

Myosotis alpestris F.W. Schmidt.

Alpine Forget-me-not

Myosotis alpestris is a rare upland plant with large, striking sky-blue flowers which are fragrant in the evening. It is also distinguished by fruiting pedicels that are the same length as the calyx, and the production of black nutlets. It has two distinct habitat types in Great Britain. In England it is restricted to unimproved limestone grassland at just three locations in the North Pennines, whereas in Scotland it is associated with mica-schist rock ledges and grassy slopes below crags across a small number of locations in the Breadalbanes. It is assessed as Near Threatened in Great Britain and Vulnerable in England due to the small number of locations.



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IDENTIFICATION

Myosotis alpestris is an erect, hairy perennial to 25 cm with a few hooked patent hairs on the calyx tube. It is one of our largest-flowered forget-me-nots with the striking blue corollas up to 10 mm across. English plants, and those growing in heavily grazed grassland in Scotland, are much smaller (typically 3-6 cm; Halliday 1997) than those growing on rock ledges in the Breadalbanes (pictured above), and these differences appear to be genetically determined (Elkington 1964).

SIMILAR SPECIES

Myosotis alpestris is closely related to *M. sylvatica* from which it can be separated by having fruiting pedicels as long



Prolific flowering of *Myosotis alpestris* on Little Fell, Westmoreland. © Jeremy Roberts.

as the calyx, black nutlets and flowers that are fragrant in the evening, whereas *M. sylvatica* has fruiting pedicels 1.5-2 × longer than the calyx, brown nutlets and unscented flowers (Elkington 1964). The two species are also separated altitudinally in Britain: the highest record for *M. sylvatica* being at 485 m in Coverdale (v.c.65; Pearman & Corner 2004) whereas the lowest known station for *M. alpestris* is at 700 m on Little Fell (Halliday 1997; not 685 m as given in Pearman & Corner 2004).

HABITATS

Myosotis alpestris is found in two distinct habitats in Britain. In the North Pennines, it is mainly confined to heavily-grazed limestone grassland, sometimes in areas flushed with water from above, and usually where the turf is relatively open and stony (Elkington 1964; Wigginton 1999e). Much of this vegetation approaches NVC CG9e *Sesleria albicans-Galium sternerii* grassland, *Saxifraga hypnoides-Cochlearia alpina* sub-community and CG10a *Festuca ovina-Agrostis capillaris-Thymus praecox* grassland, *Trifolium repens-Luzula campestris* sub-community but with affinities to OV37a *Festuca ovina-Minuartia verna* community, typical sub-community.

By contrast, Scottish populations are confined to mica-schist rock ledges and slopes below cliffs, frequently in open communities on substrates largely composed of mica flakes and rock fragments, and often in places inaccessible to sheep and deer. On grassy slopes below crags *M. alpestris* also occurs in CG12 *Festuca ovina-Alchemilla alpina-Silene acaulis* dwarf-herb community and U15 *Saxifraga aizoides-Alchemilla glabra* banks whereas on ledges or in snow-beds it occurs in the dwarf-herb community U14 *Alchemilla alpina-*

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Sibbaldia procumbens dwarf-herb community.

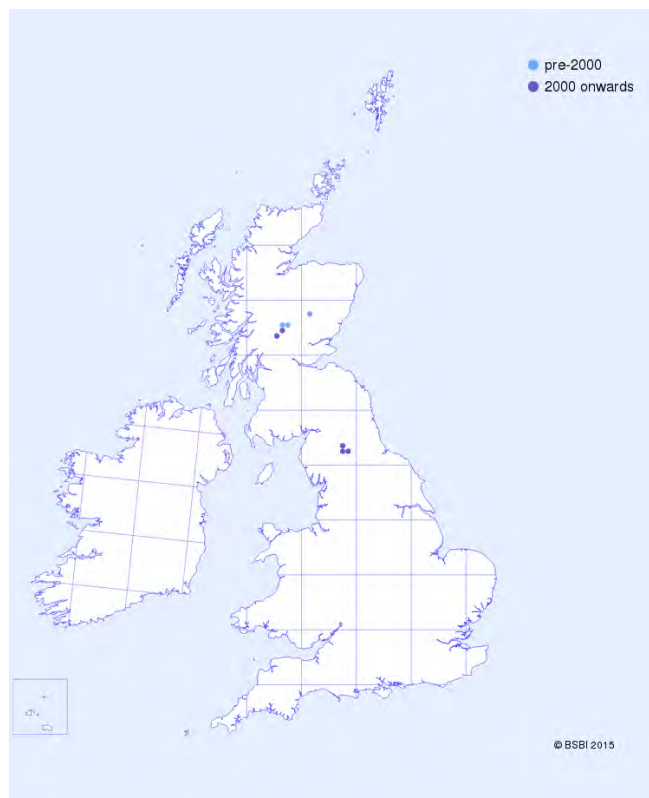
BIOGEOGRAPHY

Myosotis alpestris is a circumpolar Arctic-montane plant that is common in the mountains of central Europe, extending from southern Spain to the Alps, Tatras and Carpathians, North Africa, Central and East Asia. It also occurs throughout Arctic Siberia (from the Kola Peninsula eastwards) to western North America where it extends from Alaska along the Rocky Mountains as far south as Colorado. The plant is very variable throughout this broad range with many local forms, varieties and subspecies.

