

CERASTIUM

1. *Cerastium alpinum* / *C. arcticum*

Most British material of *Cerastium arcticum* and *C. alpinum* can be easily separated on hair characters but variation in *C. arcticum* may cause problems. Typical *C. alpinum* is clothed with matted, flexuous, long white, tapering hairs which imparts a soft greyish appearance to the plant. *C. arcticum* tends to be pubescent with shorter, straighter, yellowish, tapering hairs, the plant appearing much greener. Some plants may contain a variable number of hairs that approach the *alpinum* type and may cause difficulty in separation from *C. alpinum*. Nearly all British material of *C. arcticum* was recognised as var. *alpinopilosum* by Hultén (1956) and was considered to be the product of introgression with *C. alpinum*. Specimens from only two Scottish mountains (Ben Nevis and Beinn Bhann in Applecross) were identified as *C. arcticum* var. *arcticum*; these completely lack any hint of the woolly hairs which were considered by Hultén to indicate genes of *C. alpinum*. A population in the Eastern Cairngorms mentioned in Stace's *New Flora* bear very distinctive short, patent, non-tapering, finger-like hairs. The seed morphology agrees with *C. arcticum* but it appears to merit separate taxonomic recognition.

A seemingly less variable character is the structure of the seed coat. The surface of *C. alpinum* seeds are quite acutely tubercled whilst the surface of those of *C. arcticum* are rugose or wrinkled (this character is ignored by Hultén, was described in *CTM* but disappears again in Stace's *New Flora*). Further, the capsules of *C. arcticum* are usually straight whilst they are, in most cases, curved in the upper half in *C. alpinum*.

A distinctive but less easy character to describe is the shape of the flower when fully open. The petals of *C. alpinum* remain straight or at most with the tips very slightly flared whilst the flowers of *C. arcticum*, open widely with the tips of the petals reflexed; this imparts a distinctly campanulate shape to the flower.

Sterile hybrids are found within populations of *C. arcticum* on several Scottish hills. These have been identified as *C. alpinum* × *C. fontanum* from Coire an Lochain in the Cairngorms but is rather questionable as the former is extremely rare in this predominantly acid mountain range. Generally *C. arcticum* and *C. alpinum* are separated ecologically with *C. arcticum* favouring acid or at least hard basic rocks whilst *C. alpinum* is strongly calcicolous and is confined to softer calcareous rocks or niches influenced by basic flushing.

***C. alpinum* L.:** Plant densely covered with soft, white flexuous hairs; flowers non or very slightly campanulate in anthesis; seeds tuberculate; calcicole.

***C. arcticum* Lange:** Plant pubescent with predominantly short yellowish hairs; flowers campanulate in anthesis; seeds rugose; on acid and harder basic rocks.

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Reference Hultén, E. (1956). *Svensk Botanisk Tidskrift* **50**: 411-495.

Author P. Lusby, January 1998.

2. *Cerastium fontanum* subspecies

In the account of *Cerastium fontanum* Baumg. in *Flora Europaea* (Wyse Jackson 1993) four subspecies are distinguished, two of which, subsp. *vulgare* and subsp. *scoticum*, occur in Britain or Ireland. Stace's *New Flora* recognises these two subspecies, plus a third, subsp. *holosteoides*, which is treated as a variety of subsp. *vulgare* in *Flora Europaea*. For the purposes of this short account all taxa are placed at the rank of subspecies.

Subsp. *vulgare* is by far the commonest subspecies both in Britain and Ireland and throughout the rest of the range of the species, and is found in a wide range of natural, semi-natural and man-made habitats. It is an extremely variable taxon with respect to its morphology and chromosome number, and a number of well-defined subordinate taxa are recognised, the most commonly occurring in Britain and Ireland being the type, var. *vulgare*. Morphological characteristics of subsp. *vulgare* var. *vulgare* include the following: whole plant usually moderately to densely pubescent; flowering stems (3-)12-40(-60) cm long; leaves of flowering stem (5-)7-20(-25) mm long; inflorescence frequently many-flowered, sometimes few-flowered, with (1-)8-17(-35) flowers; sepals (4-)5.5-7(-7.5) mm long; petals mostly shorter to only slightly longer than sepals (0.75-1.2(-1.35) times as long as sepals); capsules 8-12(-13) mm long; seeds mostly 0.6-0.9 mm long. The range of morphological variation that subsp. *vulgare* var. *vulgare* displays in many characters is such that in order to confidently distinguish it from the other subspecies found in Britain and Ireland it is necessary to utilise a combination of characters.

