form with these leaf characters.



Distinct hairs on upper and lower surfaces of leaves.

5 stamens in wide nectar secreting area.

5 sepals.



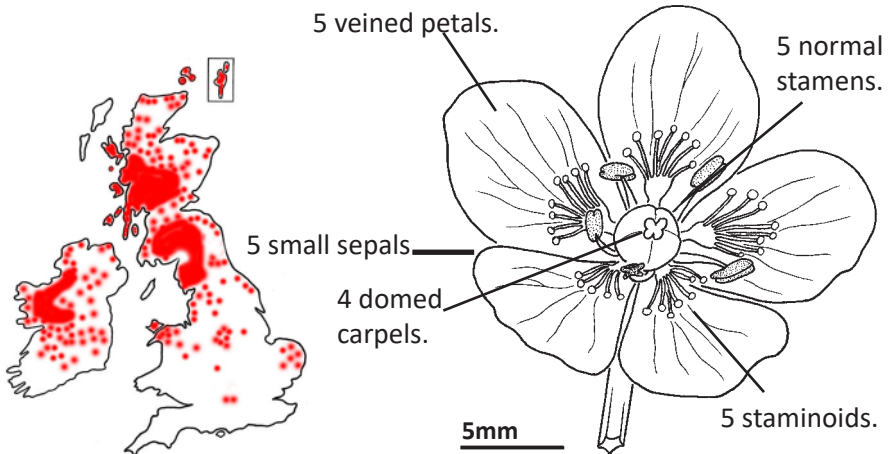
5 petals.

5 bracts.

5mm



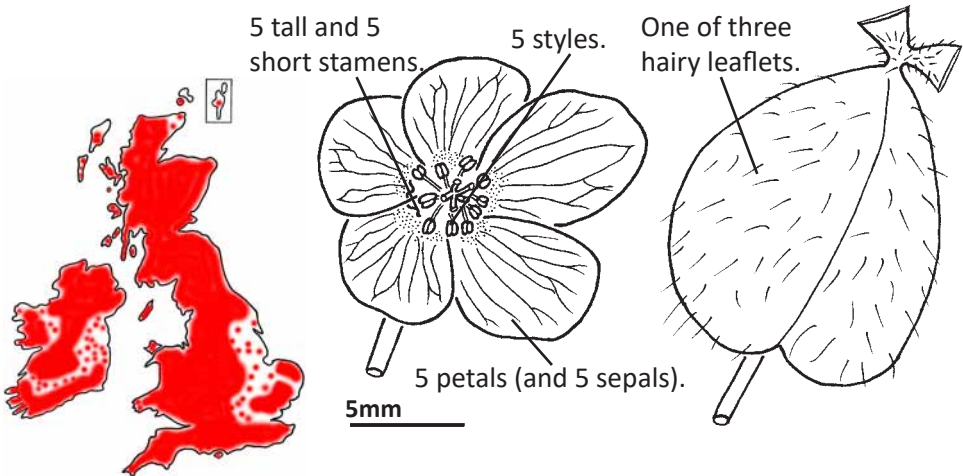
- Flowers in July to October, leaves in April to October.
- Grows on upland grasslands; easy to spot this distinctive plant.
- Single flowers on a stem to 30cm, with a single basal leaf that is heart-shaped and surrounds the stem.
- Alternate stamens modified as glandular staminoids.



Wood-sorrel, *Oxalis acetosella*
Sorrels, Oxalidaceae



- Flowers in April to May, leaves in January to December.
- Mostly in lowland woods but also on montane grasslands and limestone pavement; to 10cm, in patches.
- Combination of distinct veins on petals, with trifoliate leaves, often hanging downward, make this plant distinctive.

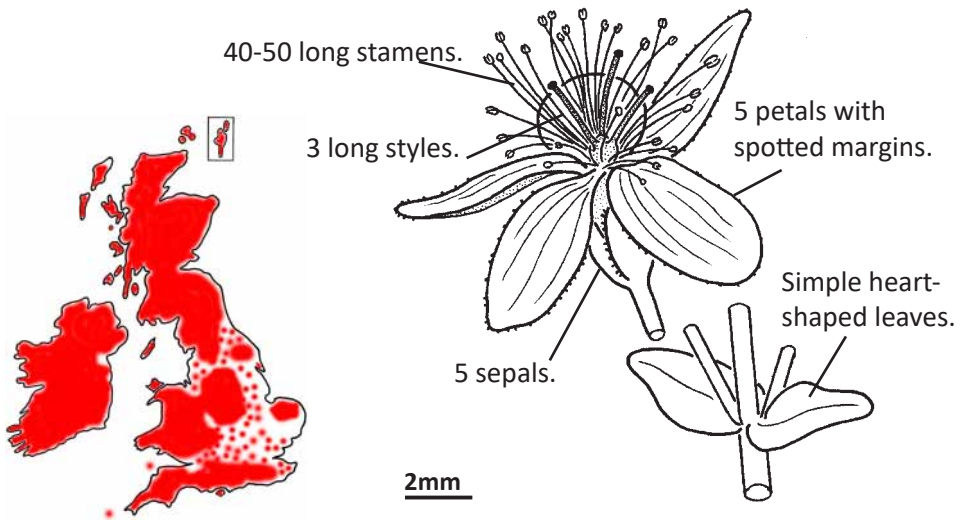


Slender St John's-wort, *Hypericum pulchrum*
St John's-worts, Hypericaceae

35



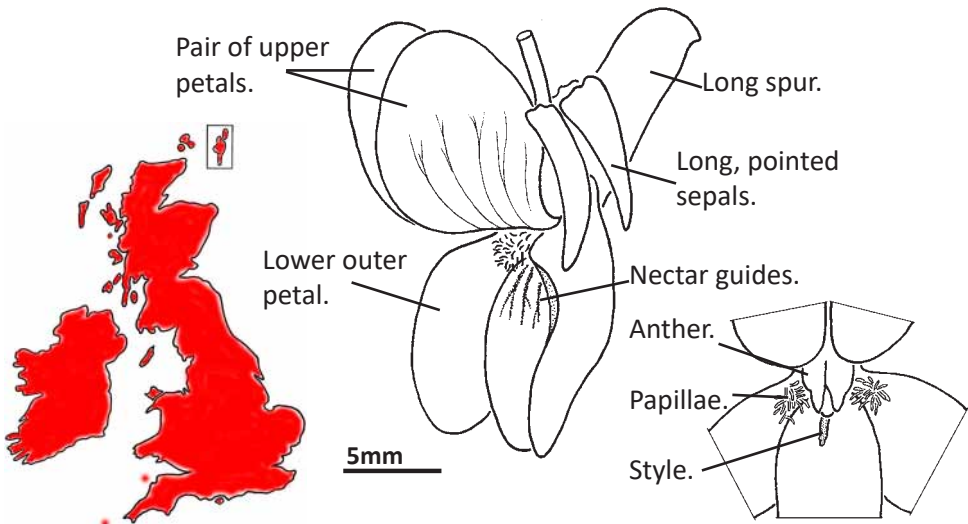
- Flowers in June to August, leaves in January to December.
- On moorlands and heaths; stems to 30cm make plant conspicuous.
- Petals in bud tinged red and petal margins have minute black spots.



Common Dog-violet, *Viola riviniana*
Violets, Violaceae

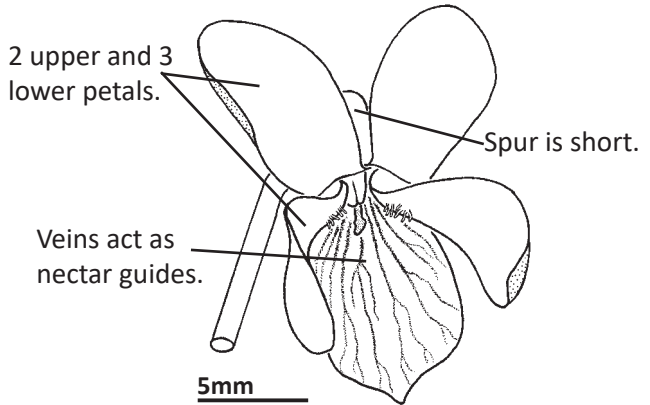
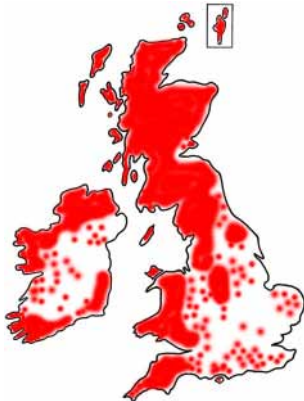


- Flowers in April to June, leaves in January to December.
- On heathlands and mountain grasslands, low growing to 10cm..
- Flowers are irregular (bilateral symmetry) with two upper and three lower petals, also a white spur formed from the central lower petal.
- Leaves are simple, heart-shaped.
- **Also:** other Dog-violets: Early... Heath... Pale...





- Flowers in April to July, leaves in April to October.
- Grows on wet moors and heaths, flower stems to 15cm.
- Flower as for Common Dog-violet but spur is short.
- Leaves distinctive: large, simple and heart-shaped.



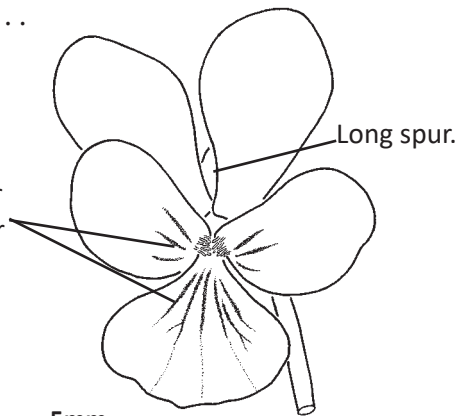
Mountain Pansy, *Viola lutea*
Violets, Violaceae



- Flowers March to August, leaves April to October.
- On upland grasslands; stems to 20cm, flower form as for Marsh violet.
- Colour proportions highly variable: pale to dark and purple to yellow.
- **Similar:** Field. . . Wild. . . Seaside. . .



Prominent nectar guides on 3 lower petals.

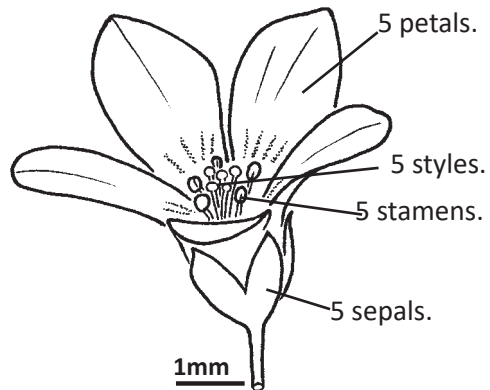


Fairy Flax, *Linum catharticum*
Flaxes, Linaceae

39



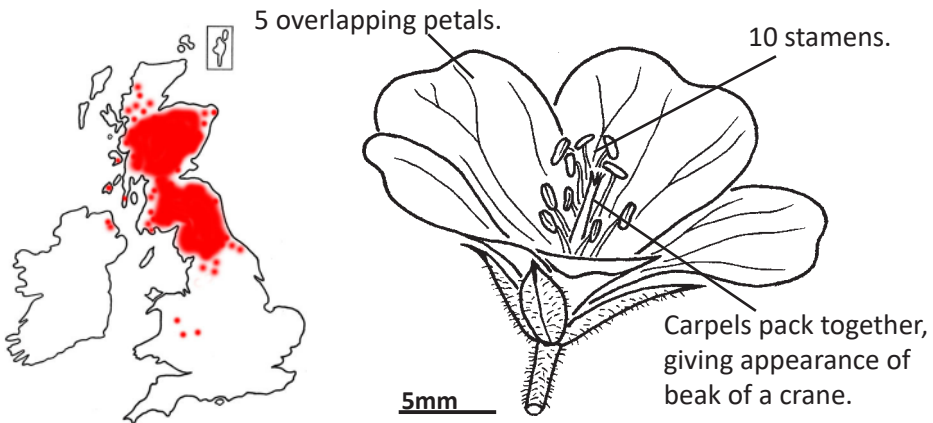
- Flowers in June to September, leaves in March to September.
- On many types of basic soils and rocks on hillsides.
- Straggling stems to 25cm with sparse paired leaves; flowers small.



Wood Crane's-bill, *Geranium sylvaticum*
Cranesbills, Geraniaceae

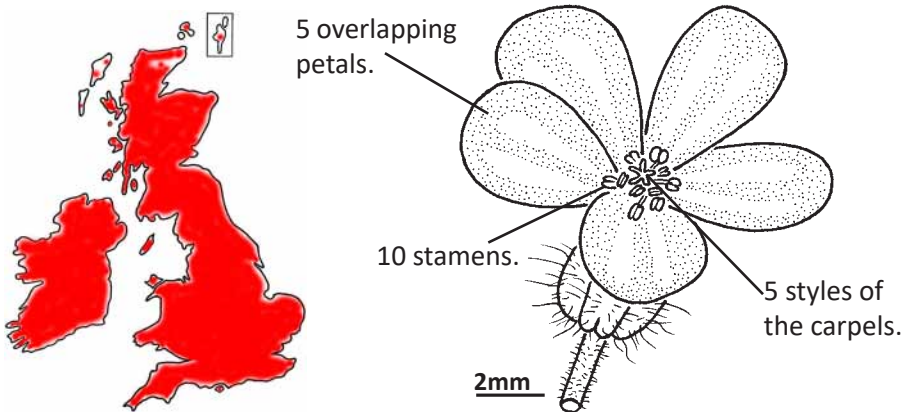


- Flowers in June to July, leaves April to October.
- Mainly upland areas, to 70cm, in displays of bright showy flowers.
- Leaves with about six lobes and toothed margins.
- The five carpels pack close together to give the central “crane’s bill”, enlarging after the petals drop.
- **Similar:** Meadow Crane’s-bill, with blue petals.





