

## GERANIUM

Yeo, P. F. (1985) *Hardy Geraniums* (Croom Helm, London, re-published with minor corrections 1992 by Batsford, London) is an excellent monograph which is invaluable for naming garden escapes as well as native taxa. When collecting material please press a few petals separately, with colour notes, and count the stamens. Ripe fruit should be collected too if possible.

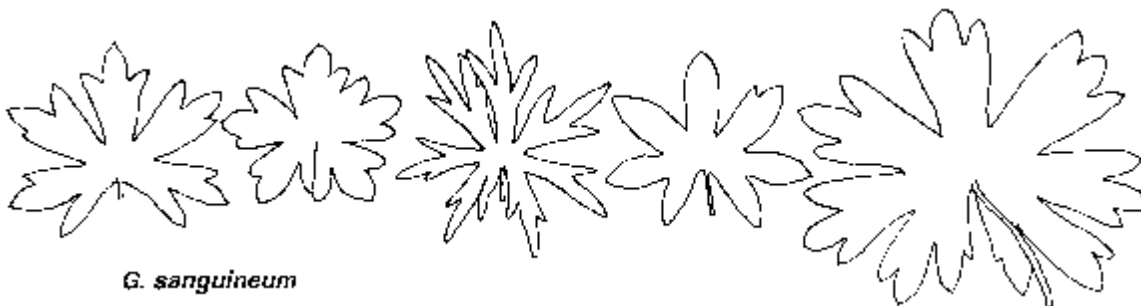
### 1. Vegetative rosettes

Vegetatively, many *Geranium* species can be identified from leaf shape alone though the shapes of most species vary with age and habitat, and many species such as *G. sanguineum* vary markedly between populations. The following basal leaf shapes may help to distinguish some taxa - in flower or fruit they can be keyed out satisfactorily in Stace's *New Flora* or Yeo (1985) as above. Upper leaves tend to be more finely divided in all species and often differ in shape from the lower leaves. In disturbed habitats and near habitation there may be garden escapes and aliens, which are not illustrated here, though their leaf shapes look different to native taxa illustrated below. The shiny leaves of *G. lucidum* are also distinctive enough not to need inclusion.

Note that the scales used in the drawings differ; very crudely *G. sylvaticum* and *G. pratense* have large leaves c. 8-15 cm across, *G. sanguineum* and *G. pyrenaicum* medium sized leaves c. 3-10 cm across and the annual species small leaves c. 2-5 cm across.

#### 1a. *Geranium sanguineum*

This species has a distinctive leaf shape and is unlikely to be confused with other taxa. When recording, please distinguish native colonies from garden escapes.

