



A Guide to Identification of the Rarer Arable Plants of the Roundwood Estate

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INTRODUCTION

The Roundwood Estate is one of the best sites in Britain for its arable flora. Many uncommon species have been recorded here since the mid-1980s and it scores 119 on the Plantlife Important Arable Plant Areas system which places it in the top five sites in Hampshire and among the best sites in Britain.

The aim of this guide is to help with identification of the less common species that have been recorded on the estate. It should not be regarded as complete, and it is in the nature of arable annual plants that their existence is unpredictable. The majority of these species form large banks of dormant seed in the soil, and the germination and survival of these is the consequence of a large number of factors that vary from year to year including time and type of cultivation, weather, effectiveness of herbicide application, type of herbicide used and crop grown. Surprises are always possible! Conversely, some of the plants described here may not occur at Roundwood today, although given the right management conditions they may reappear at any point.

In addition to these rare species, of course there are numerous more widespread and common species. These can be identified using any good field guide to the British flora.

Important species recorded on the Roundwood Estate between 1990 and 2009:

| BAP Species | | Red List Status | Section 41 of the NERC Act 2006 |
|--|-------------------------------|------------------------------|---------------------------------|
| Red hemp-nettle (<i>not seen recently</i>) | <i>Galeopsis angustifolia</i> | Critically endangered | Species of Principal Importance |
| Shepherd's needle | <i>Scandix pecten-veneris</i> | Critically endangered | Species of Principal Importance |
| Ground pine | <i>Ajuga chamaepitys</i> | Endangered | Species of Principal Importance |

| Hampshire Notable Species | |
|---------------------------|-----------------------------|
| Common name | Latin name |
| venus' looking-glass | <i>Legousia hybrida</i> |
| rough poppy | <i>Papaver hybridum</i> |
| prickly poppy | <i>Papaver argemone</i> |
| narrow-fruited cornsalad | <i>Valerianella dentata</i> |
| cornfield knotgrass | <i>Polygonum rurivagum</i> |
| corn gromwell | <i>Lithospermum arvense</i> |
| cornfield knotgrass | <i>Polygonum rurivagum</i> |
| night-flowering catchfly | <i>Silene noctiflora</i> |
| Few-flowered fumitory | <i>Fumaria vaillantii</i> |
| Small-flowered fumitory | <i>Fumaria parviflora</i> |
| Other uncommon species | |
| Common name | Latin name |
| field madder | <i>Sherardia arvensis</i> |
| sharp-leaved fluellen | <i>Kickxia elatine</i> |
| round-leaved fluellen | <i>Kickxia spuria</i> |
| dwarf spurge | <i>Euphorbia exigua</i> |
| dense-flowered fumitory | <i>Fumaria micrantha</i> |
| grey field-speedwell | <i>Veronica polita</i> |
| henbit | <i>Lamium amplexicaule</i> |
| stinking mayweed | <i>Anthemis cotula</i> |
| field woundwort | <i>Stachys arvensis</i> |
| Small-flowered cranesbill | <i>Geranium pusillum</i> |
| Long-stalked cranesbill | <i>Geranium columbinum</i> |



Ajuga chamaepitys is a member of the mint family. It is typically a low-growing plant, branching from the base. The whole plant is hairy and as well as resembling a pine seedling, also smells of pine. The leaves are up to 4cm long, deeply divided into three, narrow, linear segments. The flowers are borne in pairs at nodes in the axils of leaves. They are bilaterally symmetrical with a very short upper lip and a long, three-lobed lower lip. The petals are yellow with red spots on the lower lip.

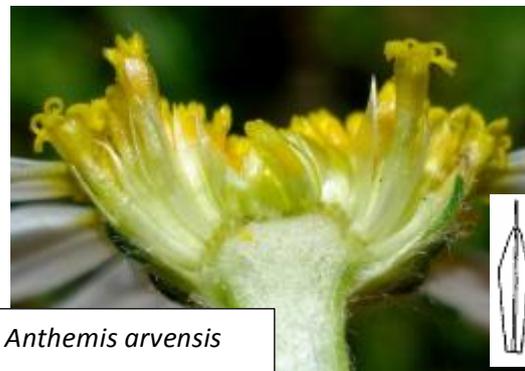
Ajuga chamaepitys cannot be mistaken for any other species.