- Flowers in June to July, leaves in April to October.
- Grows in many habitats, including mountain screes.
- Stems to 50cm. Leaves deeply divided into three to five lobes.

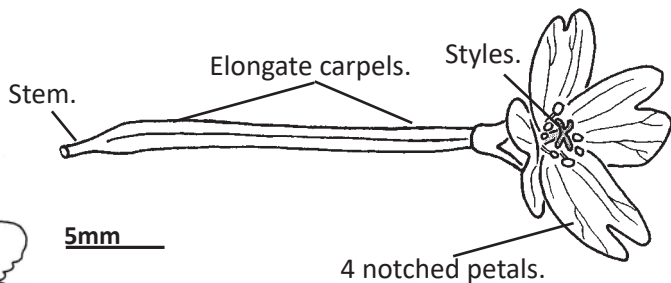




Chickweed Willowherb,
Epilobium alsinifolium
for comparison.

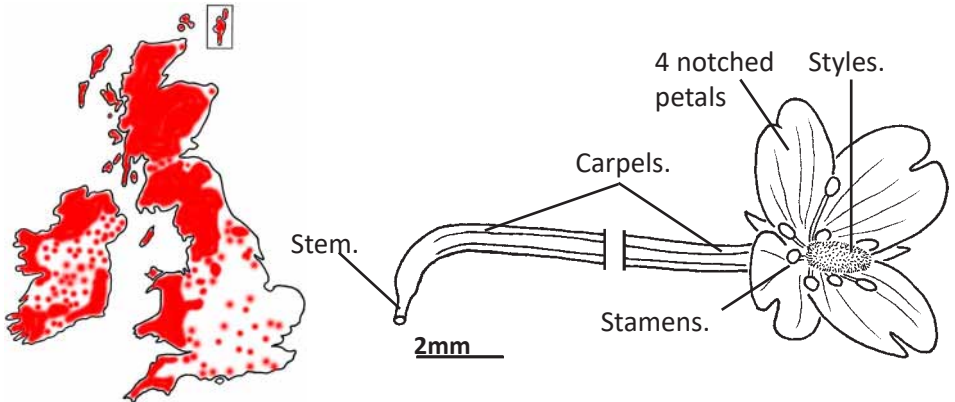


- Flowers in July to August, leaves in January to December.
 - Wet areas on mountainsides. Usually unbranched stems to 20cm.
- SIMILAR, and with overlapping distribution and habitat is Chickweed Willowherb. This is larger, has branching stems, and leaves with more distinctly toothed leaves than Alpine Willowherb.



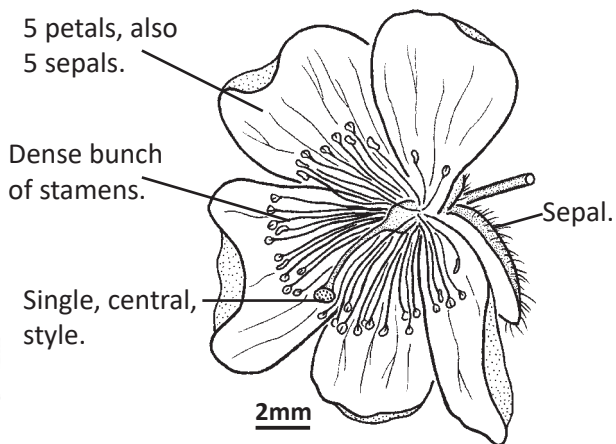
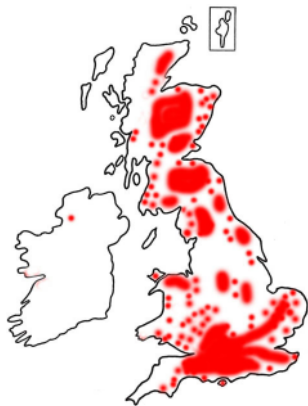


- Flowering in May to October, leaves in January to December.
- A non-native species that grows in many habitats of the uplands.
- Creeping growth with long stems and small leaves in pairs.
- Carpels very long, fused, then split four ways to release seeds, **asterisk**.





- Flowers in May to September, leaves in January to December.
- On moorlands and heaths, usually chalk or limestone areas but also on other basic soils.
- Stems to 30cm. Delicate and crinkled petals are distinctive.

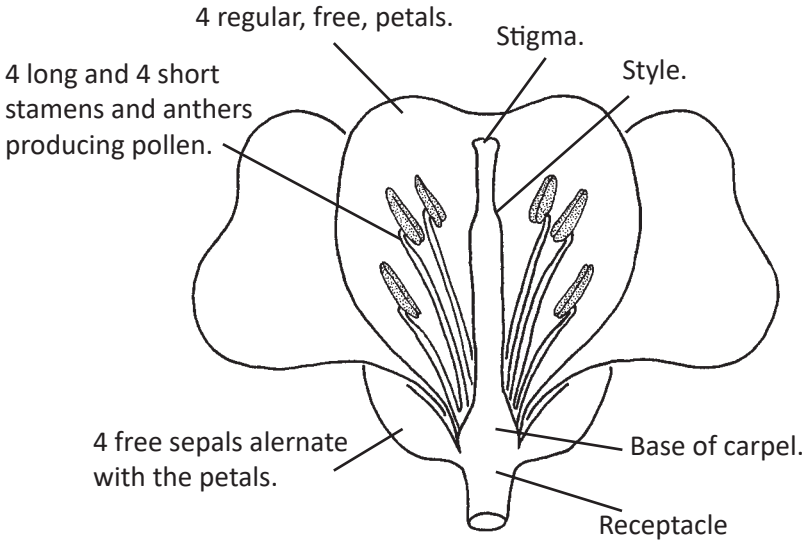


Brassicas or Cabbages, Brassicaceae: flower structure. 45

• A large family that used to be called Cruciferae after the cross-shape of four symmetrical petals. Flowers have a simple and regular form. The carpel develops into an elongated pod. Leaves are simple or pinnate (= lobes from a central axis) and they usually alternate up the stems.

Leaves simple or pinnate.

stigma + style = carpel (or pistil).



Cuckoo flower.



Small group of flowers at top of stem.

Free sepals alternate with petals.

Stigma, style and anthers showing above petals.

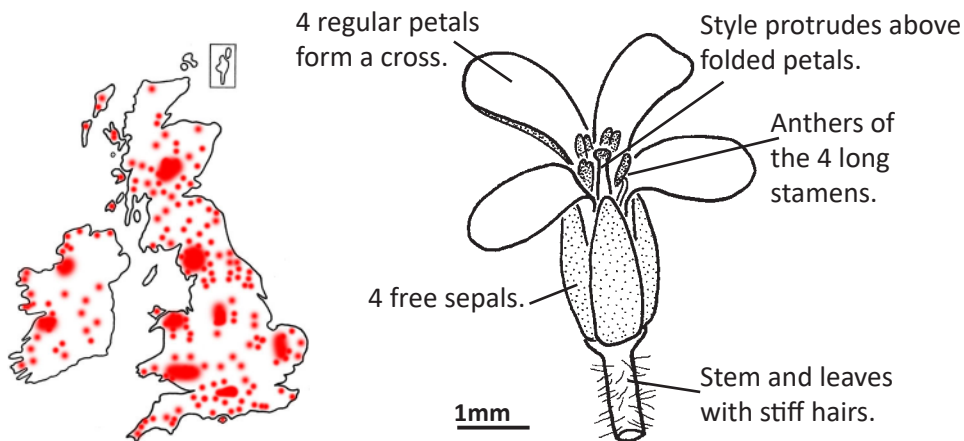
Regular, equal, petals may form a cross shape in some species.

Hairy Rock-cress, *Arabis hirsuta*

Cabbages, Brassicaceae

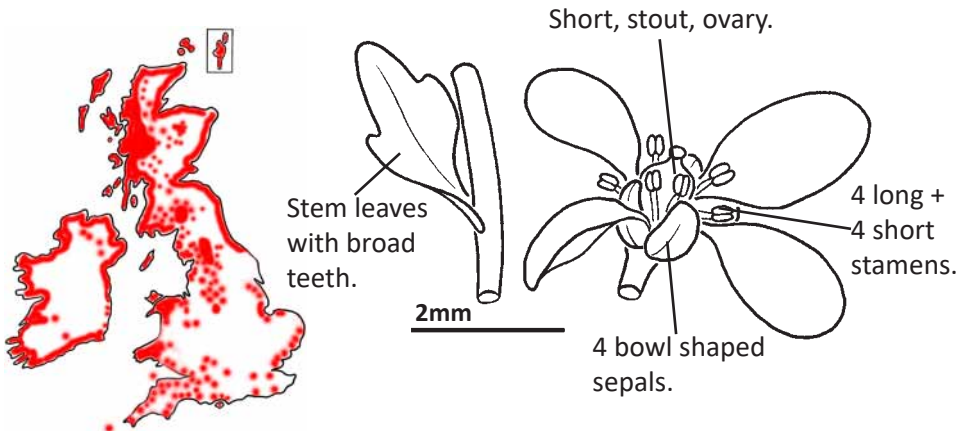


- Flowers in April to September, leaves in January to December.
- Grows on upland grasslands to rocky areas. Stem to 40cm.
- Small inflorescence head. Stems and leaves distinctly hairy.
- **Similar:** Wavy Bitter-cress and Hairy Bitter-cress, both common.





- Flowers in February to August, leaves in January to December.
- Common Scurvygrass is well named: the most likely to be found from rocky sea-shores to mountain tops – a similar distribution to Thrift, page 49, with its adaptation to rocky habitats.
- Flowers in groups of five to six. Leaves hairless, heartshaped or with broad teeth.
- **Also:** Mountain. . . Danish. . . English. . . etc. *Cochlearia* is a complex, varied, genus, hence the **aggregate** designation above.

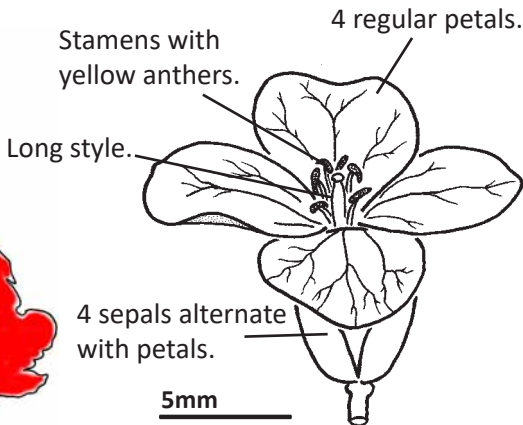


Cuckooflower, *Cardamine pratensis*
Cabbages, Brassicaceae



- Flowers in March to July, leaves in January to December. Common on upland grasslands.
- Conspicuous on erect stem to 50cm with a cluster of florets.
- Colour varies, may be white but veins are distinct.
- Leaves vary depending on position up stem.

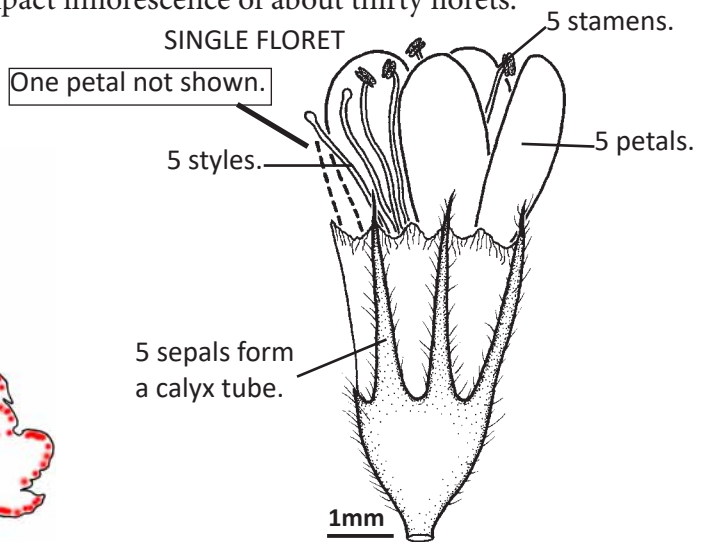
Upper leaflets narrow;
lower leaflets broad.



Thrift or Sea Pink, *Armeria maritima*
Thrifts, Plumbaginaceae



- Flowers in April to October, leaves in January to December.
- Common on sea-shores (left) and north-western mountain tops (right).
- Flower is a compact inflorescence of about thirty florets.

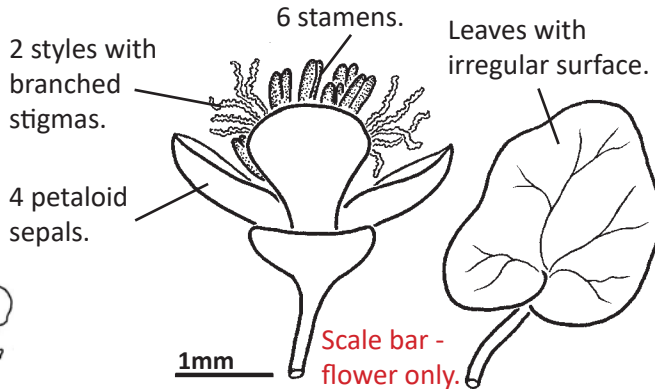
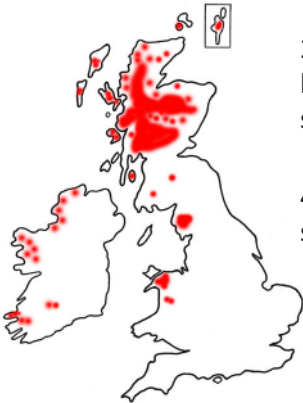


Mountain Sorrel, *Oxyria digyna*

Docks, Polygonaceae,



- Flowers in July to October, leaves in April to October. On Mountain grasslands.
- Short, thick stem to 15cm.
- Flower is a dense inflorescence of tiny florets.
- Leaves basal, thick and kidney-shaped.
- **Similar:** Sheep's Sorrel, with slender branching stem and arrow-shaped leaves. Common on grassy uplands.