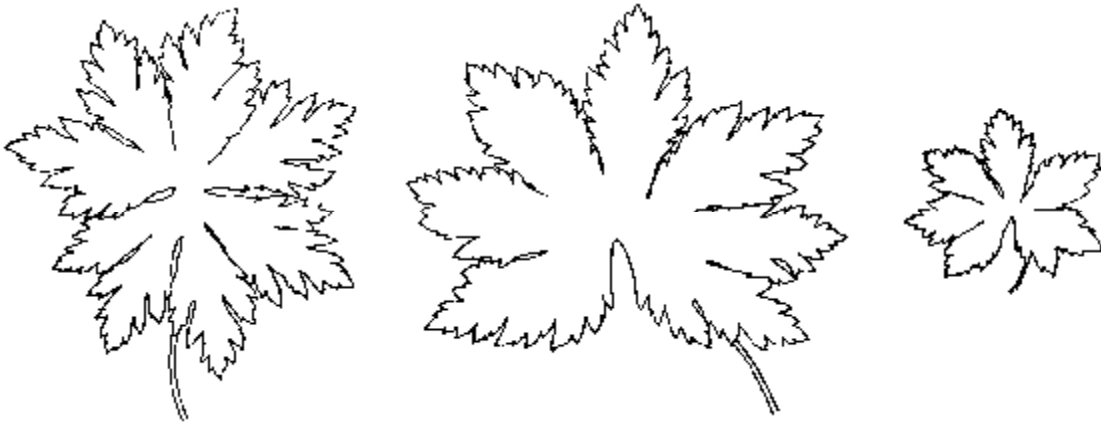


#### 1b. *Geranium sylvaticum* / *G. pratense*

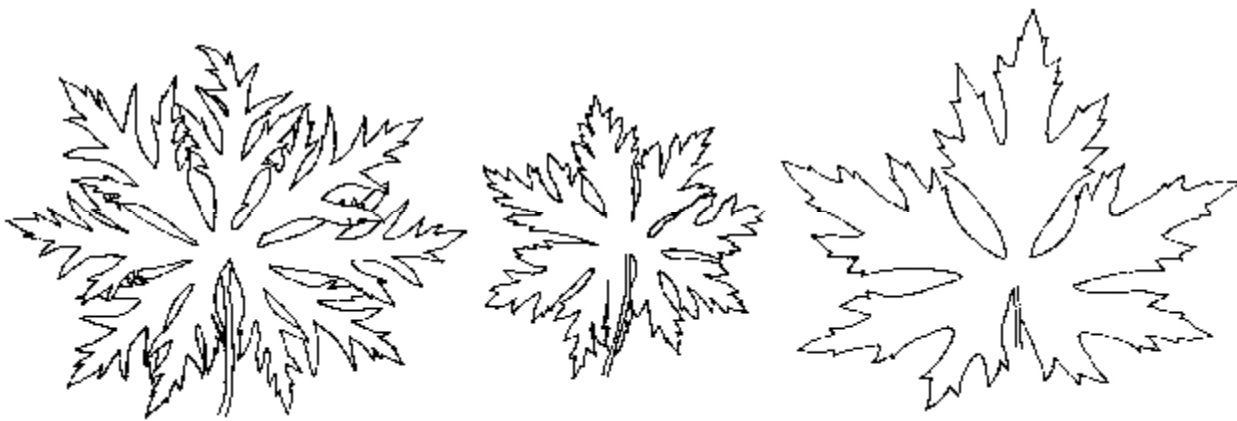
The degrees of dissection are a little more variable than often quoted in Floras for both species, but the leaf shapes should allow them to be separated at a glance as below. Although *G. sylvaticum* is predominantly a plant of upland ledges, woods and hay meadows and *G. pratense* a plant of lowland meadows and verges, they may grow together.

# Plant Crib

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*Geranium sylvaticum* L.



*Geranium pratense* L.

## 1c. *Geranium pyrenaicum*

The leaves of *G. pyrenaicum* Burm. f. are rather like a large *G. dissectum* in lobing but are generally twice the size. It has a mixture of short glandular, short and long eglandular hairs on the petioles and long, eglandular, curved to appressed hairs and small, glandular hairs on the leaf surfaces.



*G. pyrenaicum*

# Plant Crib

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## 1d. *Geranium rotundifolium* / *G. columbinum* / *G. dissectum* / *G. pusillum* / *G. molle*

The following notes are provisional and need detailed studies early in the season in the field.

These taxa occur in short, open grassland and are similar vegetatively when basal rosettes only are present, and some of them are easily confused in flower too. The small glandular hairs are best seen with a microscope, though they can sometimes be felt. All species may be glandular on the stems and flowering/fruitleting parts above, but they seem variably glandular below.

*Geranium columbinum* and *G. pusillum* are the most distinct vegetatively and it should be possible to identify them reliably from careful examination of leaves alone. *Geranium columbinum* has the most dissected leaves and is especially distinctive in the field; the finely divided leaves with only appressed, short, stiff, eglandular hairs should distinguish it (hairs deflexed to spreading in other taxa). *Geranium pusillum* has moderately divided leaves similar to the other species but has distinctive hair type composed of uniform short,  $\pm$  deflexed to patent, eglandular hairs (glandular hairs may also be present) (mixture of hair types in other remaining taxa).

Having eliminated these two species, three remain. *Geranium rotundifolium* has rosette leaves very similar to those of *G. pusillum* and *G. molle*, though they tend to be larger than in *G. molle* and have a quadrate (almost square) middle lobule of the major lobes, whereas in *G. molle* this lobule is  $\pm$  similar to those flanking it (P. Oswald, pers. comm. 1998). The truncate to cuneate stem leaves which develop later are instantly recognisable (see Figure below), and it tends to lack the long, eglandular hairs of *G. molle* and *G. dissectum*, and looks less shaggy once the species are known. Except in deep shade, it normally has a small red spot at the base of each sinus of the rosette leaves, though this may also rarely be present in *G. molle* (Oswald 1996).

The two commonest species *G. molle* and *G. dissectum* are both variable and can be very difficult to separate vegetatively. *Geranium molle* tends to be glandular with leaves cut to *c.*  $\frac{1}{2}$  way, and is often soft and greyish in the field from the dense hairs. *Geranium dissectum* is very variable in hair type, and the leaves are usually cut to *c.*  $\frac{3}{4}$ .