Ground pine is typically a species of lightly disturbed areas, and in addition to arable field margins can also be found on tracks, fallow land and rabbit-disturbed grassland. All British sites are on thin soils over chalk, and the majority of sites are on the North Downs in Kent and Surrey. Seeds can germinate in spring or autumn and flowers appear from June to October. Seed is thought to be very long-lived.

Anthemis cotula Stinking mayweed



Anthemis cotula



Anthemis arvensis

Anthemis cotula is a typical mayweed. The leaves have finely divided segments, narrow, parallel-sided and pointed at the tips. The plants have a light covering of short hairs (the similar *Anthemis arvensis* is noticeably hairier than *A. cotula*), and a strong chamomile smell when crushed (**the sap is corrosive, so don't wipe your eyes afterwards!**). The "flowers" are compound heads with numerous central yellow disc florets surrounded by a ring of white, single-petalled ray florets. These all grow from a central involucre, conical in *A. cotula* and flat or slightly domed in *A. arvensis*. If you rub a flower-head between thumb and palm, you will notice a few yellow-green scales among the disc florets. Those of *Anthemis cotula* are characteristically narrow and spear-shaped, 2.5mm long, while those of *Anthemis arvensis* are broader, widest above the centre and with an exerted point.

Three other mayweeds occur on arable land. The most common mayweed is scentless mayweed (*Tripleurospermum inodorum*). This is hairless, with very fine, dark-green shiny leaf segments. It is odourless. The flower heads are larger than those of stinking mayweed, the involucre is flat and there are no scales. *Matricaria discoidea* pineapple weed has relatively broad leaf segments, the flowers have no disc florets and the whole plant has a smell reminiscent of pineapple. *Matricaria perforata* scentless mayweed is odourless, with a domed, hollow involucre and finely segmented, hairless leaves. *Anthemis austriaca* Austrian mayweed is a common constituent of sown "wild-flower" mixtures, and can be distinguished from the very similar *Anthemis arvensis* by its regularly pinnate leaves.

Mayweeds flower from the end of May to the beginning of August. Stinking mayweed can be found in both spring and autumn sown crops, typically on chalky soils or calcareous clay soils, while corn chamomile is more characteristic of chalky soils.

Chaenorhinum minus Small toadflax



Small toadflax is an upright, branched plant, rarely growing to more than 20cm tall. The leaves are narrow and parallel sided, arranged alternately. The plant is covered in short, slightly sticky glandular hairs. The solitary flowers are 6-9mm long with a short spur. They have short stalks and are borne in the leaf axils. They are bilaterally symmetrical and purple, the inner surfaces of the petals are paler lilac. The oval seed capsule opens at the tip with two large holes when dry.

Although small toadflax resembles other toadflax species in general form, there are no other species occurring in arable land with which it can be confused. Weasel's snout has much larger pinkish-red flowers without stalks, and seed capsules with three apical holes.

Small toadflax flowers from late June to mid-October. Seed is thought to be long-lived in the soil. It is characteristic of spring-sown crops on chalk and limestone soils, and can also be found in non-arable sites.

Chenopodium ficifolium

Fig-leaved goosefoot.



*Chenopodium
album*

Several species of *Chenopodium* can be found in arable land. The most common of these is fat-hen (*Chenopodium album*) which is a ubiquitous plant of spring-sown cereals, other crops and disturbed land. Fig-leaved goosefoot is an upright, rarely branched plant with a light coating of waxy dust. The leaves are arranged in loose spirals around the stem. They have short stalks and are narrowly triangular in outline, with broadly toothed margins. The basal teeth are frequently longer than the others. The flowers are borne in clusters on short stems in the upper leaf axils and in a terminal spike. The small flowers are without obvious petals, but have five short grey-green petal-like tepals.

Other species of *Chenopodium* can be confused with *C. ficifolium*. The most common of these is fat-hen. This species tends to be more densely "mealy", and has more broadly triangular leaves with much shorter teeth.

Fig-leaved goosefoot is typically a species of clay or peaty soils. It is most frequently found in spring cereals, maize or other spring-sown crops. Its seeds are long-lived in the soil.

Euphorbia exigua

Dwarf spurge.



Dwarf spurge rarely grows taller than 10cm. It is a light green, hairless plant with narrow, parallel-sided leaves arranged in alternately on the stem. The leaves grow up to 2cm long and 3mm wide. Plants can be single-stemmed or can branch from the base. When the stem is snapped it exudes a corrosive white sap (don't wipe your eyes!). The unusual yellow-green flowers lack petals but are surrounded by leaf-like bracts, and are arranged in a loose 3-5 rayed umbel at the apex of each stem. Each flower produces a nearly spherical fruit capsule of approximately 2mm in diameter. On ripening, the capsule splits explosively to expel the seeds.

