

Green walls: specialist and companion plant species

Green walls are brick or stone built walls that have been colonised by plants. Studies by Sheffield University have recorded as many as 286 species of higher plants and ferns growing on walls in the UK. This compares to 385 species found on ancient walls in Rome. This note provides pictures of many of the species found growing on walls. For information on the value of green walls and how to maintain this value see TIN030 *Green walls: an introduction to the flora and fauna of walls*.

Wall specialists

Wall specialists are plants whose principal habitat is walls. Wall specialists contribute a distinctive appearance and naturalness to walls and most studies agree that there are around 18 specialist wall plants in the UK. The list of these can be seen in Table 1 at the end of this note.

Ivy-leaved toadflax

This plant is a native of southern Europe and has become the archetypal flowering plant on walls across Britain. It is popularly believed to have arrived in the UK in the 17th Century as seed within a shipment of statues from Italy.

The plant has small ivy-shaped leaves, which, like the flowers, are carried on long stalks. The flowers can be seen from May to September. After the seeds have ripened, the flower stalks lengthen further and seek out shade. Having found a nearby crevice the seed capsule is deposited and thus the plant extends its progress along or up a wall. Seeds can also be dispersed further-a-field by ants.

Cultivated varieties of the plant are available through horticultural suppliers.



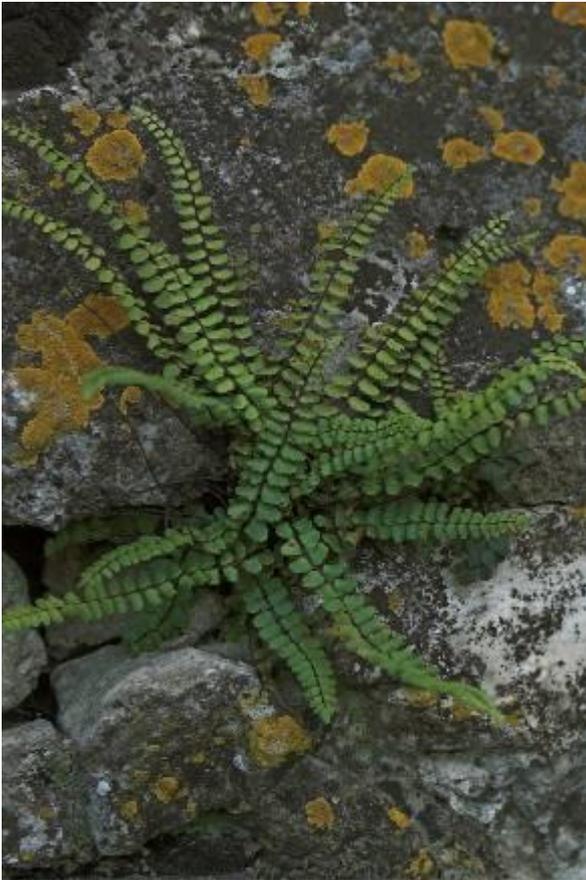
Ivy-leaved toadflax *Cymbalaria muralis*

Maidenhair spleenwort

The spleenworts are evergreen ferns. Their UK range is chiefly over the west and southern counties and they include wall-rue, hart's-tongue fern (see below) and rustyback. They colonise new locations by wind-dispersal of their spores.

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As well as walls, they are also found growing on cliffs, rock faces, mine waste tips and scree.



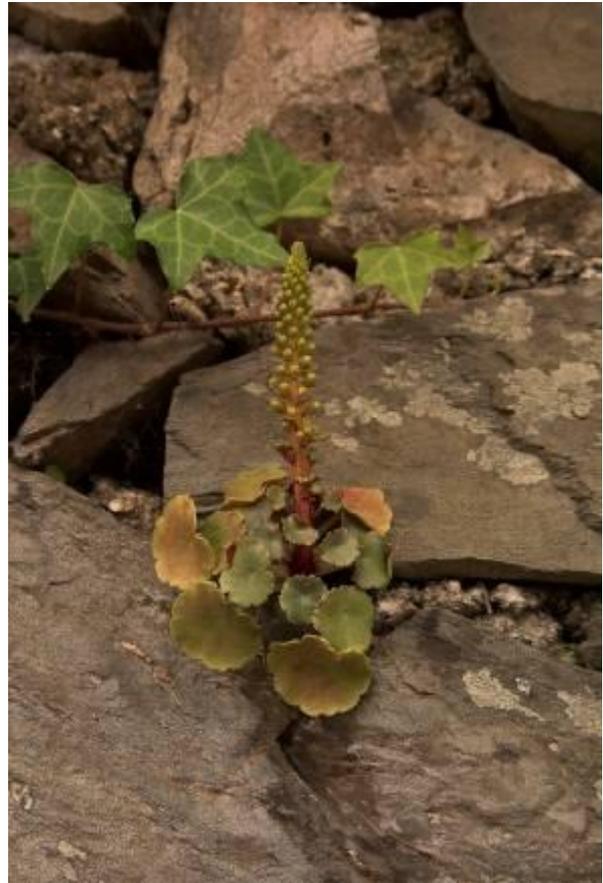
Maidenhair spleenwort *Asplenium trichomanes*