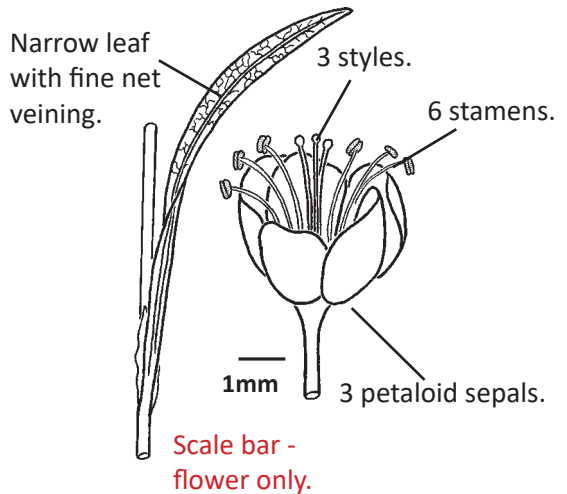
Alpine Bistort, *Bistorta vivipara*
Docks, Polygonaceae



On lower stem are bulbils (aerial bulbs) that disperse and grow into a new plant.



- Flowers in June to August, leaves in April to October.
- On rocks and mountain grasslands.
- Stem to 30cm, with florets uppermost.
- Basal and upper leaves simple, narrow.



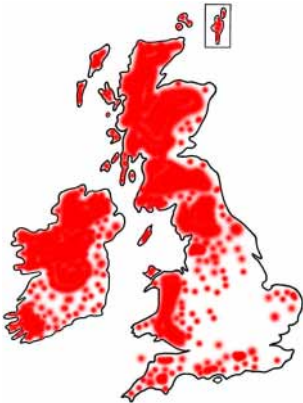
Round-leaved Sundew, *Drosera rotundifolia*
Sundews, Droseraceae



Sticky hairs of a leaf folding over a trapped mayfly, to be digested.



- Flowers in June to August, leaves in April to August.
- A common specialist plant of boggy ground beside tarns and lochs, also on peaty moorlands.
- Several flowering stems to 15cm rise from basal rosette of about twenty round leaves, all with fringes of sticky hairs which trap insects as a source of nitrogenous nutrients.



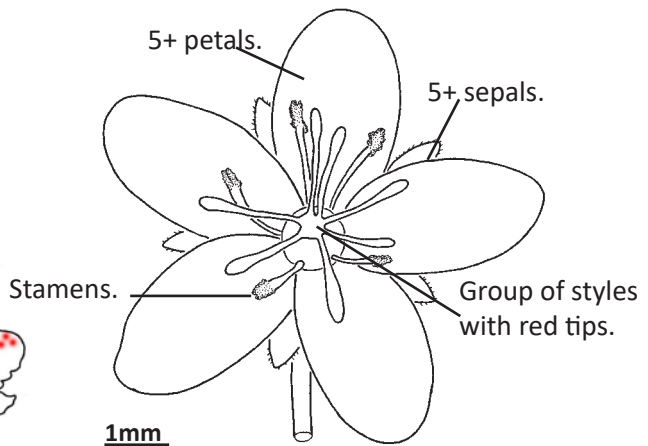
Compact white flowers, rarely found open. See **Great Sundew**, next page, for drawing of a sundew flower.

Great Sundew, *Drosera anglica*
Sundews, Droseraceae

53



- Flowers in July to August, leaves in April to October.
- On boggy ground and stony shores of tarns/lochs.
- Small flower on stems to 15cm rise from rosette of long oval leaves with sticky hairs.
- **Also:** Oblong-leaved Sundew with leaves half length of Great Sundew leaves.



This family includes a wide variety of flowers from the large pinks (*Dianthus* species) to the minute *Cyphel* which is a distinct montane plant. Care is needed with counting petals: some species have petals so deeply cleft that an appearance of twice the true number of petals is created – see Lesser Stitchwort, page 60. Carpel bases fuse together into an ovary. Simple leaves are in opposite pairs on the stem, without flower-stalks.

Leaves are simple blade- shaped.

4 to 5 petals, often deeply notched.

Petals collectively form a corolla.

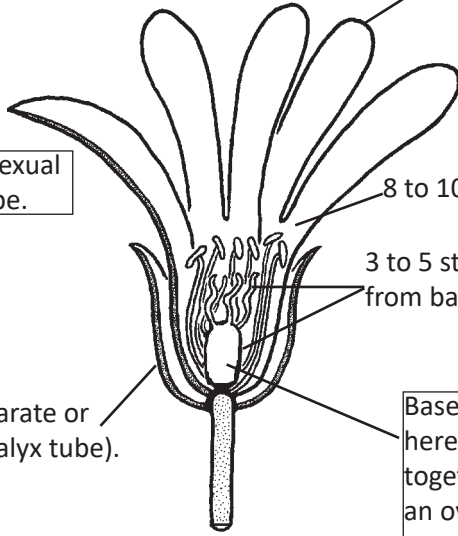
Flowers usually bisexual and of regular shape.

8 to 10 stamens.

3 to 5 styles arising from bases of carpels.

4 to 5 sepals, separate or forming a tube (calyx tube).

Bases of carpels here are fused together to form an ovary.



Alpine Mouse-ear.



5 notched petals.

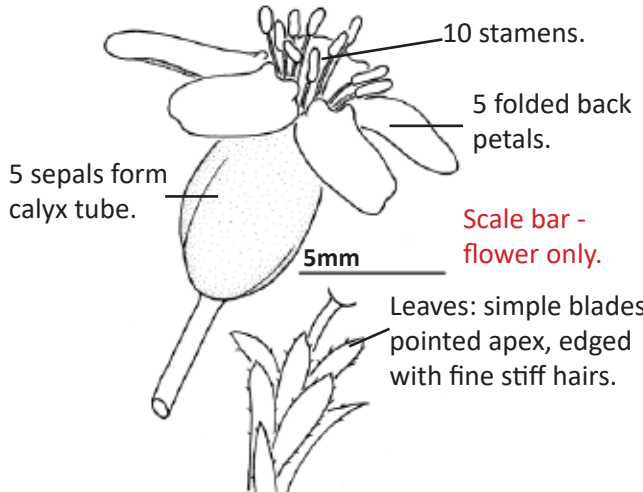
10 stamens.

Free styles arise from group of 5 carpels.

Moss Campion, *Silene acaulis*
Campions, Caryophyllaceae



- Flowers in May to July, masses of leaves form large perennial cushion.
- Conspicuous on high mountainsides: a well adapted montane plant.
- Flowers on stems to 5cm, with 5 sepals as a calyx tube.



Red Campion, *Silene dioica*
Campions, Caryophyllaceae



- Flowers in May to June, leaves in January to December.
- Widespread, including mountain cliffs and screes.
- Medium tall, to 80cm, with broad simple leaves covered in fine hairs.
- **Also:** Sea Campion and Hybrid Campion.

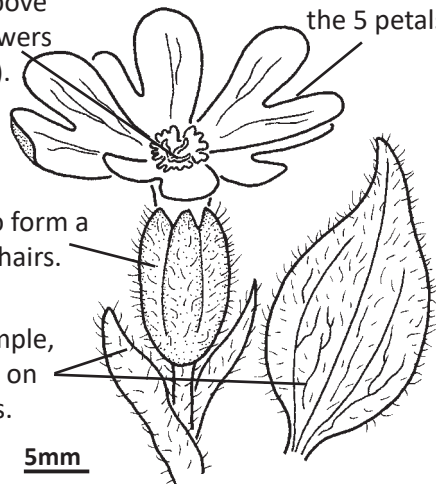
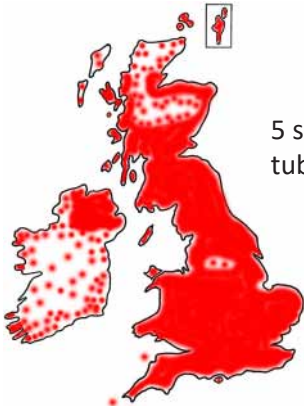
3 styles protrude above petals of female flowers (sexes are separate).

Deep notches in the 5 petals.

5 sepals fused to form a tube covered in hairs.

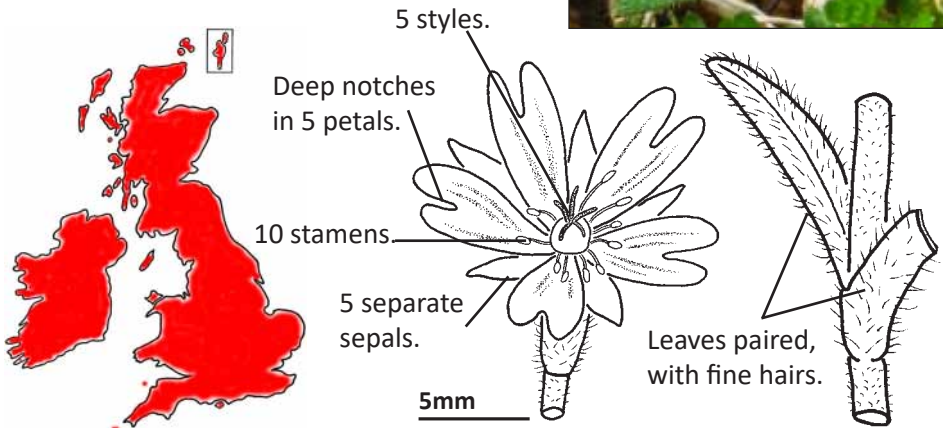
Leaves simple, with hairs on both sides.

5mm





- Flowers in April to September, leaves in January to December.
- Widespread, including mountain grasslands.
- Medium tall, to 50cm, stems and leaves covered with fine short hairs.
- **Similar:** see Alpine Mouse-ear, next page.

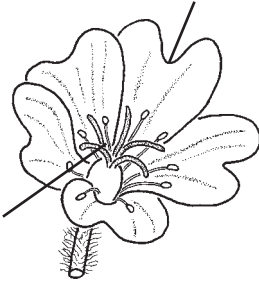


Alpine Mouse-ear, *Cerastium alpinum*
 Campions, Caryophyllaceae



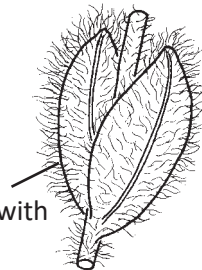
- Flowers in June to August, leaves in January to December.
- Grows in patches on rocky ground on mountains.
- Flowers similar to Common Mouse-ear but less deeply cleft.
- Leaves and stem densely covered in long, fine hairs.
- **Similar:** in form and distribution is Arctic Mouse-ear, but with less dense growth of hairs.

5 petals with shallow notches.



5 styles protrude from ovary.

Leaves and stem covered densely with long fine hairs.

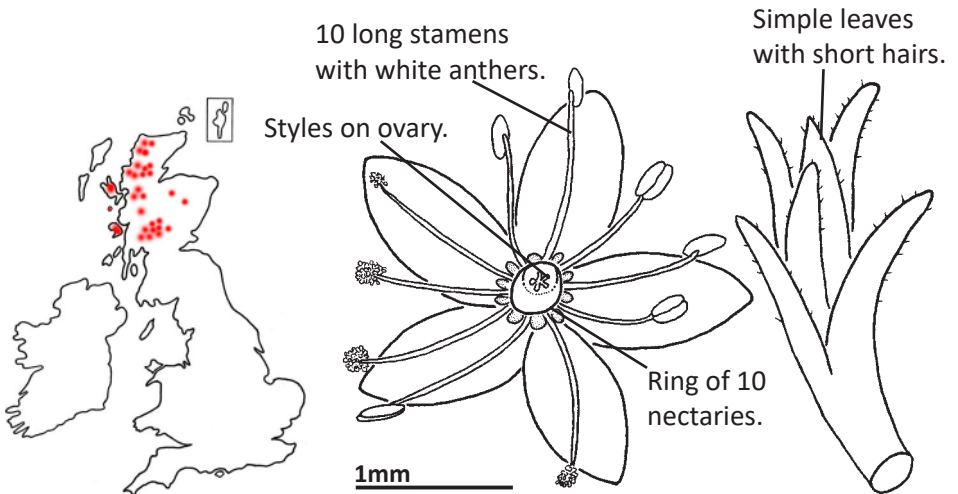


5mm





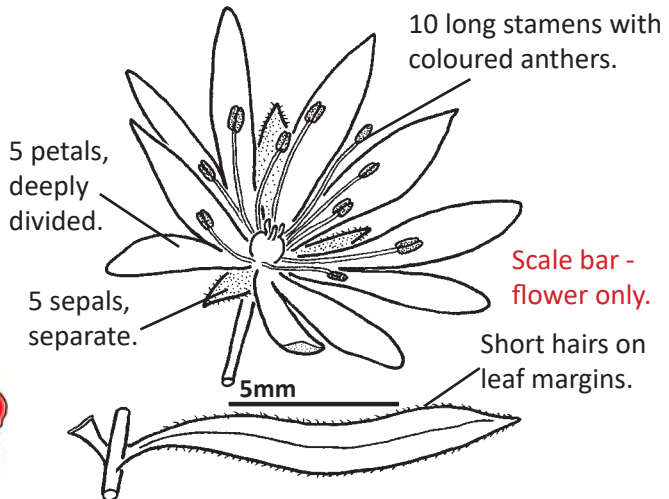
- Flowers in June to August, leaves in January to December.
- Forms large cushions on rocky mountainsides. Cushion of similar compact form to that of Moss Campion, see page 55.
- Flowers are tiny, lying close to surface of cushion. Often petals are absent but the yellow sepals are distinct.