Dwarf spurge cannot be mistaken for any other species. Other spurges tend to be much larger plants with broader leaves.

This species flowers from mid-June to October, often attaining its maximum size in stubbles after the crop has been harvested. It is typically a species of chalky soils and calcareous boulder clays.

Fumaria densiflora
Fumaria vaillantii
Fumaria parviflora

Dense-flowered fumitory
Few-flowered fumitory
Small-flowered fumitory



Fumaria densiflora



Fumaria vaillantii



Fumaria parviflora



Fumaria officinalis seeds

There are 10 species of *Fumaria* in Britain, all of which have plants of similar basic structure. They are all much-branched, scrambling species with bluish-green, irregularly-divided leaves. Three uncommon small-flowered species, *F. densiflora*, *F. parviflora* and *F. vaillantii* and one species with medium-sized flowers, *Fumaria officinalis* can be found on chalky soils in Hampshire. *Fumaria densiflora* and *Fumaria parviflora* have narrow, channelled leaf-segments while *Fumaria vaillantii* has flat leaf-segments. The flowers of all *Fumarías* are in racemes on stems of variable length in the axils of leaves. *Fumaria densiflora* and *F. parviflora* racemes are dense with up to 25 flowers while those of *Fumaria vaillantii* are loose with up to 16 flowers. The flowers of *Fumaria densiflora* are 6-7mm long and those of *Fumaria vaillantii* and *Fumaria parviflora* are 5-6mm long, bilaterally symmetrical with the petals fused to form a tube, opening at the tip with distinct lips. The flowers of *Fumaria densiflora* are pink-purple with dark red tips, those of *Fumaria vaillantii* are dull, pale pink with a darker red tip and those of *Fumaria parviflora* are white, tipped with very dark red. On either side of *Fumaria densiflora* flowers are two large and conspicuous white, irregularly toothed sepals measuring approximately 2X3mm. The sepals of *Fumaria vaillantii* and *Fumaria parviflora* are small and inconspicuous. The flowers of all *Fumaria spp* produce single quasi-spherical fruit of approximately 2mm diameter. The fruit of *F. densiflora* is rounded at the apex, while those of *Fumaria vaillantii* and *Fumaria parviflora* are rounded with a small apical nipple.

Other *Fumaria spp* are similar. The common *F. officinalis* has flattened blue-green leaves with relatively broad segments, larger flowers with small sepals and seeds that are flattened and indented at the apex. The ramping fumitories all have flowers of 11-13mm long.

Germination of all three small-flowered *Fumaria* species is mainly in the spring, with flowers from mid-June to early August.

Galeopsis angustifolia Red hemp-nettle



Galeopsis angustifolia is a relatively low-growing plant in most circumstances although rarely growing up to 50cm tall. On very poor soils a plant can be as little as 1cm tall with a single flower. The whole plant is lightly hairy and the stems are square in cross-section. The leaves are borne in opposite pairs. They are narrowly spear-shaped, with a serrated edge, between 1.5cm and 6cm in length but less than 1cm wide and with a short stalk. The large flowers are bilaterally symmetrical with a broad lower lip and a very long corolla tube. The base of the corolla tube is enclosed in a calyx with five spine-tipped teeth. The petals are deep pinkish-red with white patches on the lower lip. Each flower produced four seeds.

This species is unmistakable when in flower, although could be mistaken for red bartsia before flowering.

Galeopsis angustifolia can be found in non-arable habitats such as stabilized maritime shingle, limestone scree and chalk quarries. When in arable land it is typically in species-rich communities on thin chalky soils. It is one of Britain's most rapidly declining plants.

Galeopsis angustifolia germinates in the spring, flowering from July to October. It can often grow best in stubbles after harvesting.