Navelwort or wall pennywort

This is a member of the stonecrop family and is found mainly on the western side of Britain. It prefers acid conditions and grows on vertical walls, stony banks and even on the branches of large trees.

Its flower spikes can grow to 38 cms in length and can be seen between June and August.

After they have seeded, the stems and leaves wither and the plant over-winters as a tuber below ground or within the wall blocks.



Navelwort or wall pennywort *Umbilicus rupestris*

Wallflower

This introduced species is from the eastern Mediterranean and has become a naturalised perennial, unlike the cultivated variety which is grown as a biennial. The wild species has bright yellow flowers on show between April and June, and its seeds are dispersed by ants.

In Britain it grows mostly in the South and is found on old wall ledges and tops. It is usually found near to human habitation and likes calcareous or mortar-rich soils in full warm sun.

There is a legend that it was planted by the mullioned windows on the walls of manor houses and castles so the perfume would blow through the bedchambers.

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Wallflower *Erysimum cheiri*

Yellow corydalis

Often found in villages and suburban locations, yellow corydalis is one of the most common wall plants. It is a southern European species but one that has been introduced to many places over a long period of time. It was first recorded growing wild in Britain in 1796. An evergreen, its flowering period extends from May to August and, like wallflowers, its seeds are dispersed by ants.



Yellow corydalis *Pseudofumaria lutea*

Red valerian

Originally, this plant was a native of Mediterranean limestone cliffs. Introduced to Britain during the Middle Ages, it was first recorded in the wild in 1763. Red valerian has changed its appearance over time, the original dark red flowers have been replaced by mauve-pink blooms. This variety is believed to be a more vigorous strain, but the dark red variety can still be seen in some places.

Red valerian is one of the few plants listed in this note that can damage stonework with its woody rootstock (see also ivy, below). It is an evergreen and semi-succulent, and its seeds are wind-dispersed.



Red valerian *Centranthus ruber*

Wall-rue

Wall-rue is a pioneer species that occurs on many sites. It grows naturally on a variety of basic rocks - but prefers calcareous rock or mortar. Wall-rue can gain a foothold on vertical cliffs and walls and often forms large clumps. It spreads by airborne spores.

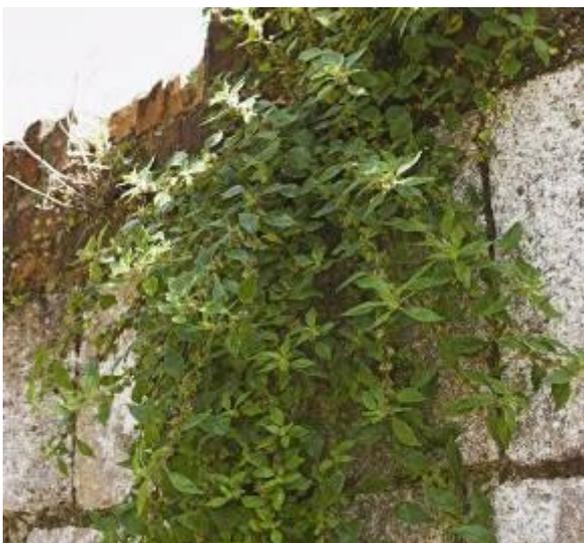
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Wall-rue *Asplenium ruta-muraria*

Pellitory-of-the-wall

Another ant-dispersed plant, pellitory-of-the-wall can often be found in large clumps on walls close to human habitation in lowland Britain. It is a plant that can grow on both vertical surfaces and at the wall/pavement boundary. Its frequency around priory and monasteries may be due to it being grown as a herbal medicine. It was considered to be a remedy for urinary disorders such as kidney and bladder stones.