Subsp. *holosteoides* sensu Stace is an uncommon plant in Britain and Ireland that has been known from several sites since the last century. It is always associated with rivers, where it grows on grassy riverbanks and in marshy flood-plain meadows in, or just upstream of, those sections of the river under tidal influence. It is characterised by its glabrous or very sparsely pubescent leaves and its sparsely pubescent flowering stems which either have hairs arranged in a single line between the internodes, or which (rarely) lacks hairs altogether. It tends also to have longer sepals ((6.5-)7-8(-9) mm) and capsules ((11-)12.5-14.5(-16) mm) than subsp. *vulgare* var. *vulgare* and subsp. *scoticum*, larger seeds ((0.8-)0.85-0.95(-1.2) mm) than the former and more flowers in the inflorescence (mostly 16-20) than the latter. It intergrades with subsp. *vulgare* var. *vulgare* and in some sites only intermediates are known. Plants from sand dune sites are frequently sparsely pubescent; they differ, however, in several respects from glabrescent plants of riverine sites and are best referred to subsp. *vulgare*. It should be noted that the calyx and capsule measurements cited under subsp. *holosteoides* in Stace's *New Flora* 1st ed. (1991) refer to subsp. *vulgare*; this has been amended in the 2nd ed. (1997).

Subsp. *scoticum* is a well defined taxon, described as a subspecies in 1967 (Jalas & Sell 1967), but known to botanists since the last century. It is the rarest of the subspecies, being restricted to three small 'serpentine' sites, situated within 1 km of each other at an altitude of 860 m near the head of Glen Doll in Angus, Scotland. It is distinguished from other subspecies of *C. fontanum* through a combination of its long, showy petals (1.4-1.7 times as long as sepals), short sepals ((4.5-) 5.5-6(-6.5) mm), capsules (9-12.5 mm), flowering stems (3-12(-16) cm) and flowering stem leaves ((5-)7-8(-10) mm), its large seeds ((0.8-)0.85-1.15 mm long), few-flowered (1-3(-6)) inflorescences, frequently sparsely pubescent or glabrous

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leaves, and sepals which are strongly keeled at the base. Disregarding the differences in habitat and range, there is little chance of confusing subsp. *scoticum* and subsp. *holosteoides*, the latter being a considerably more robust plant with generally much larger parts and a smaller petal:sepal length ratio. Subsp. *scoticum* was formerly thought to occur in West Sutherland but plants from there are referable to subsp. *vulgare*. Some plants of high altitudes in Britain resemble subsp. *scoticum* with regard to their petals which may be conspicuously longer than the sepals (up to 1.35 times). However, they differ in other respects and are best referred to a long-petalled form of subsp. *vulgare*.

Key for the identification of *C. fontanum* subspecies:

- 1 Petals 1.4-1.7 times length of sepals; inflorescence with 1-3(-6) flowers; sepals usually strongly keeled at base; flowering stems short, 3-12(-16) cm subsp. *scoticum* Jalas & P. D. Sell
- 1 Petals shorter to slightly longer than sepals (very rarely up to 1.35 times); inflorescence mostly with 8-20 flowers; sepals mostly weakly keeled; flowering stems short or tall, (3-)12-40(-90) cm 2
- 2 Flowering stems and upper leaves moderately to densely pubescent; flowering stems with hairs all round; sepals (4-)5.5-7(-7.5) mm long; capsules 8-12(-13) mm long; seeds mostly 0.6-0.85(-0.9) mm long subsp. *vulgare* (Hartm.) Greuter & Burdet
- 2 Flowering stems and upper leaves very sparsely pubescent or glabrous; flowering stems with hairs arranged in one row, or glabrous; sepals (6.5-)7-8(-9) mm long; capsules (11-)12.5-14.5(-16) mm long; seeds (0.8-)0.85-0.95(-1.2) mm long subsp. *holosteoides* (Fr.) Salman, Ommering & de Voogd