***Geranium columbinum* Long-stalked cranesbill**



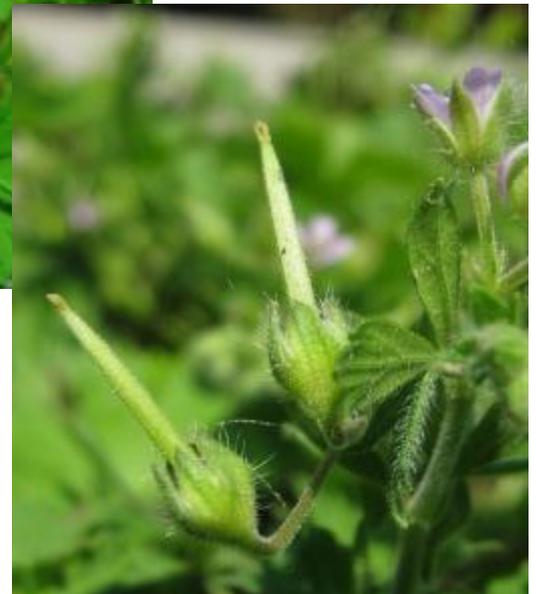
Geranium columbinum is a slender, branching, hairless plant, frequently scrambling among the surrounding vegetation up to 50cm. The lower stems are frequently reddish, the upper stems green. The leaves are pentagonal in outline, but deeply palmately divided into normally five lobes which are in turn deeply sub-lobed. The single bell-like flowers are borne on long stalks in the leaf-axils. They are radially symmetrical with five deep pink petals and are up to 1cm in diameter. The petals are surrounded by a whorl of large, ovate sepals that taper to a long point. The seeds are produced at the base of a long needle-like beak, to which they are attached by an appendage that acts as a spring when the seeds are ripe.

Other species of *Geranium* that occur on arable land are similar, but the large dark pink flower and the long flower stalk are characteristic.

It is typically a species of light, calcareous soils. Germination period is unknown but is probably in the autumn. *Geranium columbinum* flowers from June to August.

Geranium pusillum

Small-flowered cranesbill



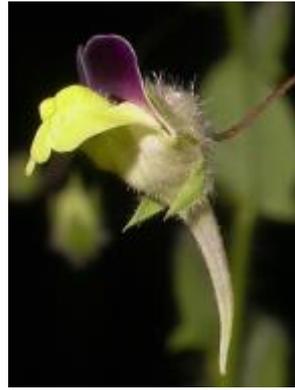
Geranium pusillum is one of three superficially similar species of cranesbill that may be encountered on arable land. It is a much branched sprawling plant that can form mounds up to 40cm in height, but will also scramble among the associated vegetation. It is lightly hairy throughout. The leaves are oval in outline but are deeply dissected into 7-9 major lobes which are then subdivided less deeply into three sub-lobes. The flowers are arranged in branched inflorescences in the leaf axils, the stalks of which are covered in uniformly short hairs. The flowers are radially symmetrical and up to 5mm in diameter with five pale pink petals. Only five of the 10 stamens bear anthers. The petals are surrounded by a whorl of large, ovate sepals. The seeds are produced at the base of a long needle-like beak, to which they are attached by an appendage that acts as a spring when the seeds are ripe.

Geranium pusillum can be confused with the similar *Geranium dissectum* and *Geranium molle*. *Geranium dissectum* has leaves with more deeply dissected leaves with narrower lobes. It is hairless although with stalked glands on upper parts and the petals are dark pinkish-red and deeply notched at the tips. *Geranium molle* can be distinguished by the flower stalks having a mixture of short and long hairs, larger flowers and all 10 stamens bearing anthers.

This is typically a species of light sandy soils, but it has expanded its range in recent years and is now present on a wider range of soil types. It is primarily a spring-germinating species but can also germinate in the autumn, flowering from mid-June to October.

Kickxia elatine Sharp-leaved fluellen

Kickxia spuria Round-leaved fluellen



Kickxia elatine



Kickxia spuria

Both species of *Kickxia* have a similar habit. They are prostrate, creeping plants which can produce numerous branching stems and sometimes forming extensive mats, especially in post-harvest stubbles. Leaves are arranged alternately along the stems. The leaves of round-leaved fluellen are oval in shape and hairy, while those of sharp-leaved fluellen are smaller and less hairy, triangular in outline with two large, sideways-projecting teeth at the base. The flowers are solitary on long stems in the leaf axils. They are similar in both species. They are bilaterally symmetrical with a long spur, straight in *K. elatine* and curved in *K. spuria*. The upper lips of the flowers are dark reddish-purple, while the bi-lobed lower lip is yellow. Each flower produces a single pod opening at the apex when ripe.

There are no similar species.

Both species are spring-germinating, flowering in late summer. They often become prominent in stubbles in the autumn, flowering until November. Seed is thought to be long lived.

Both species can occur together in arable land, although *K. spuria* can also be found on calcareous clay soils, while *K. elatine* also occurs on well-drained acidic soils.