Lesser Stitchwort, *Stellaria graminea*
 Campions, Caryophyllaceae



- Flowers in May to August, leaves in January to December.
- Widely distributed and grows on upland grasslands and heathlands.
- Stems to 30cm are straggly and much branched.
- Five petals are deeply divided. Elongate leaves are in alternating pairs.



Dwarf Cornel, *Cornus suecica*
Dogwoods, Cornaceae



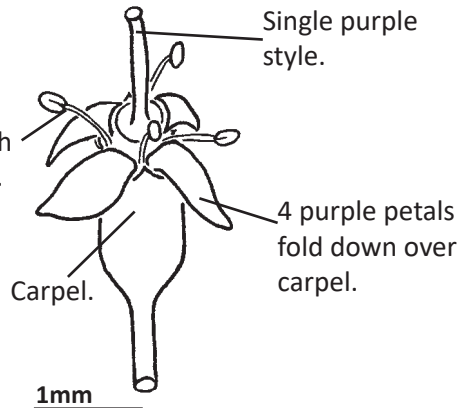
*
Ripe berry and remaining
developing carpels.

Credit: (both photographs) Guy
Wimble.

- Flowers in July to August, but plant may not flower that season; leaves in June to October.
- Grows mostly on upland grasslands and mountains.
- Four white bracts resemble petals. Tiny flowers cluster centrally.
- Large leaves in opposite pairs up the single stem to 25cm.



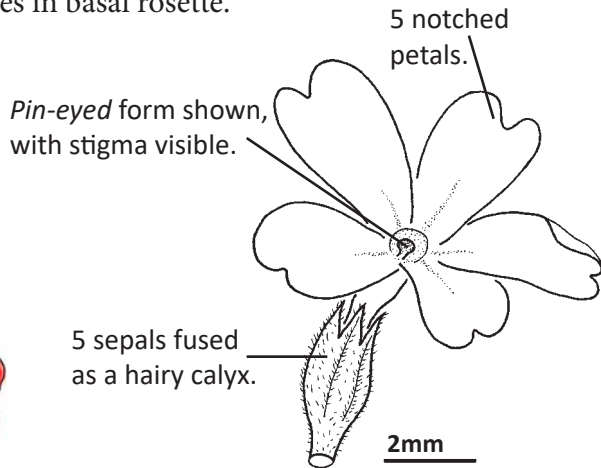
4 stamens with
white anthers.



Primrose, *Primula vulgaris*
Primroses, Primulaceae

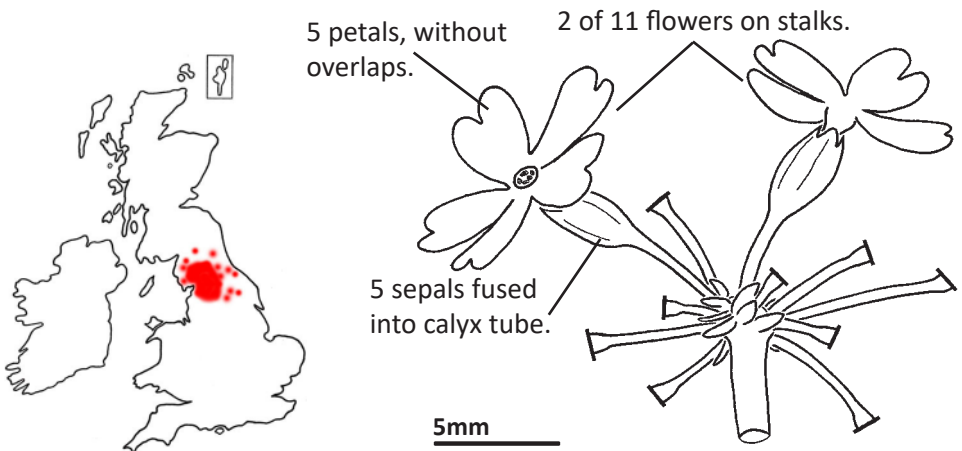


- Flowers in December to May, leaves in January to December.
- Widespread, often in large patches, and on shaded cliffs in the hills.
- Stem to 15cm; leaves in basal rosette.



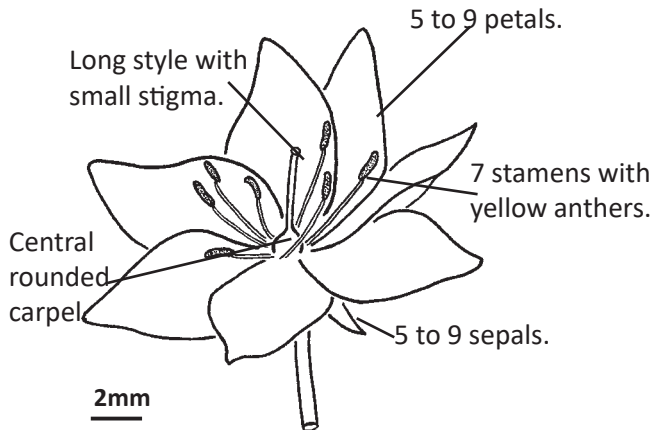


- Flowers in May to June, leaves in April to October.
- Compact distribution to limestone moorlands of northern England.
- Ten to twelve flowers from single main stem form a globular group.
- **Also:** rare Scottish Primrose on north coast of Scotland, and Orkney.



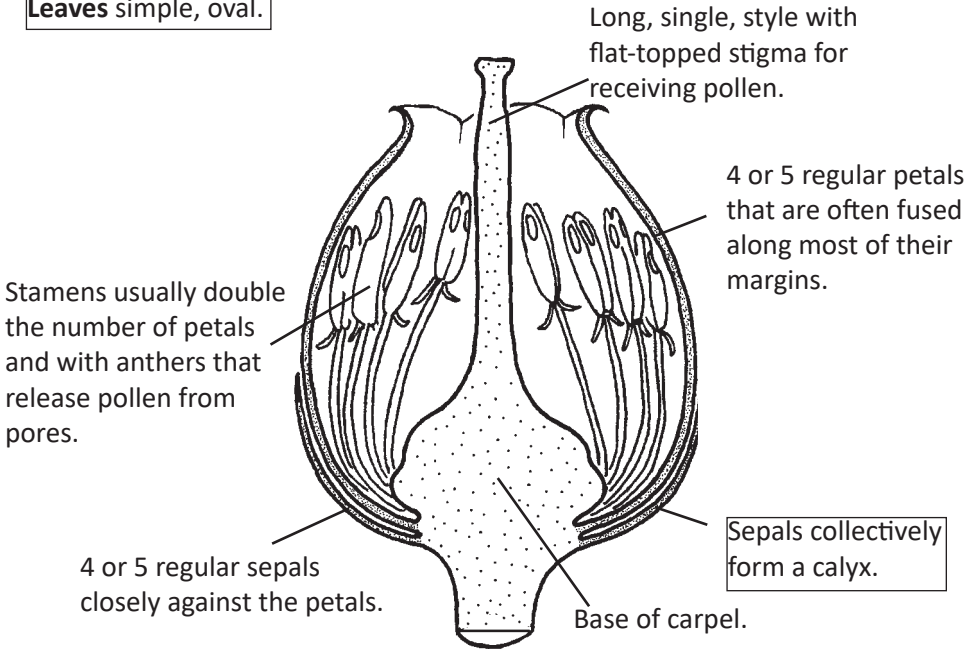


- Flowers in June to July, leaves in May to October.
- Grows in upland woods, heaths and heather moorlands.
- One or several stems rise to 20cm; leaves often tinged brown.
- Flower resembles Wood Anemone but leaves are dissimilar.
- (This is not a true Chickweed nor a Wintergreen, as on page 74.)



The heaths and ericas vary from low creeping forms with minute flowers such as Trailing Azalea, to unusual herbs such as Crowberry, and include rhododendrons and tree species. The drawing here is a simplified version of typical bell shape. Most species are evergreen shrubs with tough leaves. Some are well known for tasty fruits as capsules or berries. Bilberry fruits can be prolific in the herb layer and are often collected; Cowberry fruits are tasty but much fewer; crowberries are for the birds.

Leaves simple, oval.



Cowberry.



Thick, leathery leaves usually evergreen.

Large anthers surrounding a single central style.

Style may protrude far beyond the petals.

Crowberry, *Empetrum nigrum*
Heaths, Ericaceae



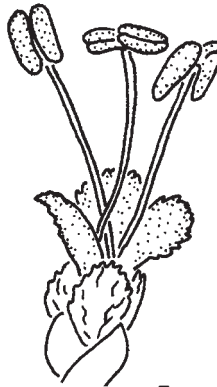
Male left

Female right



- Flowers in May to June, leaves in January to December.
- Large shrub growing on acidic heathlands and mountain tops. Leaves rolled up as a protective tube.
- Female and male plants are **separate**.
- Fruits are small, shiny and prolific.

Male: 3 stamens,
3 petals, 3 sepals.



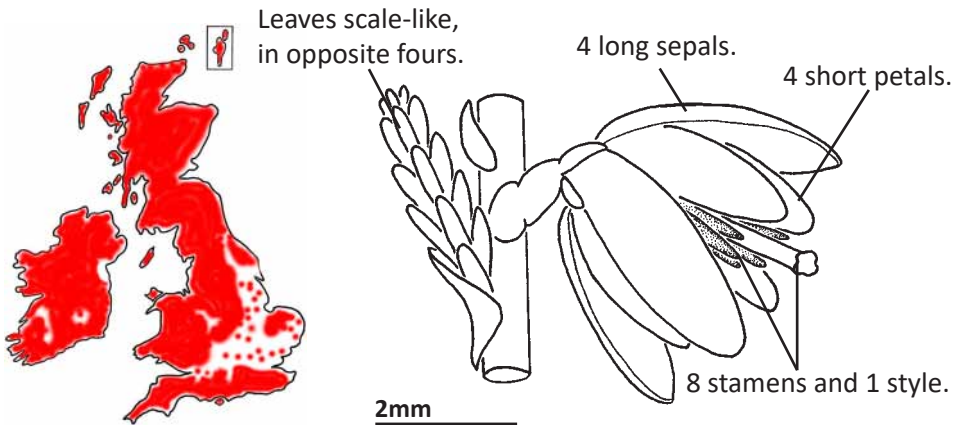
Female: 6 stigmas,
3 petals, 2 sepals.

1mm





- Flowers in July to September, leaves in January to December.
- Grow as shrubs on large areas of sandy heathlands and peaty moorlands.
- Flowers are more open than other heaths; leaves are tiny scales.



Bell Heather, *Erica cinerea*

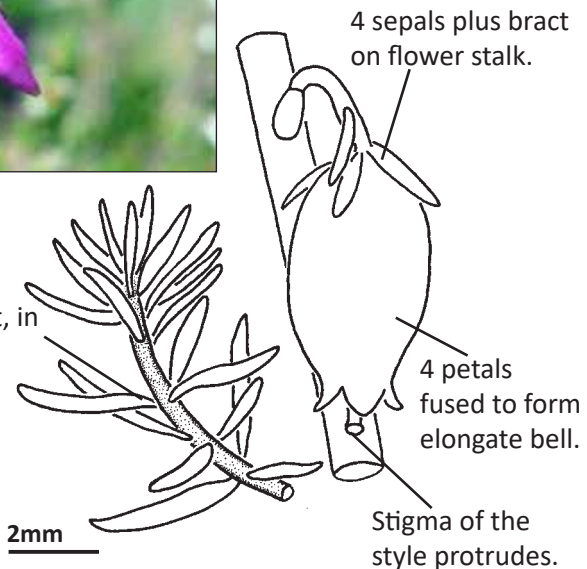
Heaths, Ericaceae



- Flowers in July to September, leaves in January to December.
- A small shrub of dry upland heathlands, often as small patches in areas dominated by Heather, but denser flower colour and narrow bell-shape distinguish this species.
- Leaf margins are rolled over and leaves grow in irregular whorls of three.

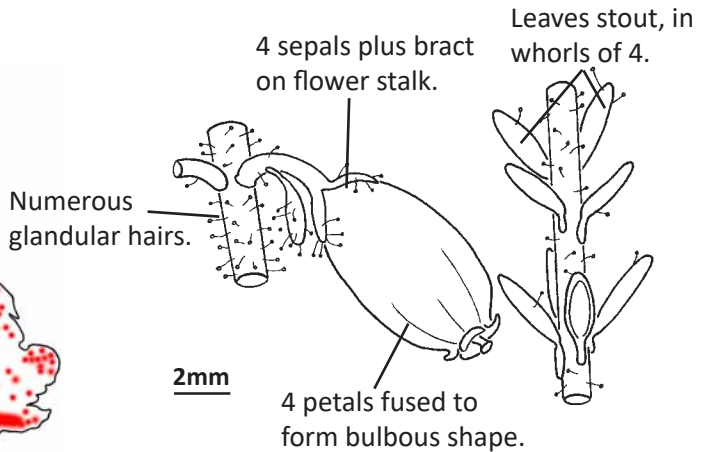
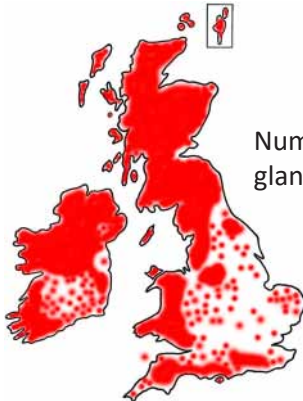


Leaves stout, in whorls of 3.



2mm

- Flowers in July to September, leaves in January to December.
- A low shrub on wet heathlands, often in patches amongst Heather.
- Similar to Bell Heather but with paler coloured and broader bell shape.
- Leaves distinctive: small and in groups of four neatly along the stem.



Bilberry, *Vaccinium myrtillus*

Heaths, Ericaceae

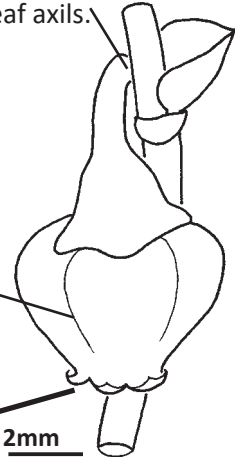


Leaves distinctly veined, rough surfaced, and with minutely serrated edges.