**Reference** Oswald, P. (1996). *Nature in Cambridgeshire* **38**: 62-64.

**Authors** T. C. G. Rich & J. L. Carey, 1997.

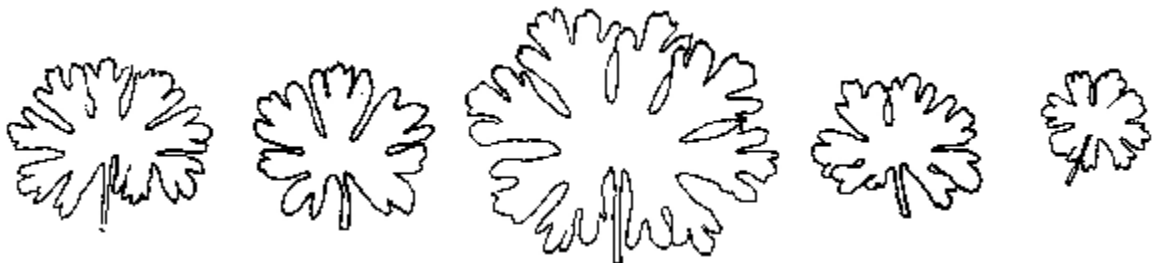
# Plant Crib



*G. columbinum* L. (eglandular, short, stiff, appressed hairs only; not glandular)



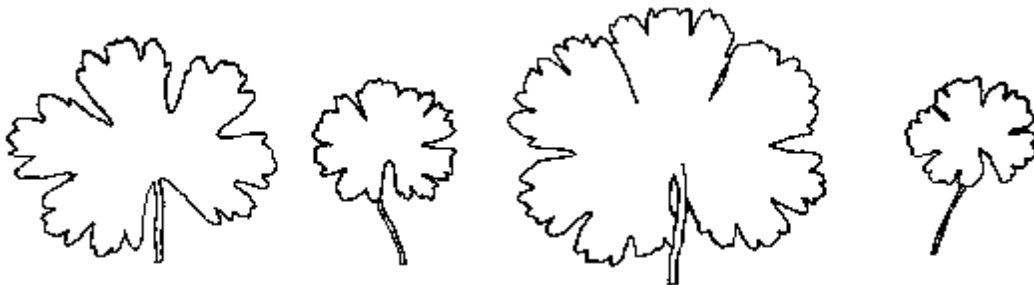
*G. dissectum* L. (variable, but usually a mixture of long and short eglandular hairs; short glandular hairs present or not). By the time it begins to flower the leaves can look similar to the winter leaves of *G. columbinum*, but can be separated on the hairs.



*G. pusillum* L. (uniform deflexed to patent, short, eglandular hairs; short glandular hairs present or not; rarely glabrous)



*G. molle* L. (mixture of long silky and shorter eglandular hairs; short glandular hairs usually present)



*G. rotundifolium* L. (medium and short length eglandular hairs; glandular hairs present or not), basal leaves



*G. rotundifolium*, stem leaves

# Plant Crib

## 2. *Geranium purpureum* / *G. robertianum*

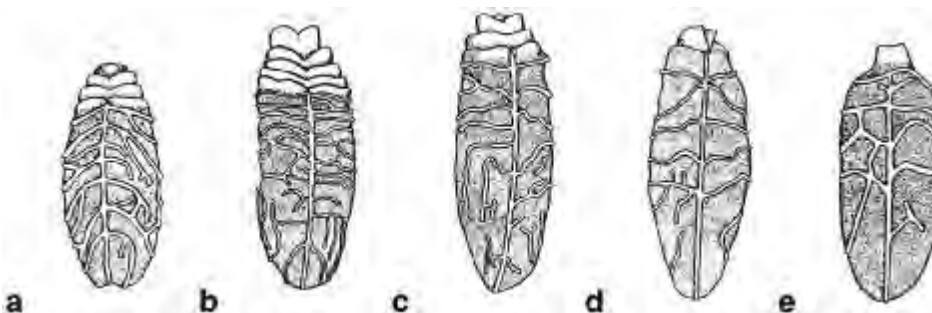
*Geranium purpureum* is easily overlooked as *G. robertianum* (and *visa versa* in coastal forms), and the infraspecific taxa of the latter are often not recorded. In particular, populations near the sea (especially in southern England and Ireland) should be investigated. The following key includes infraspecific taxa recognised by Baker (1955, 1956) updated with Yeo (1973). Note that fruits of both species may be glabrous or hairy.

- 1 Undehisced anthers yellow; pollen yellow; petals 5-9.5 mm long; fruits with 3-5 pronounced overlapping collars/ridges at apex (Figs. a-d) (see also notes 1-3) (*G. purpureum* Villars) 2
- 1 Undehisced anthers pink, orange, purple or red; pollen orange; petals (8-)9-14 mm long; fruits with 1-2(-3) overlapping collars/weak ridges at apex (Fig. e) (*G. robertianum* L.) 3
- 2 Erect to ascending (see notes on subsp. *forsteri* below) *G. purpureum* subsp. *purpureum*
- 2 Prostrate, tips of shoots ascending *G. purpureum* subsp. *forsteri* (Wilmott) H. G. Baker
- 3 Flower diameter 1.3-1.4 cm; fruits usually glabrous; prostrate or arcuate-ascending *G. robertianum* subsp. *maritimum* (Bab.) H. G. Baker
- 3 Flower diameter 1.2-1.7 cm; fruits usually hairy; usually erect, rarely prostrate 4
- 4 Reddish only at the nodes and petiole bases, petioles coppery; petals with wide white streaks on dorsal surface, flowers appearing pale pink; anthers dark red to purple *G. robertianum* subsp. *celticum* Ostenf.
- 4 Stems and petioles deep dull red; flowers pink; anthers orange to purple *G. robertianum* subsp. *robertianum*