***Lamium amplexicaule* Henbit dead-nettle**



Lamium amplexicaule is an irregularly branched plant which can scramble among other vegetation up to 30cm tall, or can form more prostrate mats. The stems have a square cross-section. Leaves are arranged in opposite pairs with bases of the rounded upper leaves clasp the stem, appearing to form a single circular leaf with the stem passing through the centre. The lower leaves have short stems. All of the leaves are deeply toothed. Flowers are borne in whorls of up to 10 in the axes of the upper leaves. In cooler summers the flowers remain closed as purple buds. When the flowers are fully formed they are bilaterally symmetrical with a long corolla tube up to 14mm long. The petals are pink-purple with a long lower lip and a hooding upper lip. Each flower produces four seeds.

Other dead nettles are similar in general appearance, but none have the clasp, rounded upper leaves

Lamium amplexicaule typically germinates in the spring, flowering from mid-June to mid-August. It can also flower again in the autumn in late stubbles.

It is a typical constituent of species-rich communities on chalky soils.

Legousia hybrida Venus' looking-glass



*Legousia
speculum-
veneris*

Venus' looking-glass grows between 3-25 cm tall and can become extensively branched when growing in open conditions. The stalkless leaves are 1-5 cm in length with distinctively wavy edges and the whole plant is shortly hairy. Flowers are borne singly or in small clusters in the axils of leaves. They are radially symmetrical with five deep purple petals (white flowered forms are rare) and are up to 10mm across when full open, although they are often furred in cloudy weather. They are situated at the tip of a slightly curved capsule that is up to 3cm long and 4mm in diameter when fully ripe. The capsule opens at the tip to shed its shiny black seeds when ripe.

The only similar species is *Legousia speculum-veneris* greater Venus' looking-glass. This is a completely hairless species with spectacularly large purple flowers. This species replaces *Legousia hybrida* further east in Europe, but there is only one site known in Britain.

Legousia hybrida germinates in both autumn and spring, flowering from the end of May to August. Seed is long-lived. It can be found in species-rich communities on chalk and limestone soils and also on calcareous clays and sand.

Lithospermum arvense Corn gromwell



Lithospermum arvense is typically an erect, branching plant growing up to around 60cm tall, but sometimes in autumn-sown crops it can become a large, multiple-branched scrambling plant up to 1.5m in length. The whole plant is bristly, giving it a grey-green appearance. The leaves are narrow, up to 6cm long and spear-shaped. The flowers are solitary in the axils of the leaves and on short branches near the stem apices. They are up to 1cm across, radially symmetrical with five white petals. Each flower produces four hard, warty seeds about the size and shape of a grape pip.

Common gromwell is a similar species of woodland edges and hedgerows. It is however a short-lived perennial with leaves that have prominent lateral veins. The flowers are on short stalks and critically, each only produces two seeds.

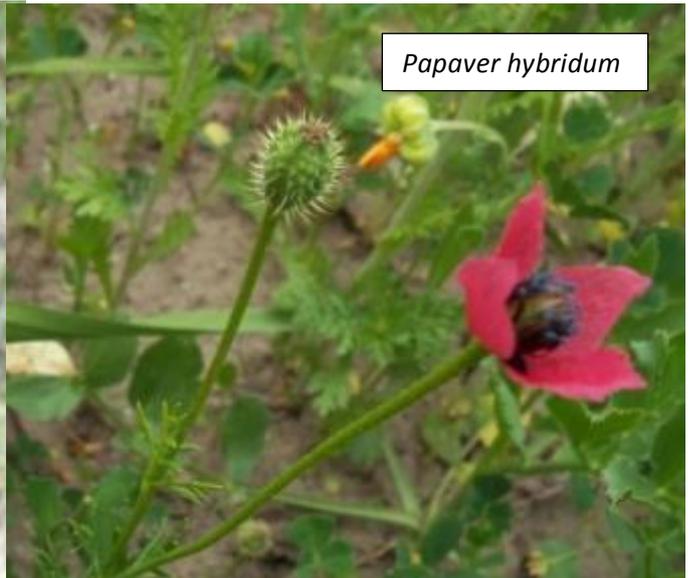
Germination occurs in both spring and autumn, and flowers are produced between the end of May and the end of July. It can be found on chalky soils and calcareous clay soils, usually in species-rich communities but very occasionally in poorer vegetation.