- Flowers in April to June, leaves in April to October.
- Grows on heather moorlands and peat bogs.
- Globular flowers like rows of lanterns.
- Leaves are bright green in spring but brownish later in the season.
- Berries are dark blue, with a matt bloom that rubs off easily.
- **Similar:** Bog Bilberry on northern moorlands.



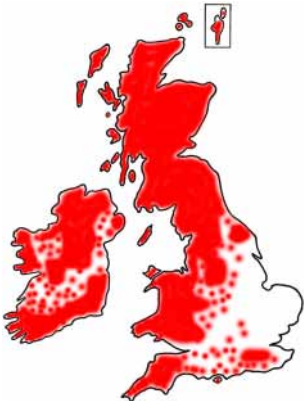
Flowers grow individually from leaf axils.



5 petals, almost completely fused to form a globe.

Style hidden in corolla tube.

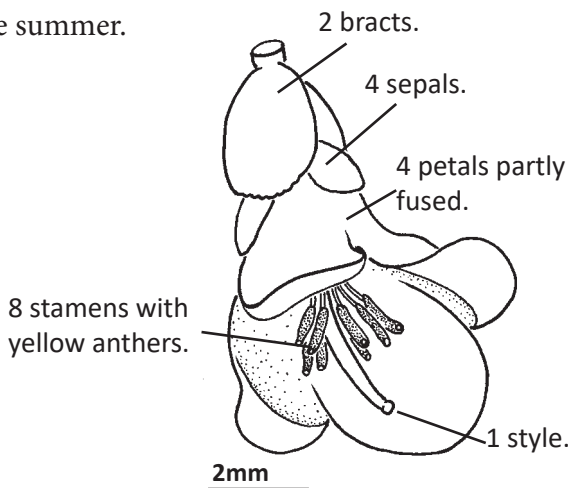
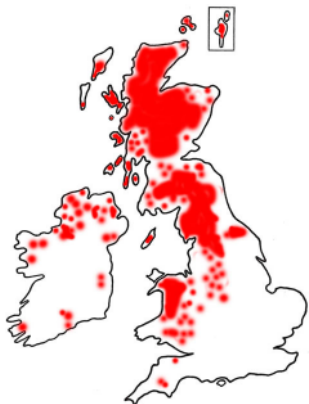
2mm





Leaves are shiny, lightly veined, with smooth edges and a small pale button at their tip.

- Flowers in June to August, leaves in January to December.
- Grows on upland heaths and rocky ground.
- A low creeping shrub with stems to 20cm.
- Red fruits (tasty) ripen in late summer.



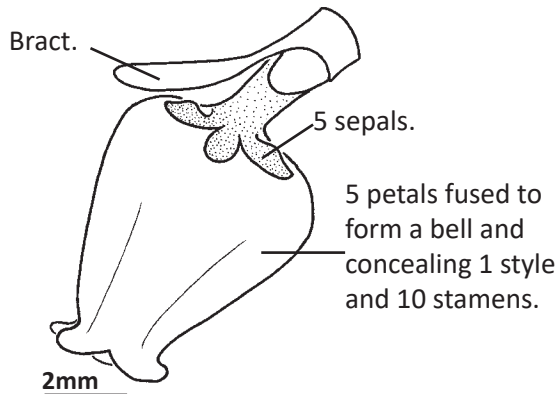
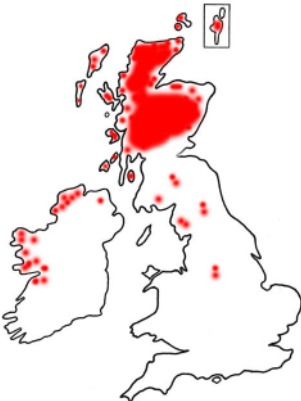
Bearberry, *Arctostaphylos uva-ursi*
Heaths, Ericaceae



Alpine Bearberry
with net-veined
leaves (fruit
ripens to black).

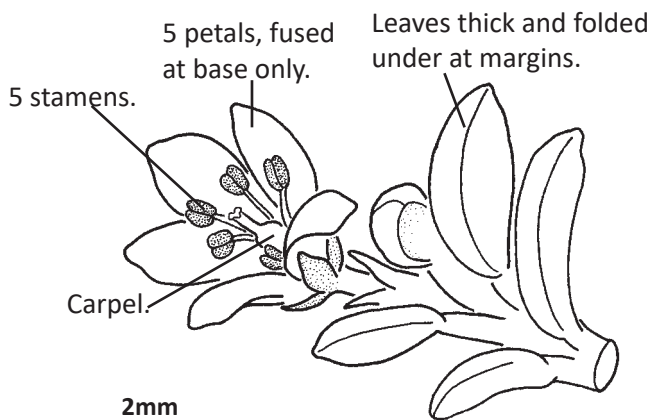
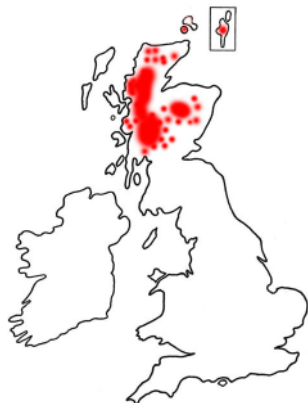


- Flowers in June to September, leaves in January to December. A mat forming shrub of heaths and moors.
- Flowers a distinct bell-shape; leaves smooth and similar to Cowberry but without a button. Red fruits mature in late summer.
- **Similar:** Alpine Bearberry, high on mountains in Scotland.





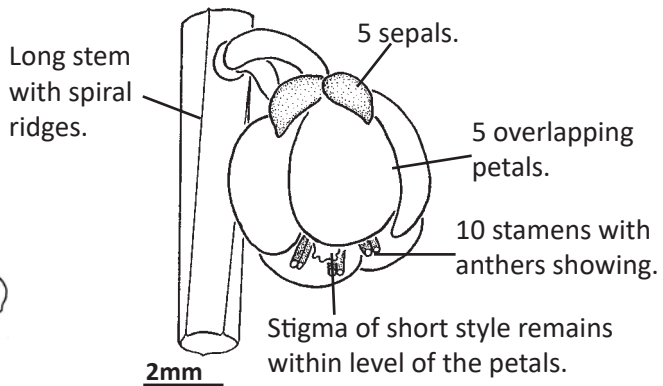
- Flowers in May to July, leaves in January to December. On stony mountain tops, to 5cm with creeping woody stems.
- Tiny but profuse flowers create a dense pinkness among the rocks.



Common Wintergreen, *Pyrola minor*
Heaths, Ericaceae

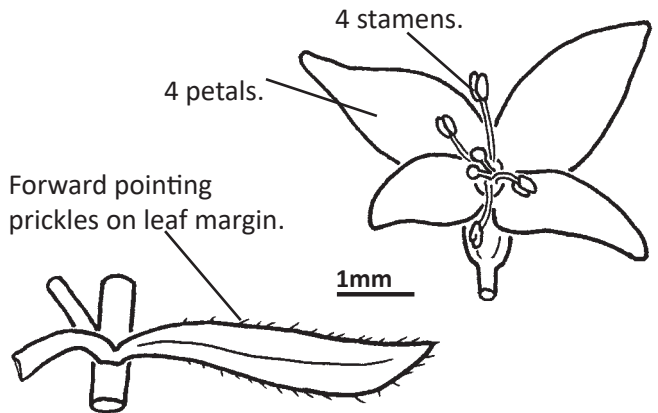


- Flowers in June to August, leaves in January to December.
- Grows on wet heathlands; a distinctive flowering spike to 20cm with about twenty globular flowers.
- **Similar:** Intermediate Wintergreen; style protrudes a short way.





- Flowers in May to August, leaves in January to December.
- Common on dry grasslands, heaths and rocky ground.
- Many small regular flowers on stems rising to 30cm. Leaves in whorls, smooth upper and lower surfaces but with tiny forward pointing prickles on margins.
- **Similar:** Limestone Bedstraw.



Lady's Bedstraw, *Galium verum*
Bedstraws, Rubiaceae



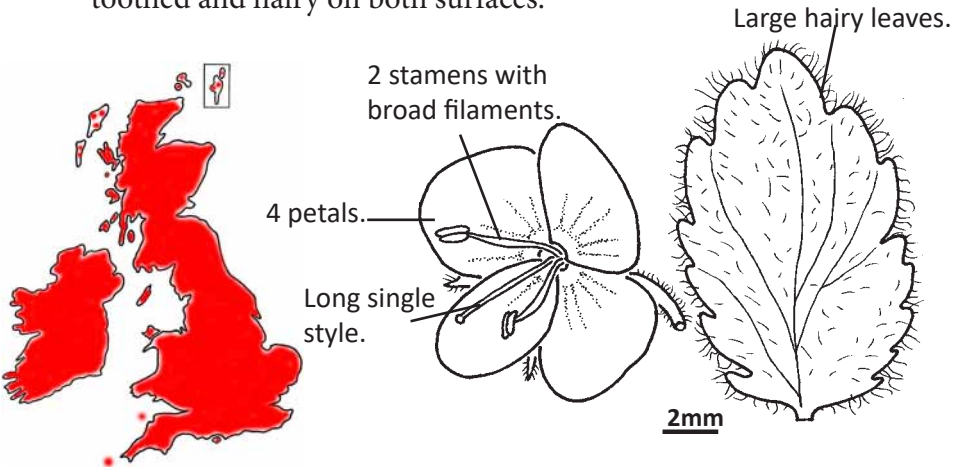
- Flowering in June to August, leaves in January to December.
- Common on many types of upland grasslands and rocky ground.
- Conspicuous, with many small flowers in a loose inflorescence spike rising to 50cm or more.
- Leaves similar to those of Heath Bedstraw but with many minute hairs on top surface and no prickles on the margins.



See previous page for information on flowers, which have similar structure and size as those of Heath Bedstraw.



- Flowers in March to July, leaves in January to December.
- Grows on upland grassland, screes and rocky areas.
- Slightly irregular flowers are large and densely bright.
- Leaves are large and undivided, in opposite pairs, deeply toothed and hairy on both surfaces.



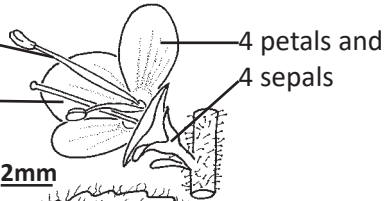
Heath Speedwell, *Veronica officinalis*
Speedwells, Veronicaceae



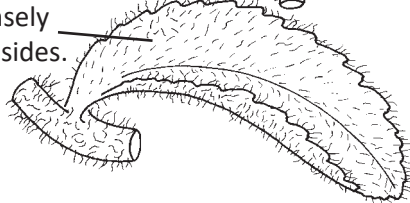
- Flowers in May to August, leaves in January to December.
- On upland grasslands and heaths, with creeping and spreading stems to 30cm. Leaves at base of stems only.



2 protruding
stamens and
1 style.



Leaves densely
hairy both sides.



Thyme-leaved Speedwell, *Veronica serpyllifolia*
Speedwells, Veronicaceae

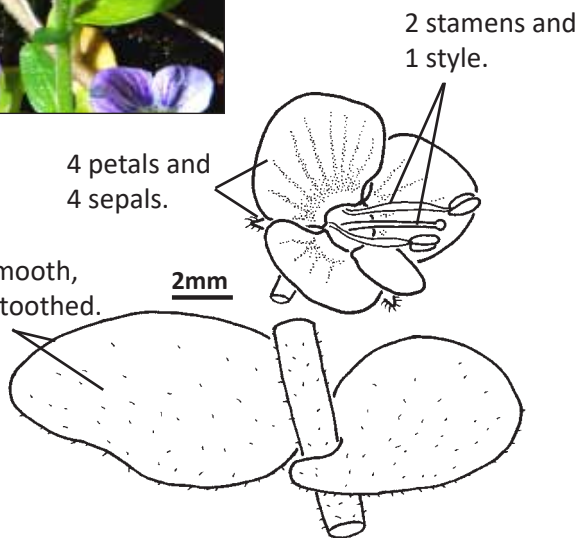
79



- Flowers in May to October, leaves in January to December.
- Widespread in many habitats including on mountain rocks.
- Stems to 20cm with leaves all way up, mostly in opposite pairs.
- **Similar:** Alpine Speedwell in a few areas of Scottish Highlands.



Leaves are smooth,
shiny and untoothed.



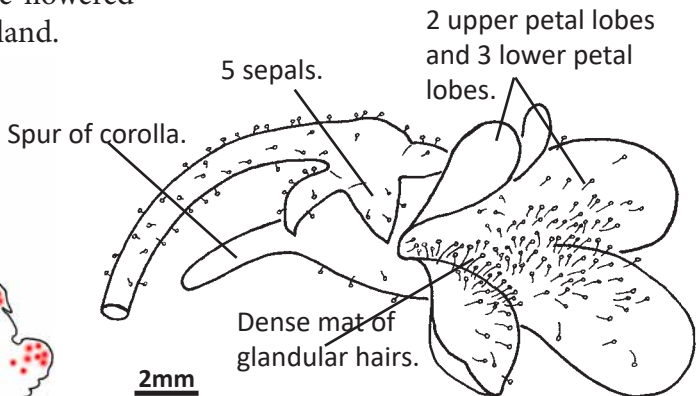
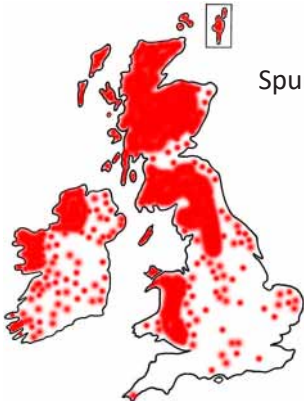
2 stamens and
1 style.