Glandular hairs are very rarely encountered in plants of *C. fontanum* from Britain and Ireland - short-petalled plants (petals up to 1.5(-1.6) times as long as sepals) with glandular hairs are almost always referable to one of the annual species, *C. diffusum*, *C. glomeratum*, *C. pumilum* or *C. semidecandrum*, or in the uplands to hybrids involving *C. fontanum* and *C. alpinum* or *C. arcticum*. Seed tubercle width is sometimes employed to discriminate some of the subspecies of *C. fontanum*; its usefulness is limited, however, because of the wide range of variation in this character shown by subsp. *vulgare*, and because of the practical difficulties many workers have in accurately measuring lengths of 0.1 mm and less.

References Jalas, J. & Sell, P. D. (1967). *Watsonia* **6**: 291-318.
Wyse Jackson, M. B. (1992). *Botanical Journal of the Linnean Society* **109**: 325-328.
Wyse Jackson, M. B. (1993). *Flora Europaea* **1**:171-172 (2nd ed.).

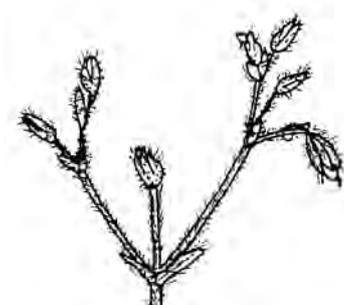
Author M. B. Wyse Jackson, January 1998.

3. *Cerastium brachypetalum* / *C. glomeratum*

These two species can be easily separated from *C. diffusum*, *C. pumilum* and *C. semidecandrum* in that they have long glandular hairs on the sepals projecting beyond the apex.

C. brachypetalum Pers. is a rare plant known from Kent and the Northants./Beds. border but could easily occur elsewhere. It looks similar to the other annual *Cerastium* species and does not stand out as different until it is known. Plants lack glands, and the fruits are held on long pedicels usually at an oblique angle. It tends to look slightly more greyish-brown due to the hairs than the other species.

C. glomeratum Thuill. is sticky-glandular and has dense, crowded inflorescences with pedicels usually shorter than the sepals in fruit.



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4. *Cerastium diffusum* / *C. pumilum* / *C. semidecandrum*

These species are easily distinguished from *C. glomeratum* and *C. brachypetalum* in that they lack hairs projecting beyond the sepal tips. Do not confuse bracts with leaves or sepals; bracts at the final dichotomy only should be examined. The characters, in order of importance, are bracts, fruiting pedicels and margins of sepals.

	<i>C. diffusum</i> Pers.	<i>C. pumilum</i> Curtis	<i>C. semidecandrum</i> L.
Bracts	Entirely herbaceous	Narrow scarious margin and tip	At least upper bracts with broad scarious margins and tips
Flowers	Usually 4-merous, sometimes 5-merous	5-merous	5-merous
Petals	About 1/5 bifid, 3/4 as long as sepals	About 1/4 bifid, as long as sepals	Slightly notched, 2/3 as long as sepals
Pedicels	Much longer than sepals throughout, erect in fruit	Larger than sepals, at first recurved then nearly erect with slight curve just below capsule	Usually equalling or slightly exceeding sepals, at first sharply deflexed from base, later erect
Sepals	Scarious margin narrow	Scarious margin fairly broad	Scarious margin broad
General habit	Often very sticky glandular, dark green	Glandular, usually reddish-tinged	Glandular, green

C. pumilum is often (but not always) reddish-flushed and the flowers are noticeably white as the petals are about as long as sepals. It occurs in open calcareous rubble, anthills, rocks, etc. (map in *Scarce Plants*). *C. diffusum* is very characteristic of coastal cliffs and dunes. It also occurs on sandy ground inland, and should be looked for in spring where *Plantago coronopus* grows on roadsides. *C. semi-decandrum* is the most widespread of the three. All three species vary markedly in abundance from year to year, and two, sometimes three, can be found growing together.

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