Papaver argemone Prickly poppy

Papaver hybridum Rough poppy



Papaver argemone



Papaver hybridum



Papaver rhoeas



Papaver dubium



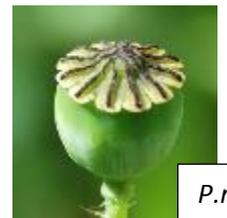
P. hybridum



P. argemone



P. dubium



P. rhoeas

All of the native species of British *Papaver* have close similarities. After germination the plants form a basal rosette of leaves which are either toothed or more deeply dissected and which die back as the plant matures to be replaced by leaves on the stem. Plants then form erect stems which can be branched. Each rosette can form multiple stems. Large, radially symmetrical, four-petaled flowers are borne singly at the end of long stems. Petals are a shade of red which is very distinctive for each species. Each flower produces a single capsule of distinctive shape, opening at the apex on ripening and drying by a lid, beneath which are a series of small holes through which the seeds are shed.

Papaver argemone has leaves that are pinnately divided into narrow, parallel-sided segments that are pointed at the tips. The stems are lightly covered in closely appressed hairs. The petals are orange-red with a dark patch at the base and typically persist for only a single day, often being shed by early afternoon. Flowers are up to 5cm in diameter. Anthers have blue pollen. The capsule is narrow and elongated, up to 2.5 cm long with numerous upward-pointing prickles. The apical disc is narrower than the capsule. It germinates both in spring and autumn and flowers in June and July. Although it is a characteristic member of the flora of chalky arable fields it can also be found in sandy fields in the east of England.

Papaver hybridum also has leaves that are pinnately divided into narrow, parallel-sided segments that are pointed at the tips and stems are lightly covered in closely appressed hairs. The petals are deep crimson-red and blotched with black at the base. These typically persist for only a single day, often being shed by early afternoon. Flowers are up to 5cm in diameter. Anthers have blue pollen. The capsule is more or less spherical and elongated, up to 2.5 cm long with numerous short upward-pointing prickles. The apical disc is small. It is a characteristic member of the flora of chalky arable fields in southern England and occasionally on chalky boulder clay. Germination is mainly in the spring, with flowers in June and July.

There are two more widespread and locally common members of the genus. *Papaver rhoeas* common poppy has stems with hairs projecting at right-angles. Leaves are variable in shape, but are lightly hairy and irregularly toothed with broad segments. The flowers are very variable in size but can be up to 8cm in diameter, although on poorer soils as little as 3cm. Plants can sometimes be very large with hundreds of flowers. The flowers are normally bright scarlet and can sometimes have black basal blotches and can sometimes be completely white. The seed capsule is cup-shaped, lacking bristles and with an apical disc wider the top of the capsule. *Papaver dubium* long-headed poppy has similar leaves to *Papaver rhoeas*, but stems are covered with appressed hairs. The capsules are elongated and devoid of bristles. There are two sub-species of *Papaver dubium*, *ssp dubium* with white sap when the stem is snapped, and *spp lecoquii* with yellow sap. Both *P. rhoeas* and *P. dubium* germinate in spring and autumn and flower from the beginning of June to the middle of August. They can occur on many soil types although they generally more abundant on lighter soil types.

Polygonum rurivagum Corn knotgrass



This species is very similar to *Polygonum aviculare* common knotgrass, but has a more erect growth habit, scrambling within more open crop canopies. The stems are frequently branched, with leaves arranged alternately. The leaves are relatively long and thin, from 15-25mm long and 2-5mm wide, ovate with acute tips. Leaves on the main stem are longer than those on the branches. The leaves and stem are hairless and grey-green. At the base of the leaves are white, papery ochreae up to 10mm long that form a tube around the stem. The radially symmetrical flowers are single or in pairs in the leaf axils. They have five pinkish-white petals and measure up to 3mm in diameter. The pointed black fruit projects slightly from the flower.

Other *Polygonum* species, in particular *P. aviculare* common knotgrass which grows in similar habitats, are similar. The leaves of *P. aviculare* are much broader and shorter however, the habit is more prostrate and the fruit is completely enclosed in the ochreae.

Polygonum rurivagum is spring germinating and it flowers from late June to October. It is most commonly found on chalky soils, although it has only been properly recorded separately from *P. aviculare* recently, and may be more common than previously thought.