4 petals and
4 sepals.

2mm



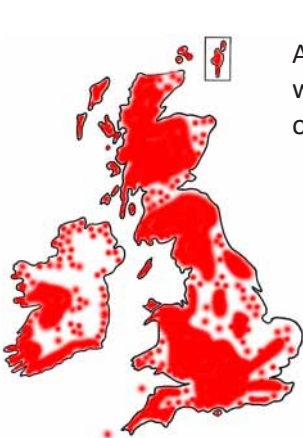
- Flowers in May to July, leaves in May to September. Grows on boggy moors.
- Several flower stems of 5-15cm tall, from a basal rosette of sticky leaves that trap and digest insects.
- Flowers are irregular with two upper and three lower petal lobes.
- **Similar:** Pale Butterwort in Britain and much of Ireland, and Large-flowered Butterwort in Ireland.



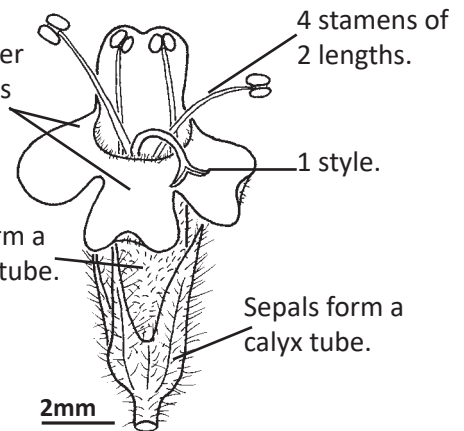
Wild Thyme, *Thymus drucei*
Deadnettle, Lamiaceae



- Flowers in May to August, leaves in January to December.
- A dwarf shrub that creeps over rocks and moss, on moorlands.
- Leaves are small simple ovals in opposite pairs on young stems.



An irregular flower with 4 petal lobes of varied shape.



Fused petals form a 4-lobed corolla tube.

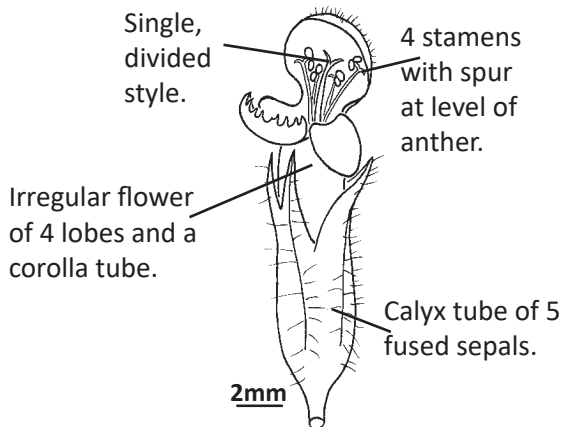
Sepals form a calyx tube.

2mm

Selfheal, *Prunella vulgaris*
Deadnettle, Lamiaceae

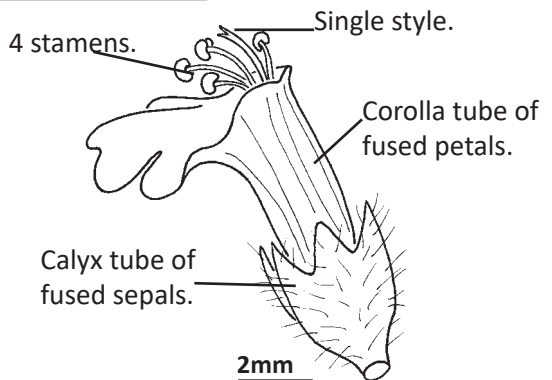


- Flowers in June to September, leaves in January to December.
- Common, grows on upland grasslands; stem to 20cm.
- Flower-head usually has many empty calyx tubes; stem is square.





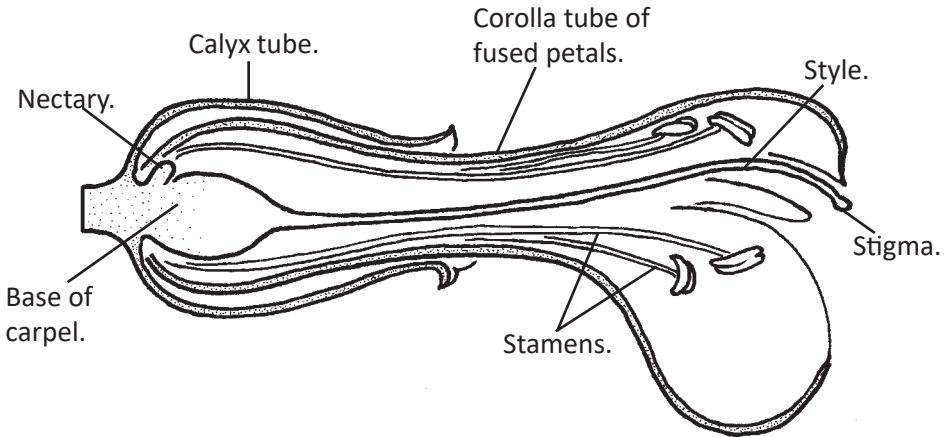
- Flowers in May to July, leaves in January to December.
- Widespread on lower ground but also on grassy uplands as conspicuous blue spikes to 30cm.
- Irregular flowers in tiers up square stem, matching the alternating pairs of leaves.



This family has various species that are common on the uplands. It contains the genus *Euphrasia* of twenty plus species of Eyebright flowers that are difficult to differentiate. Many plants in this family are parasitic to some degree on other plants.

Flowers are irregular: symmetrical in one plane only. Sepals are fused into a calyx tube. Petals are fused into a corolla tube with an upper lip or lobe, like a hood, and three lower lips or lobes. The single carpel comprising style and stigma is long and may protrude enough to be visible. Similarly four stamens reach toward the end of this tube.

Leaves simple or pinnate.



Eyebright, *Euphrasia* species.



Upper petal lip.

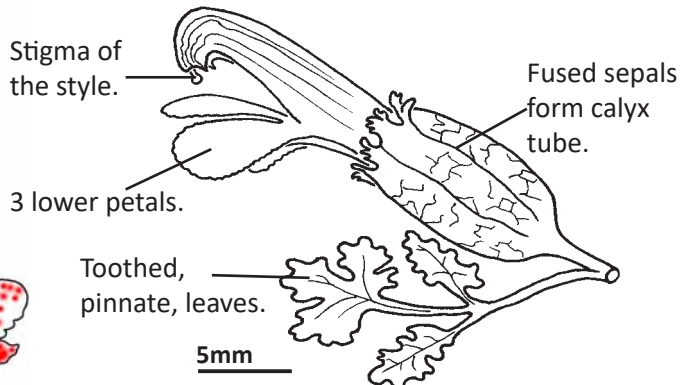
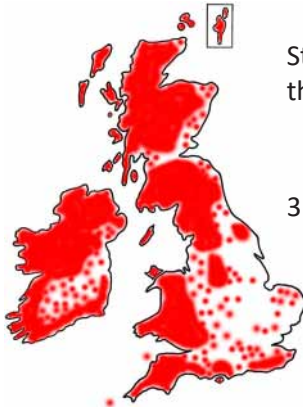
Lower 3 spreading petals.

Lousewort, *Pedicularis sylvatica*
Louseworts, Orobanchaceae

85



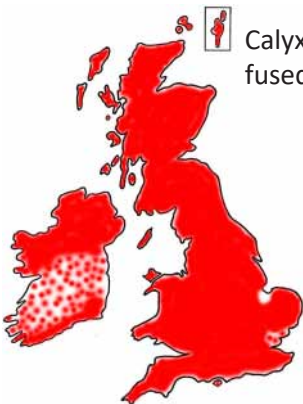
- Flowers in April to July, leaves in January to December.
- Common on grassy heathlands and moorlands. Low growing to 25cm with small pinnate leaves clustered at base of flowers.
- **Similar:** Marsh lousewort – wider and taller to 50cm, in same habitat.



Yellow-rattle, *Rhinanthus minor*
Louseworts, Orobanchaceae

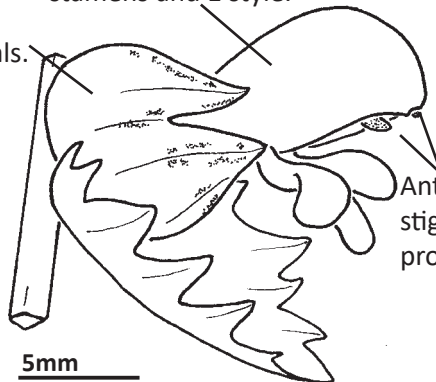


- Flowers in May to August, leaves in April to September.
- Grows to 30cm on upland grasslands and rocky ground.
- Leaves narrow, simple, distinctly toothed and in opposite pairs.



Calyx of fused sepals.

Upper lip hides 4 stamens and 1 style.

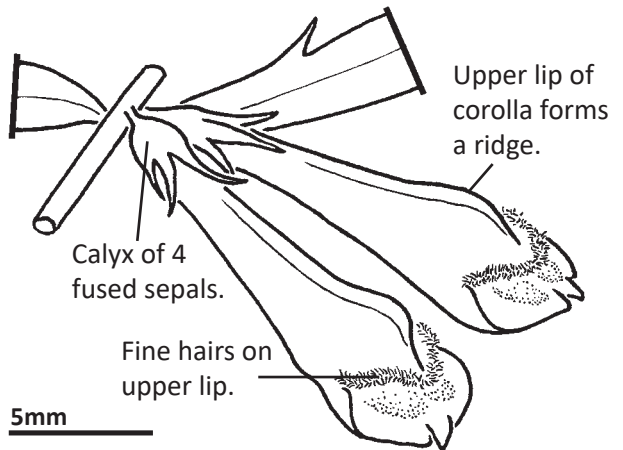


Anthers and stigma of style protrude slightly.

5mm



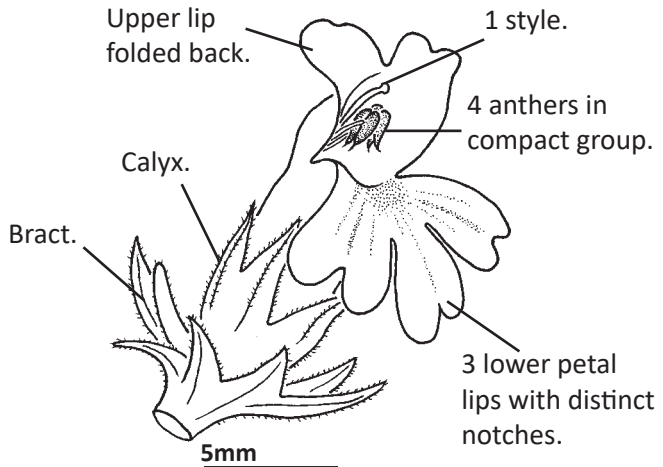
- Flowers in May to October, leaves in April to October.
- Small but distinctive plant on stems to 40cm, amongst bilberry in upland woods and on lower hillsides.
- Leaves in opposite pairs, narrow, and with several teeth at base.
- **Similar:** Small Cow-wheat in a few mountain areas.



Eyebrights, *Euphrasia aggregate*
Louseworts, Orobanchaceae



- Flowers in May to September, leaves in June to September.
- Common herbs to 10cm on upland grasslands. Species usually difficult to tell apart, despite obvious difference above, hence this **aggregate** name.

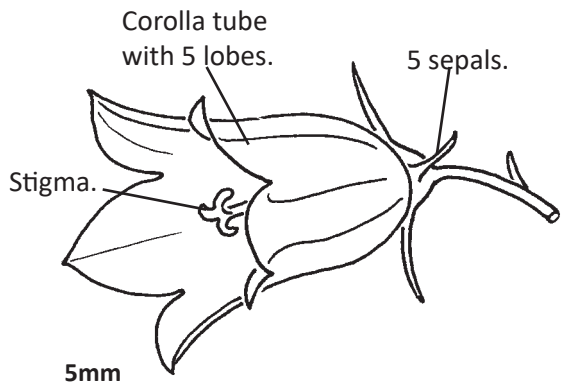
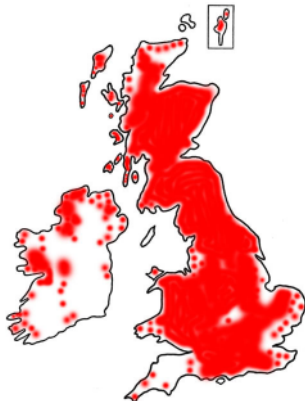


Harebell, *Campanula rotundiflora*
Bellflowers, Campanulaceae

89



- Flowers in July to September, narrow leaves in January to December.
- Grows in a wide range of habitats including grassy and rocky hills.
- **Also** called Bluebell but is distinct from ordinary Bluebell, family Aparagaceae, which carpets woods in spring and also grows on hills.



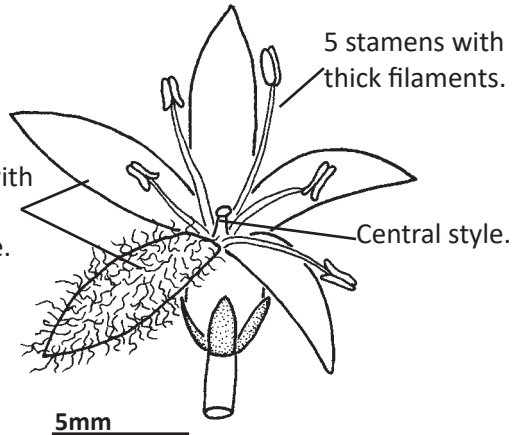
Bogbean, *Menyanthes trifoliata*
Menyanthaceae



- Flowers May to July, leaves March to October.
- Grows to 30cm rooted into edges of tarns or lochs on moors.
- Globular flowering head is on a single stem that rises to 30cm.
- Appearance of flowering head is from dense covering of wavy white hairs, together with pink flower-buds.
- Leaves grow in threes direct from stems and are densely veined.