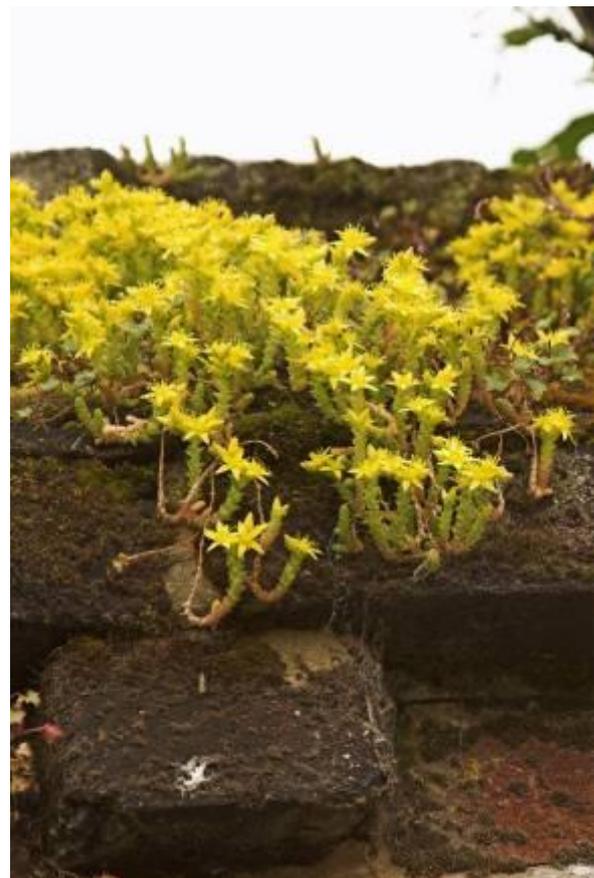
Pellitory-of-the-wall *Parietaria judaica*

Stonecrops

Stonecrops will frequently colonise open exposed grassland, dunes and roof surfaces and seem able to endure full sun and drought. Which is probably why they have been planted on walls for centuries. They tend to do best on the top and horizontal surfaces of walls where a little soil has already accumulated. Their succulent leaves help them cope with low rainfall.

The species most likely to be encountered are biting stonecrop *Sedum acre* pictured below and thick-leaved stonecrop *S. dasyphyllum*.

Stonecrops appear to be resistant to foliar herbicides and will sometimes survive on a wall that is otherwise bare of vegetation. In some cases this can result in large colonies of the plant developing.



Biting stonecrop *Sedum acre*

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Companion species

Companion species are plants that are often associated with wall specialists. They are frequently encountered in other urban and semi-natural habitats and once they become established within a wall community, they are able to maintain their populations.

The list of companion species in Table 2 at the end of this note is not definitive, but represents the range of plants that have been recorded on the old and ancient walls of 11 cities.

Ivy

Ivy presents a problem to conservators of old and ancient walls as it is one of the few plants that can cause damage to masonry (see also red valerian, above). Ivy is usually rooted in the ground at the base of a wall, but it adheres to the stone or brickwork so firmly with its suckers that the sheer weight of the plant can destabilise and even pull down old masonry. Only when they find a crack or a soil-filled crevice will the suckers develop roots, penetrate the wall and force apart the stonework.



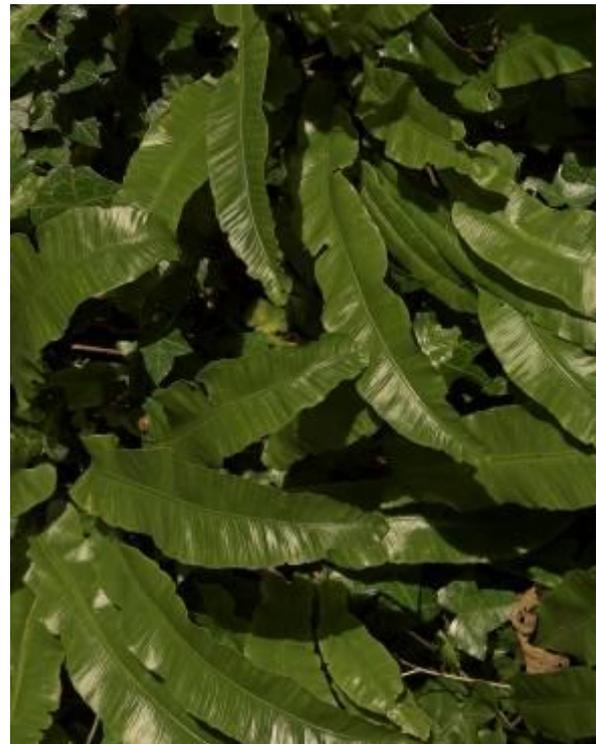
Ivy *Hedera helix*

However, it is desirable to retain ivy wherever possible as it is an important conservation species, providing cover for nesting and roosting birds. Its flowers and berries are an important source of nectar and nourishment for insects and birds late in the year.