Scandix pecten-veneris Shepherd's needle



Scandix pecten-veneris is a typical member of the carrot family (*Apiaceae*). It has a rosette of bright-green leaves, finely divided into narrow, parallel-sided segments. The leafy stems are occasionally branched and grow up to 60cm tall. The whole plant is sparsely hairy. The small, white-petalled flowers are asymmetrical with one petal much larger than the others. They are arranged in umbrella-like clusters with 1-3 branches. There are no bracts at the base of the umbels, but at the base of each flower cluster there is a ring of deeply bisected bracteoles. The most distinctive feature of this species is the seeds. Each flower produces two seeds joined along their length until ripe. Each seed has a long, needle-like projection up to 5cm long which acts as a spring as the seed ripens, flicking each seed up to 1m from the parent plant. The "needle" has minute bristles that can attach the seed to animals or clothing, thereby aiding distribution.

Other species in the *Apiaceae* can be confused with *Scandix pecten-veneris*. The combination of the very finely-divided leaves, bisected bracteoles and unique seeds will be sufficient to separate it from all other related species including those found in arable land *Aethusa cynapium* fool's parsley, *Torilis arvensis* spreading hedge-parsley and *Petroselinum segetum* corn parsley.

Germination is almost entirely in the autumn with a few seedlings appearing in the spring. Flowers appear between early May and early July, with seeds ripening from the end of June. It occurs in greatest quantity on heavy calcareous clays in East Anglia, but there are smaller populations on chalk and limestone soils elsewhere. While this species became very rare in the 1980s, it has since become much more frequent in East Anglia.

Sherardia arvensis

Field madder



Sherardia arvensis resembles a small version of the common *Galium aparine* cleavers. It is a mat-forming plant with spreading, branching stems. The leaves are arranged in whorls along the stems, with six leaves in a whorl near the ends of the stems, but only four nearer the bases. The lower leaves are broadly spear-shaped while the upper leaves are narrow and tapering to a point. They are between 5mm and 15mm long with prickles along the margins. The flowers are borne in short-stalked clusters at the ends of the stems and in leaf axils. They are four-petaled and symmetrical, up to 3mm in diameter and are pale pink/ lilac in colour. Each flower produces a pair of seeds lacking bristles.

This species can be confused with species of *Galium* that occur in arable land, in particular *Galium aparine* cleavers. The four-leaved whorls on the lower stems, lilac flowers and stalkless, non-bristly fruits of *Sherardia arvensis* serve to distinguish this species.

Seedlings germinate in both spring and autumn. Plants flower from May to October, often becoming prominent after harvest in stubbles. *Sherardia arvensis* is a frequent component of species-rich arable floras on more calcareous soils. It can also occur in disturbed grassland.

Silene noctiflora Night-flowering catchfly



Silene noctiflora grows to a height of up to 50cm tall with an occasionally branched stem. The whole plant is hairy with sticky glandular hairs (which often catch small insects, hence “catchfly”) on the upper parts. The leaves of the young plant are in a rosette at the base of the stem as well as along the stem itself. These basal leaves die off as the plant matures. The lower leaves are 5-10 cm long, narrowly oval and broader near the tip than the base. The upper leaves are narrower and up to 8 cm long. Several flowers are borne singly on each stem branch. These flowers are up to 2cm across, radially symmetrical with five petals, white or pink inside and creamy-yellow on the back. Each petal is deeply divided into two. The flowers open in the early evening and are pollinated by nocturnal insects, refurling themselves by mid-morning. The seed capsule is oval, approximately 15mm long and opening at the apex when ripe.

Silene noctiflora is similar to the more common and widespread *Silene alba* white campion. White campion lacks the glandular hairs and has pure white flowers which remain open through the day.

Seedlings germinate in the spring and the autumn. Flowering occurs from the middle of June through to September, when it can flower in post-harvest stubbles. It occurs in species-rich communities on chalk and calcareous clay, and also on sandy loams in the east of England.

Stachys arvensis Field woundwort



Stachys arvensis is a typical member of the mint family *Lamiaceae*. It rarely grows to a height of more than 20cm, and has spreading, erect stems with a square cross-section, branching from the base of the plant. The leaves are heart-shaped with bluntly-toothed margins and terminating in a point. They are hairy, have short stalks and are arranged on the stems as opposite pairs. The flowers are arranged in whorls of up to 6 in the axes of the upper leaves and forming a loose spike. The flowers are up to 7mm long with a bilateral symmetry typical of the mint family with a large lower lip and three smaller upper lobes. The petals are pale purple. The base of the flower is enclosed in a calyx composed of five pointed teeth. The seeds are produced in groups of four within the persistent calyx.