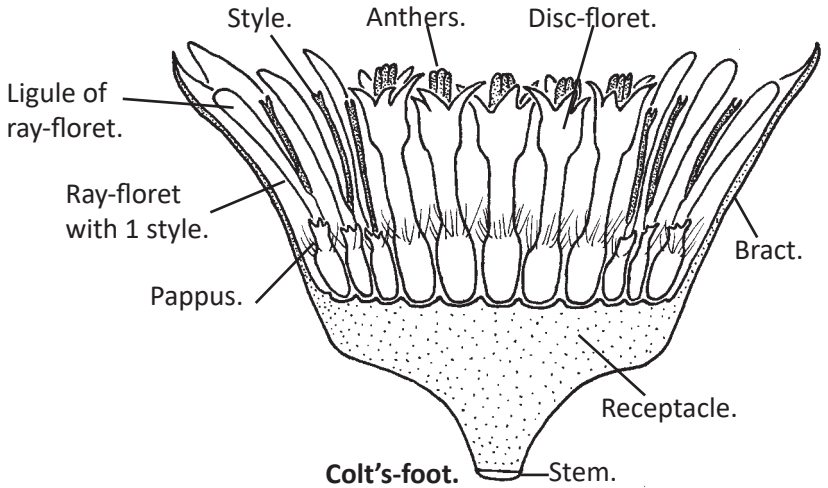
5 petals, all with densely hairy upper surface.



The daisy family, Asteraceae, have complex flower-heads with several forms of the individual flowers or florets. These are typically as an outer ring of ray-florets. These have one of their petals elongated into a strap-like ligule. Ray-florets are either female or bisexual. The female components, as a carpel with one long style, produce a single tiny fruit. This fruit is dispersed by wind with its ring of long fine hairs (= a pappus).

The inner disc of florets typically comprises many male or bisexual disc-florets with only very small petal lobes. Various other arrangements of flowers occur in this large and diverse family.

Leaves pinnate or simple.



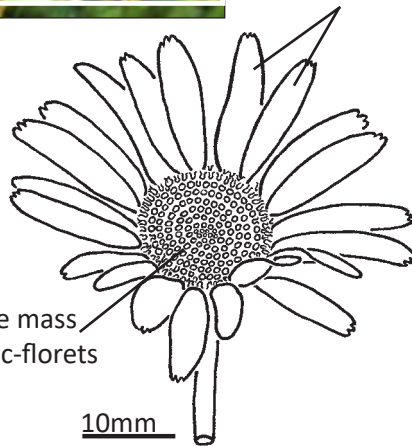
Ligules of ray-florets.
Styles of ray-florets.
Disc-florets with anthers.

Oxeye Daisy, *Leucanthemum vulgare*
Daisies, Asteraceae



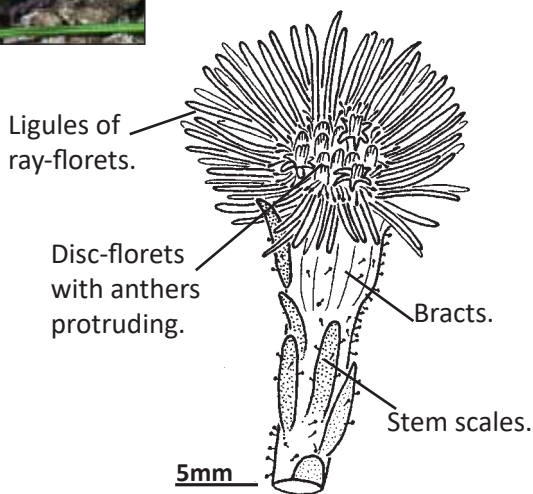
- Flowers in May to August, leaves in January to December.
- On wide variety of habitats, mostly in lowlands but also grows in patches on mountainsides.
- A bold plant raising its large flower heads on single stalks to 100cm.
- Upper leaves sparsely spaced, claspings stems and deeply lobed.

Ligules of ray-florets.





- Flowers in March to April, but leaves from April to October.
- A pioneer plant of sand and gravel when on hillsides.
- Flower-head on a single stem to 15cm with small centre of disc-florets and wide ring of ray-florets.
- Large leaves, heart shaped and with initial downy film.



Mouse-ear-hawkweed, *Pilosella officinarum*
Daisies, Asteraceae

- Flowers in March to August, leaves in January to December.
- A common species in many habitats including high on mountainsides.
- This Hawkweed and the Hawkbit on the next page belong to a group of dandelion type plants that are many, varied, and difficult to differentiate. These two species are those most likely to be found on hills and mountains.

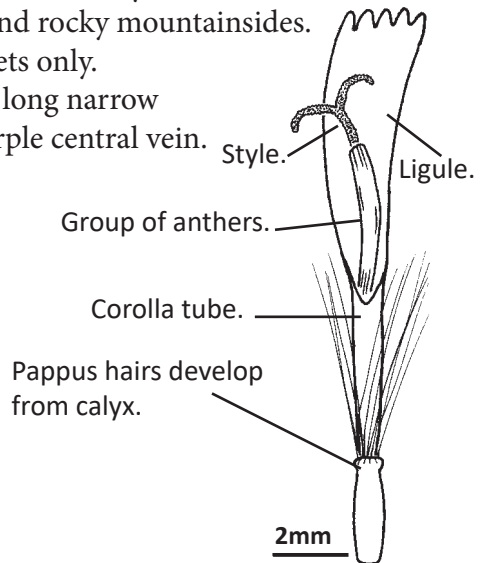


- **Mouse-ear-hawkweed** is more frequent, has pale yellow flowers. Leaves are distinctive: basal, large, lance-shaped, with long white hairs on upper surface and a white matt lower surface.
- See next page for drawing of a single bisexual ray-floret of **Autumn Hawkbit**.



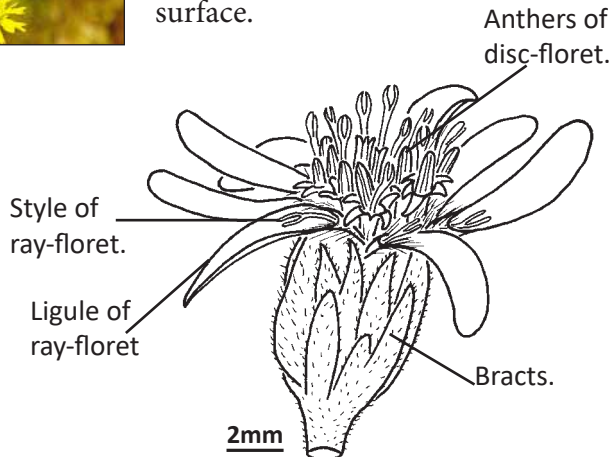
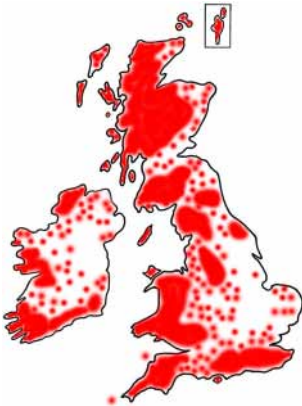


- Flowers in June to November, leaves in January to December.
- Widespread including heathlands and rocky mountainsides.
- Flower heads with bisexual ray-florets only.
- Distinctive leaves in a basal rosette, long narrow lance shape with lateral lobes and purple central vein.





- Flowers in June to September, leaves in April to October.
- Grows to 100cm on hillsides and to 5cm on alpine tundra habitat on mountain tops.
- Flower heads with about eight ray-florets and twenty five disc-florets.
- Leaves are net-veined and with fine hairs on margins and lower surface.



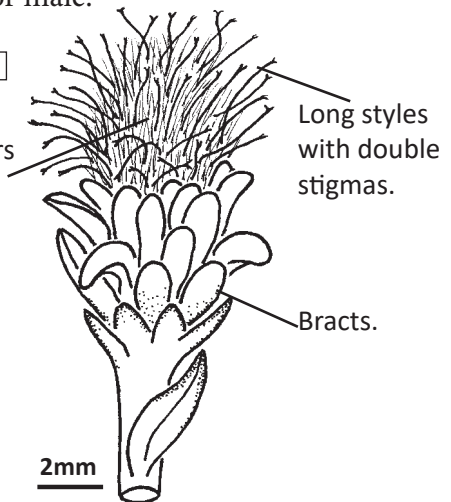


- Flowers in June to July, leaves in January to December.
- Grows on single stout stems to 15cm on rocky ground and alpine tundra on mountain tops. Leaves in a basal rosette of untoothed ovals with woolly lower surface.
- Individual plants are **female** (above) or male.

Female flower head.



Mass of pappus hairs
of individual florets.



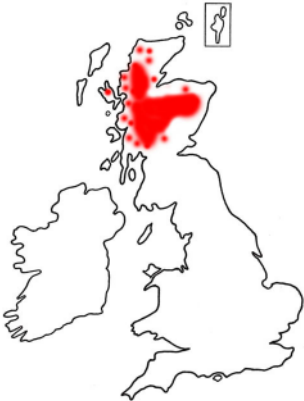
Long styles
with double
stigmas.

Bracts.

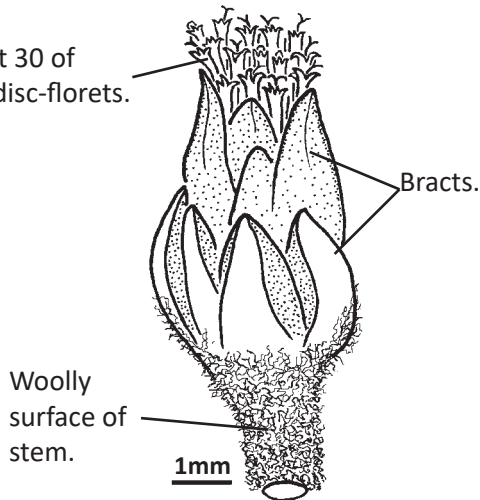
2mm



- Flowers in July to September, leaves in January to December.
- A small herb adapted for life on mountain tops and alpine tundra, growing to 10cm on stoney ground. Late summer flower-heads develop a mass of seeds with pappus hairs (above right).
- Leaves and stems covered with fine woolly hairs.



About 30 of
only disc-florets.



Alpine Saw-wort, *Saussurea alpina*

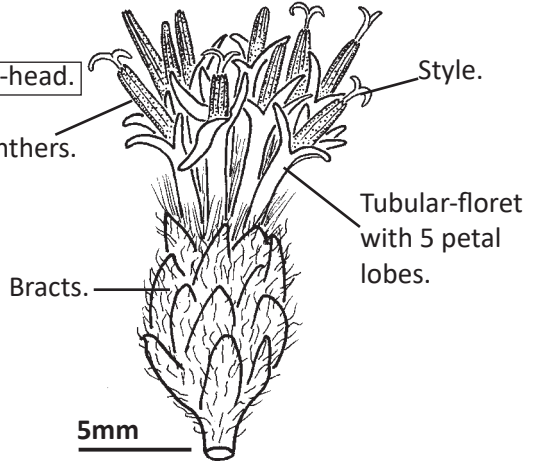
Daisies, Asteraceae



- Flowers in July to October, leaves in April to October. Grows as single stems to 60cm in patches high on mountainsides.
- Six to ten flower heads in a loose cluster.
- Leaves untoothed, shiny upper surface.



A single flower-head.



Style.

Cluster of anthers.

Tubular-floret with 5 petal lobes.

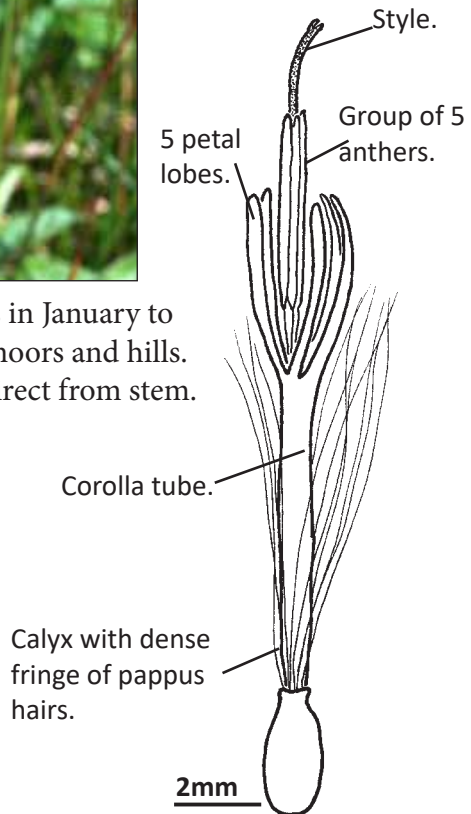
Bracts.

5mm

Marsh Thistle, *Cirsium palustre*
Daisies, Asteraceae



- Flowers in July to September, leaves in January to December. Common and grows on moors and hills.
- Stem to 100cm, most leaves grow direct from stem.



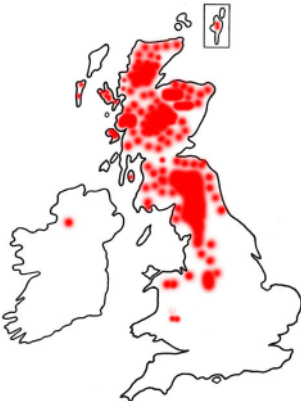
Melancholy Thistle, *Cirsium heterophyllum*
Daisies, Asteraceae

101



- Flowers in July to August, leaves in April to October. Grows in patches on upland grasslands. A bonnie plant – no spines.
- One flower head per stem, up to 100cm.

Floret structure: see previous page.