Hart's-tongue fern

This member of the *Asplenium* family is common across most of the south and west of Britain especially those areas with a high average rainfall. Its strap-like leaves can grow to 60 cm in length, although it can take on a rather stunted appearance when growing on walls. Between August and March the brown stripes of spore cases are easy to see on the undersides.

Hart's-tongue fern can be also found in rock crevasses such as grikes in limestone pavement, wet woodland and on hedge banks.



Hart's-tongue fern *Phyllitis scolopendrium*

Oxford ragwort

Oxford ragwort is named after the Oxford Botanic Gardens where it was first grown in the UK during the 18th Century. It was discovered and collected on Mount Etna where plants were growing on the lava fields. By the end of the

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century it could be found growing on Oxford's city walls and with the advent of the railways Oxford ragwort had spread around the country. It is thought that the granite chippings used as track ballast provided a similar habitat to the plant's native volcanic lava fields.

Recent research suggests the plant is a hybrid, possibly a cross between *Senecio aethnensis* and *S. chrysanthemifolius*, which are both only found on Sicily.



Oxford ragwort *Senecio squalidus*

Accidental arrivals

Accidental arrivals include dandelion, rosebay willow-herb, elder, buddleia and various species of grass, all of which have taken advantage of a suitable niche to become established. These are plants which can be found in other habitats and in substantial populations close by.

Hedgerow crane's-bill

Usually found on hedge-banks and waste ground, this member of the geranium family is believed to be a non-native plant and sometimes crops up on a wall. However, another family member, the native shining crane's-bill *Geranium lucidum* is something of a wall

specialist, occasionally appearing between the brick courses and on calcareous rocks.

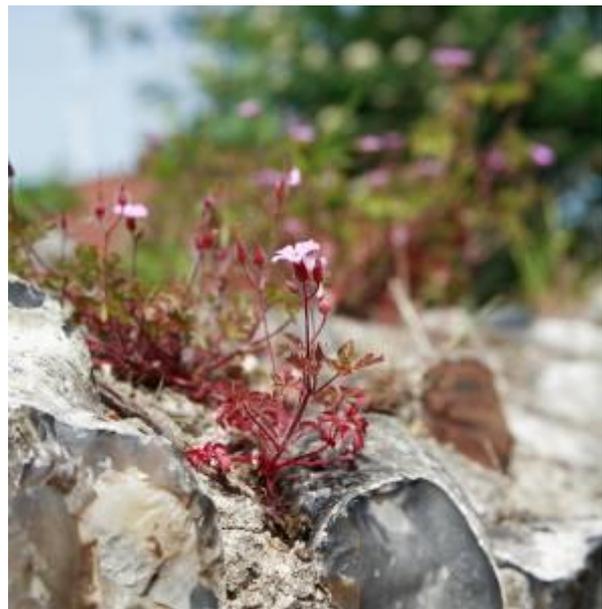


Hedgerow crane's-bill *Geranium pyrenaicum*

Herb-Robert

Another member of the crane's-bill or geranium family. It is a plant that usually inhabits rocky places and coastal shingle, but it also appears fairly regularly on walls.

Herb-Robert has a rather mousy smell that some find unpleasant, a feature that has not stopped it being used in herbal medicine for centuries. However, whilst it may not be wise to use it for home remedies, the plant may deter biting insects if a sprig is worn in your hat-band.



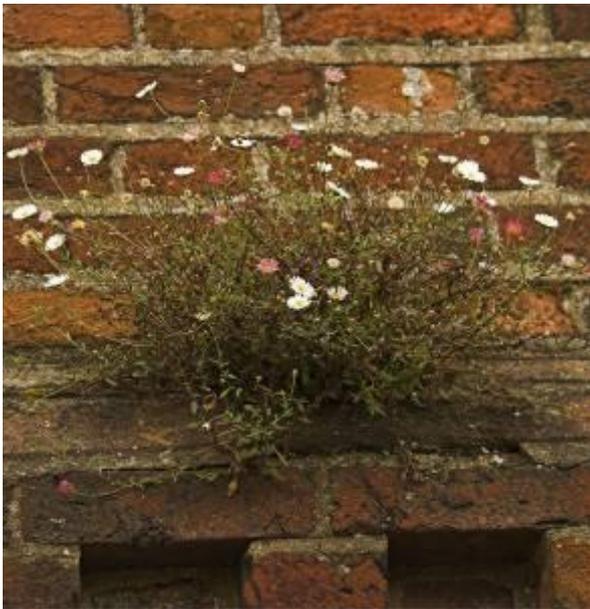
Herb-Robert *Geranium robertianum*

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Mexican fleabane

Sometimes called Mexican daisy, this hardy plant originated, as its name suggests, in Central America and it has become naturalised on walls over much of the country.