This species can be confused with other members of the mint family that are found in arable land. These include *Mentha arvensis* corn mint which has radially-symmetrical blue flowers and a characteristic mint smell and henbit dead nettle which has stalkless, clasping upper leaves.

Germination occurs mainly in the spring. The plant flowers from May to November and can become prominent in post-harvest stubbles. It is typically a species of non-calcareous soils, being most frequent on sandy loams in the west of Britain, but also occurring on superficial deposits over chalk and limestone.

Valerianella dentata Narrow-fruited cornsalad

Valerianella rimosa



Valerianella dentata



V. locusta



V. eriocarpa



V. carinata



V. dentata



V. rimosa

There are five species of *Valerianella* native to Britain, two of which (*V. dentata* narrow-fruited cornsalad and *V. rimosa* broad-fruited cornsalad) typically occur in arable land, and the other three of which (*V. locusta* common cornsalad, *V. carinata* keeled-fruited cornsalad and *V. eriocarpa* hairy-fruited cornsalad) are occasionally found in arable fields. All of these species are similar in general form, *V. rimosa* and *V. dentata* being only reliably distinguished by their fruits.

Valerianella dentata and *V. rimosa* are slender, much-branched, hairless plants with narrow, spear-shaped leaves, sometimes with a few teeth near the base. Basal leaves are spoon-shaped.

The flowers are borne in branched clusters at the ends of the stems with additional solitary flowers in the axils of the branches. The radially-symmetrical, five-petalled flowers have white petals, sometimes tinged with pink. These are up to 2mm in diameter. A single seed is produced by each flower. The seeds of *Valerianella rimosa* are approximately 1.5mm in width, resembling a rounded grape pip, with a single tooth at the apex. Seeds of *V. dentata* are much narrower, approximately 0.75mm in width. A rare variety of *V. dentata* has hairy seeds. These differences in size are very obvious in the field when the seeds are ripe.

The other three species resemble each other vegetatively. They tend to be less tall than *V. rimosa* and *V. dentata* but still branched. They are shortly hairy and have spear-shaped leaves. The flowers are borne in denser clusters than those of *V. rimosa* and *V. dentata*. The petals tend to be bluish-white rather than pinkish-white. The fruits of these three species are all distinctively shaped (see photographs). *Valerianella carinata* and *V. locusta* are most abundant on walls, sand-dunes and stony places, but occasionally occur on arable land. *Valerianella eriocarpa* has occurred in arable land in the past, but is now a rare species of rocky chalk clifftops and dunes. *Valerianella* spp cannot be mistaken for species of any other genus.

Both *V. rimosa* and *V. dentata* can germinate in spring and autumn. They flower from June to August. *Valerianella rimosa* is an extremely rare species found in species-rich arable communities in the south and south-west of Britain. *Valerianella dentata* is more widespread and typically a species of chalky soils.

Veronica polita Grey field speedwell



Fruits of
Veronica persica

Veronica polita is a much-branched, sprawling plant, sometime forming extensive mats where there is little competition from other plants. The leaves are borne in opposite pairs on the stems. They are lightly hairy and dull grey-green in colour, oval in shape with toothed margins and between 5mm and 15mm wide. The flowers are solitary, on stalks in the leaf axils. They are asymmetrical, less than 8mm in diameter, with a longer, narrower lower petal and three broad, ovate upper petals. The petals are bright blue with white bases, the lower petal sometimes also being paler. The fruit is two-lobed, 3-4mm by 4-6mm and wider than long, with erect and appressed lobes covered in short curved hairs and longer erect glandular hairs.

Eight species of *Veronica* are found on arable land in Britain. Three of these are extreme rarities known only in East Anglia's Breckland and are not considered here. *Veronica arvensis* wall speedwell has dark blue, stalkless flowers in a terminal spike. *Veronica hederifolia* ivy-leaved speedwell has leaves divided into three lobes. The two species which may be confused with *V. polita* are *V. persica* common field speedwell and *V. agrestis* green field speedwell. *Veronica persica* has larger flowers greater than 8mm in diameter and divergent fruit lobes. *Veronica agrestis* has green leaves, uniformly pale blue to white flowers and convergent fruit lobes with glandular hairs only.

Germination is mainly in the spring, and it flowers from June until November, often forming large mats in post-harvest stubbles. It is a locally frequent species of chalky loam soils in the south and east of England.