### Notes

1. Avoid plants without any red / purple anthocyanin colouring (i.e. albinos). *G. robertianum* may produce small flowers with dull yellow anthers at the end of the season.
2. In addition, the flowers of the two species are different (Figs f, g), and the smaller, less spreading petals of *G. purpureum* are distinctive.
3. *G. purpureum* also has 1-5 developed internodes on the central axis and *G. robertianum* has 0-2 (Yeo 1973).

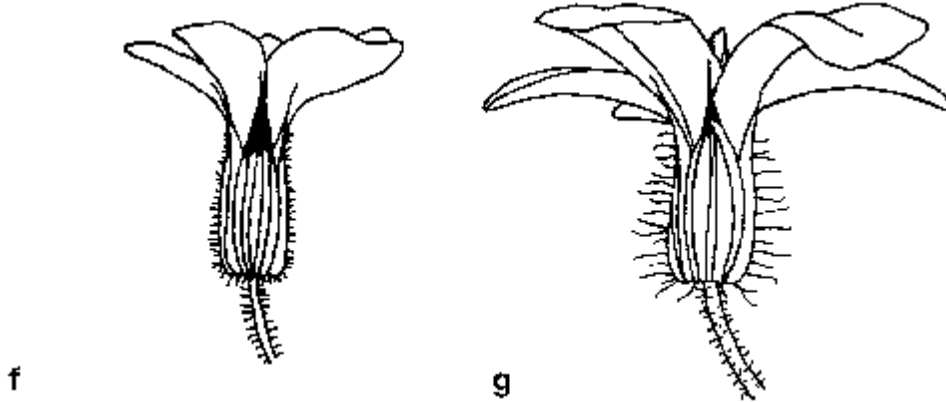
*Geranium purpureum* subsp. *purpureum* is local round the coast from S Ireland to Sussex, and rarely also inland on limestone rocks. It is protected under Section 21 of the Wildlife Act 1976 in the Republic of Ireland.



Dorsal view of fruit of (a) *G. purpureum* subsp. *purpureum*, (b-d) *G. purpureum* subsp. *forsteri* to show variation transitional from the typical *G. purpureum* pattern (b) to a *G. robertianum* pattern (d), and (e) *G. robertianum* subsp. *robertianum*.

# Plant Crib

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Side view of flowers of (f) *G. purpureum*, (g) *G. robertianum* (redrawn from Yeo 1973).

*Geranium purpureum* subsp. *forsteri* is transitional to *G. robertianum* and Baker (1956) suggested it may have arisen through introgressive hybridisation of *G. purpureum* subsp. *purpureum* with prostrate forms of *G. robertianum*. However, plants in the Solent seen by Yeo were instantly recognisable as *G. purpureum* and hybridisation may not be involved. Plants may also be dwarf and bushy as an alternative to decumbent and ascending. Experiments with prostrate and erect plants from Hayling Island (V.c. 11) by D. Easton in 1989 found that both grew upright in cultivation, and seeds examined by R. P. Bowman showed no difference between the forms either (E. A. Pratt, pers. comm. 1989). However, the Hayling Island plants differ from those in Devon (Brewis *et al.* 1996), and further cultivation experiments and research on all the scattered populations are required. Subsp. *forsteri* is endemic to v.c. 11, 13 and Guernsey and extinct in the Isle of Wight. It may not merit subspecific rank.

*Geranium robertianum* subsp. *robertianum* is widespread and common. *Geranium robertianum* subsp. *maritimum* occurs around the coast of Britain and Ireland on stable shingle, particularly at the rear of fringing beaches and less frequently on cliffs and seaside walls. Yeo (1973) queries whether prostrate sea-shore forms can be included in one subspecies, as coastal plants differed markedly in cultivation. *Geranium robertianum* subsp. *celticum* is a rare endemic of limestone in S Wales and W Ireland. Some botanists regard this as a local form.

- References** Baker, H. G. (1955). *Watsonia* **3**: 160-167.  
Baker, H. G. (1956). *Watsonia* **3**: 270-279.  
Brewis, A., Bowman, R. P. & Rose, F. (1996). *Flora of Hampshire*. Harley Books, Colchester.  
Yeo, P. F. (1973). *Botanical Journal Linnean Society* **67**: 286-346.  
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