It is a true member of the daisy family and has a remarkably long flowering season. The flowers themselves begin as white petalled blooms then slowly turn pink throughout the extended flowering period. Flowers of every intermediate hue can be found on the plant. It behaves as a perennial although it is only partially frost-resistant.



Mexican fleabane *Erigeron karvinskianus*

Buddleia

Anyone who has used the British railway network during the past few decades can't have failed to notice the extent to which this shrub has spread. It has taken over station approaches and marshalling yards and seems able to grow almost anywhere there is a space to germinate or root - whether it be from among a heap of granite ballast or a chink in a wall.

One of buddleia's common names is 'butterfly-bush' and the plant provides nourishment to hundreds of nectar-drinking insects during its long flowering season. Originally a native of North-West China and Japan, buddleia was

named after the Reverend Adam Buddle, an Essex rector and botanist.



Buddleia *Buddleja davidii*

Table 1 Wall specialists (introduced species are in bold)

English name	Scientific name
Bell flower	<i>Campanula portenschlagiana</i>
Fairy foxglove	<i>Erinus aplinus</i>
Flattened meadow-grass	<i>Poa compressa</i>
Hawkweeds spp	<i>Sects. Amplexicaulia; Vulgata</i>
Ivy-leaved toadflax	<i>Cymbalaria muralis</i>
Maidenhair spleenwort	<i>Asplenium trichomanes</i>
Mind-your-own-business	<i>Soleirolia soleirolii</i>
Pellitory-of-the-wall	<i>Parietaria judaica</i>
Purple toadflax	<i>Linaria purpurea</i>

Table continued...

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Table 1 continued...

English name	Scientific name
Red valerian	<i>Centranthus ruber</i>
Rustyback	<i>Ceterach officinarum</i>
Snapdragon	<i>Antirrhinum majus</i>
Southern polypody	<i>Polypodium australe</i>
Thick-leaved stonecrop	<i>Sedum dasyphyllum</i>
Wallflower	<i>Cheiranthus cheiri</i>
Navelwort	<i>Umbilicus rupestris</i>
Wall-rue	<i>Asplenium ruta-muraria</i>
Yellow corydalis	<i>Corydalis lutea</i>

Table 2 Some companion and accidental species (introduced species are in bold)

English name	Scientific name
Oxford ragwort	<i>Senecio squalidus</i>
Ivy	<i>Hedera helix</i>
Meadow grass spp	<i>Poa spp</i>
Sow-thistle spp	<i>Sonchus spp</i>
Creeping fescue	<i>Festuca rubra cultivar</i>
Rosebay willow-herb	<i>Epilobium angustifolium</i>
Buddleia	<i>Buddleia davidii</i>
Ragwort	<i>Senecio jacobaea</i>
Male-fern	<i>Dryopteris filix-mas</i>
Dandelion	<i>Taraxacum officinale</i>
Canadian fleabane	<i>Erigeron canadensis</i>
Couch grass	<i>Elymus repens</i>
Hart's-tongue fern	<i>Phyllitis scolopendrium</i>
Perennial wall rocket	<i>Diplotaxis tenuifolia</i>

Further information

Natural England Technical Information Notes are available to download from the Natural England website at

www.naturalengland.org.uk . In particular see:

- TIN030 *Green walls: an introduction to the flora and fauna of walls.*

For enquiries please contact the Natural England Helpline on 0845 600 3078 or email enquiries@naturalengland.org.uk

Further advice is also available from English Heritage at

www.english-heritage.org.uk

Tel: 0870 333 1181 or email enquiries to customers@english-heritage.org.uk

Selected references

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Authors and contributors

This note was developed by Paul Lacey using information from *Rooted in stone* by Oliver Gilbert, Department of Landscape Architecture, Sheffield University, published in 1992/1996 by English Nature.

All photographs by Paul Lacey, Natural England, except Wall-rue by Peter Roworth, Natural England.