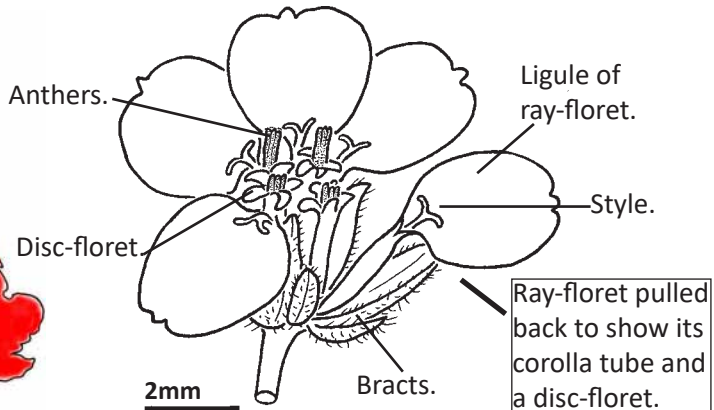
Yarrow, *Achillea millefolium*

Daisies, Asteraceae



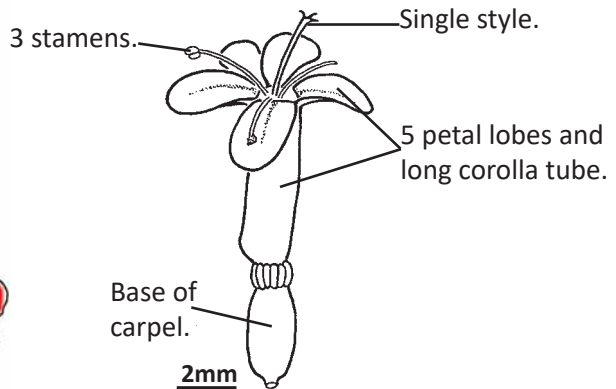
- Flowers in May to September, leaves in January to December.
- Grows everywhere, including mountain grasslands and summits.
- Leaves are feathery, double or triple pinnate and grow direct from the 50cm tall stem (5cm on alpine tundras).
- **Similar:** Sneezwort.

(Flower-head is confusing. Entire whole inflorescence comprises about 60 separate flowers. Each of these has five ray-florets with a broadly rounded ligule and a single style. The disc-florets are minute and have protruding groups of orange anthers. These disc florets show as the central orange clusters.)





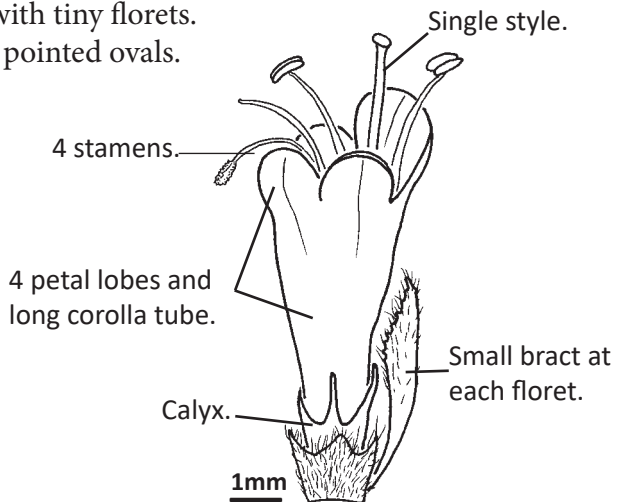
- Flowers in June to August, leaves in May to October. Grows in most habitats including upland grasslands.
- Conspicuous on stems to 100cm.
- The domed flower-head has overall white or pink colour.
- Leaves pinnate, with toothed leaflets.



Devil's-bit Scabious, *Succisa pratensis*
Teasles, Dipsacaceae



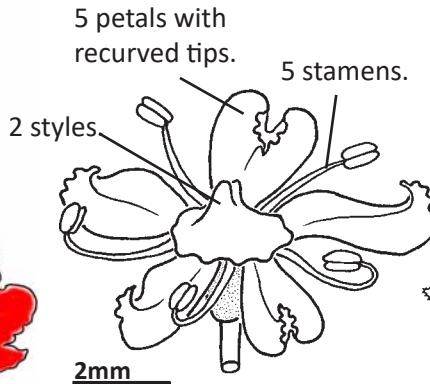
- Flowers in May to October, leaves in January to December. Grows to 100cm on moors, heaths and hillsides.
- Flower-head is packed with tiny florets.
- Leaves are simple, long, pointed ovals.



Wild Angelica, *Angelica sylvestris*
Carrots, Apiaceae



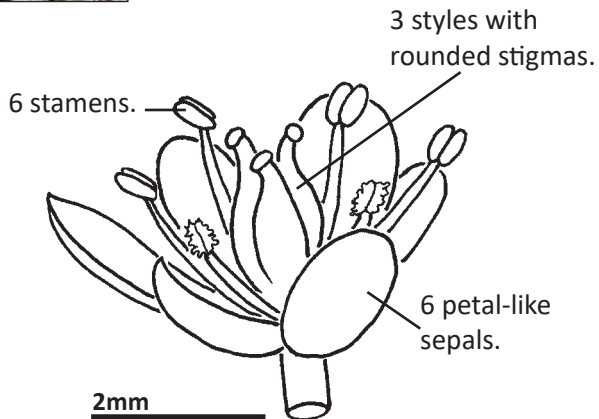
- Flowers in July to September, leaves in January to December.
- Grows on many habitats including mountain grasslands.
- Conspicuous: stems to 100cm, large flower-head is white or pink.
- Leaves have a double pinnate form as drawn here.



Scottish Asphodel, *Tofieldia pusilla*
Scottish Asphodel Family, Tofieldiaceae



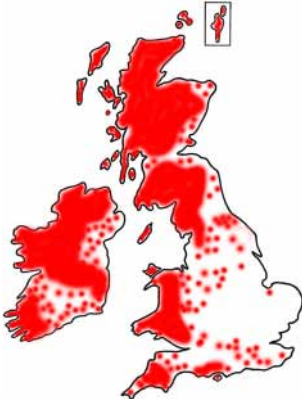
- Flowers in June to August, leaves in May to October. Grows to 20cm as inconspicuous groups on grassy mountainsides.
- Simple grass-like leaves grow in a basal rosette.



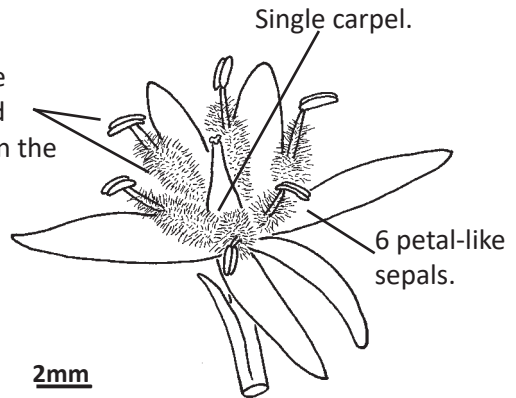
Bog Asphodel, *Narthecium ossifragum*
Bog Asphodel Family, Nartheciaceae



- Flowers in July to October, leaves in March to October. Common on most boggy moors as single stems to 40cm. Leaves in a basal rosette, simple, grass-like.

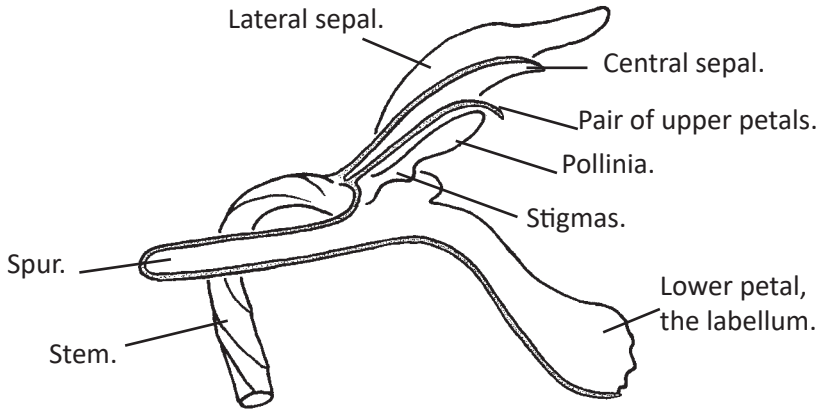


6 stamens with orange anthers and fine hairs on the filaments.



Orchids are fascinating, beautiful and confusing. As a single flower of the flower-spike develops from bud its stem twists to turn the flower upside down. Three petaloid sepals are on the top side, usually all of similar shape. Three ordinary petals form two structures. A pair overlap to form a hood which covers most of the compact stamens (pollinia, produce pollen) and stigmas (of the carpels). The lower petal spreads forwards as a large lip (labellum) and backwards as a large hollow tube (spur). Shape of the spur is important for identifying species. Nectar produced in the spur attracts pollinators. Also the specific shapes and colours of these flowers are attractive to pollinators. Identifying orchids can be difficult because within some genera there is hybridization between species.

Leaves simple, grass-like.



Heath Spotted Orchid.

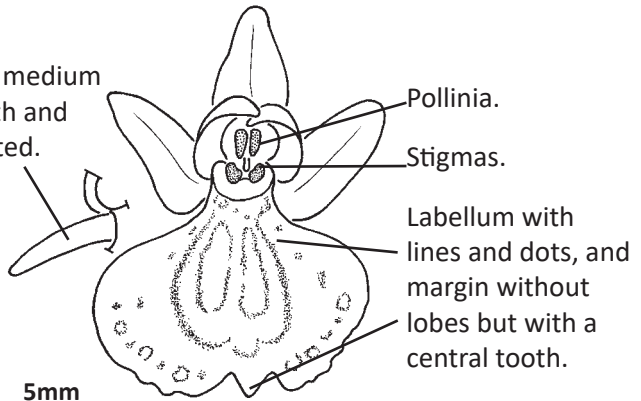




- Flowers in May to July, leaves in March to July. Commonest orchid on grassy uplands, stems to 30cm. Leaves are broad and distinctly spotted.
- **Similar:** Common Spotted-orchid and several Marsh Orchids.



Spur medium length and pointed.



Pollinia.

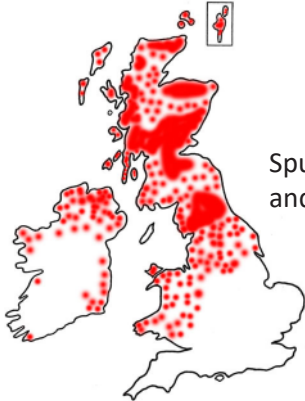
Stigmas.

Labellum with lines and dots, and margin without lobes but with a central tooth.

Northern Marsh-orchid, *Dactylorhiza purpurella*
Orchids, Orchidaceae

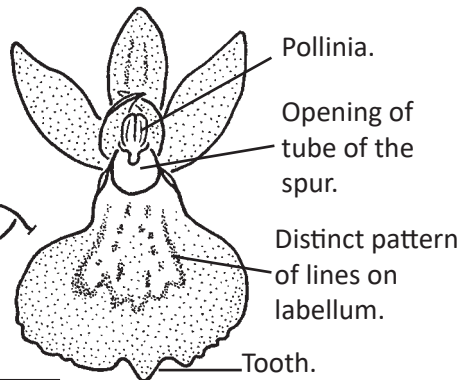


- Flowers in May to July, leaves in April to August. A stinky orchid growing to 30cm on upland grassland. Less common here than Heath Spotted-orchid.
- Spur * is characteristic: broad and short. Pattern on lip is mainly a single loop with broad lower margin.



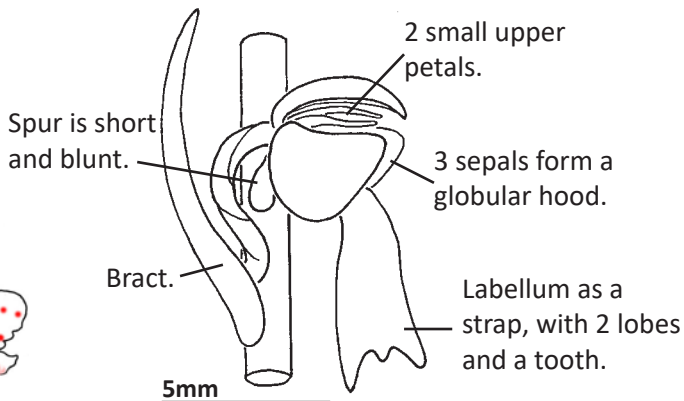
Spur is broad and short.

5mm





- Flowers in June to August, leaves in March to August.
- On grassy and rocky sites in the uplands. On 15cm stems and inconspicuously green amongst the grass.
- Structure of flower distinctive, with the strap-like lip.



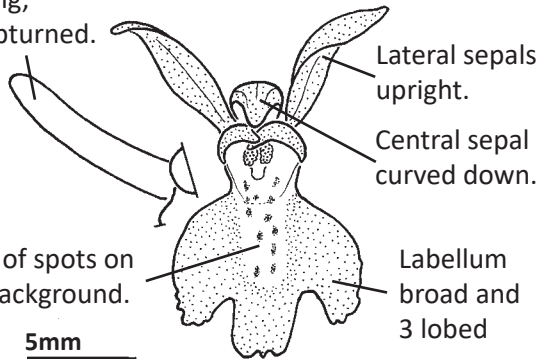
Early-purple Orchid, *Orchis mascula*
Orchids, Orchidaceae



- Flowers in April to June, leaves in February to June. Mainly a woodland plant but also conspicuous as an early and purple spike on grassy mountainsides.
- Leaves broad and usually plain.
- Spur is long, blunt and upturned.



Spur: long,
blunt, upturned.



Pattern of spots on
white background.

5mm

Lateral sepals
upright.

Central sepal
curved down.

Labellum
broad and
3 lobed



- Flowers in June to August, leaves in April to August. Grows in patches on heathlands and moors.
- Leaves long, narrow, without spots.
- **Similar:** Marsh Fragrant-orchid.