In Scotland *M. alpestris* is known from about nine sites at between 740-1180 m in the Breadalbanes, with populations ranging from just a few tens of plants to several thousand. It was also intentionally introduced to Caenlochan Glen, Angus (White 1898), where it appears to have persisted until 1942.

In northern England it is known from three sites at between 700-750 m in the North Pennines with populations ranging from a few hundred at two sites (Green Castle, Mickie Fell) to possibly exceeding 50,000 individuals on Little Fell where there are, on average, c.50 plants per square metre in the main population area (Taylor 1987).

In Britain its lower altitudinal limit is possibly controlled by winter temperatures as over-wintering rosettes tend to rot in the absence of frost (Elkington 1964).



Distribution of *Myosotis alpestris* in Great Britain and Ireland.

ECOLOGY

Myosotis alpestris is a frost-tolerant winter-green perennial that reproduces exclusively by seed. Flowering occurs between June and September. Self-pollination has been observed in *ex situ* greenhouse conditions, but it is not known whether this is usual in wild populations. It seems likely, however, that the flies and butterflies which visit the flowers carry out at least some cross-pollination.

Each flower produces a fruit of four nutlets. British plants have a range of c.5-30 flowers and therefore have a capacity of between 20-120 nutlets (assuming no herbivory). Seeds are freely produced, shed in August and September and do not require chilling to stimulate germination which occurs in the following spring. Plants grown from seed first flower in their second year, but the longevity of individual plants is not known, neither is the length of time that seed remains viable in the soil. For a fuller account of the ecology of *M. alpestris* see Elkington (1964).

THREATS

In England, where all the sites were once open to livestock, the flowering stems of *M. alpestris* are usually heavily grazed and this has led to the development of a dwarf ecotype which is morphologically distinct from ungrazed (rock ledge) populations in the Scottish Highlands (Pigott 1956; Elkington 1964). Flowering is also adversely affected by prolonged periods of dry weather (Halliday 1997).

MANAGEMENT

In England, *M. alpestris* requires short turf, although severe overgrazing may lead to damage to vegetative shoots, and/or reduced flowering performance and seed production (Roberts 2010). In areas where *Sesleria albicans* begins to dominate to the detriment of *M. alpestris*, a season of hard grazing to open the sward could be beneficial, although monitoring during and after changes to the grazing regime would be required to determine best practice.

In Scotland, grazing pressure is clearly less of an issue for inaccessible populations, but where sheep and deer can get access to *M. alpestris* plants, reduced grazing pressure in some years to allow seed set would also be beneficial (Geddes 1996).

REFERENCES

- Elkington, T.T. 1964. *Myosotis alpestris* F.W. Schmidt. Biological Flora of the British Isles No. 96. *Journal of Ecology* 52: 709-722.
- Geddes, C. 1996. *Monitoring of rare montane vascular plants on Ben Lawers NNR and Caenlochan NNR*. Scottish Natural Heritage Review No. 44.
- Halliday, G. 1997. *A Flora of Cumbria*. Centre for North-west Regional Studies, Lancaster.

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Pearman, D.P. & Corner, R.W.M. 2004. *Altitudinal Limits of British and Irish Vascular Plants*, second edition. Botanical Society of the British Isles (BSBI), London.

Pigott, C.D. 1956. The vegetation of Upper Teesdale in the North Pennines. *Journal of Ecology* 44: 545-586.

Roberts, F.J. 2010. *Appleby Fells SSSI: Review of Vascular Plant Scoring Species 2009*. Unpublished report to Natural England.

Taylor, I. 1987. *Survey of Nationally Rare Plant Species in Northwest England. Volume 1. Cumbria*. Nature Conservancy Council, Peterborough.

White, F.B.W. 1898. *The Flora of Perthshire*. Perthshire Society of Natural Science, Edinburgh.

Wigginton, M.J. 1999e. *Myosotis alpestris* F.W. Schmidt (Boraginaceae). In: M.J. Wigginton (ed.), *British Red Data Books 1. Vascular Plants*, third edition, p.253. Joint Nature Conservation Committee, Peterborough.

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