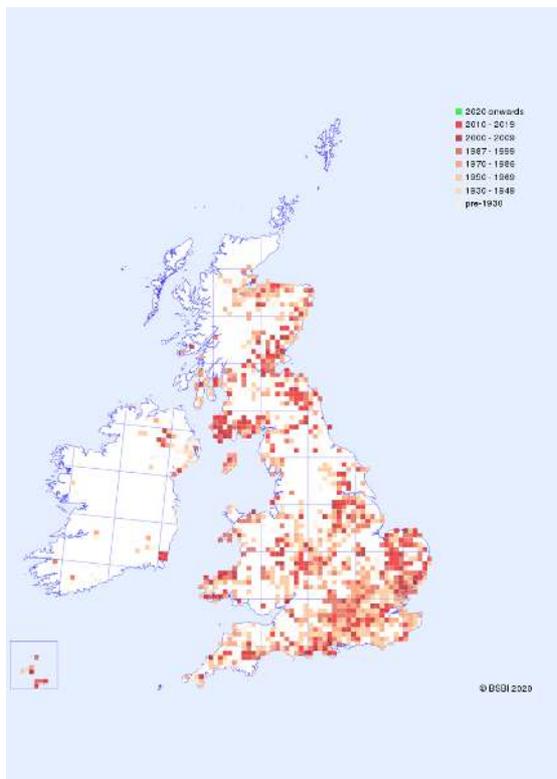


Annual Knawel

Scleranthus annuus



Annual Knawel distribution across Britain and Ireland.

The data used to create this map has been provided under license from the Botanical Society of Britain and Ireland (BSBI) and accessed from the Society's online database.

Description

Annual Knawel is a small, green and white member of the Campion family. Its tiny flowers are clustered in leaf axils and at the tip of the stems and at first glance appear white, however, this is a result of a membranous margin on the five pointed greenish-grey sepals. True petals are absent, and the plant does not secrete nectar. The sepals spread once the plant (which self-fertilizes) develops achenes and the receptacle hardens around the achene, hence its scientific name (from *kleros* meaning hard and *anthos*, meaning flower).

Stems are branched and can be either upright or sprawling. In some situations, it can have a very tufted form and it can grow to 20cm in favourable conditions. The narrow, linear leaves are again greenish-grey and pointed and are joined in pairs by a thin membrane. Although inconspicuous, once spotted, its almost spiny sharpness and grey-green hue help differentiate it from the surrounding sward.

Two subspecies have been recognized. *Scleranthus annuus* subsp. *annuus* and *Scleranthus annuus* subsp. *polycarpus*. Subsp. *annuus* has slightly larger achenes with more divergent sepals when ripe. It also tends to be less tufted than subsp. *polycarpus*.

Lifecycle

This is an annual, or sometimes biennial plant, which can flower from late April through until the end of August. Some plants germinate in the autumn and overwinter as seedlings, others germinate in the spring and some may flower for two seasons. It forms a seed bank in the soil, which can be long-lasting.

Habitat

Annual Knawel requires open ground and sandy, acidic

soils and can be found in a variety of habitats. In a heathland context it is found in very short acid grassland where there is bare ground created by, for example livestock grazing and trampling, rabbit activity or recreation pressure. On arable land, it is typically found in the margins of fields sown with winter cereals and in fallows. It is also found in sandy quarries and on road cuttings and occasionally on river or maritime shingle. This breadth of habitat means there are a range of associated species. It can, for example be found in swards of Red Fescue *Festuca rubra* with Thyme *Thymus polytrichus* and Ladies Bedstraw *Galium verum*, or with species such as Small-flowered Catchfly *Silene gallica*, Prickly Poppy *Papaver argemone*, Smooth Cat's-ear *Hypochaeris glabra*, Viper's Bugloss *Echium vulgare* and Common Cudweed *Filago vulgaris*.

Distribution

Annual Knawel is widespread throughout Britain but most frequent in the south. Subsp. *annuus* is widespread throughout Britain where open habitats persist on seasonally parched soils, while subsp. *polycarpus* is mainly found in the Breckland of East Anglia and parched grasslands in the West Midlands (but may be under-recorded elsewhere).

GB status and rarity

This species is classified as Endangered in Britain (i.e. facing a very high risk of extinction in the wild in the near future) *S. annuus* subsp. *polycarpus* is National Scarce (i.e. occurring in 100 or fewer hectads in Great Britain).

Protection under the law

Annual Knawel is included as a species "of principal importance for the purpose of conserving biodiversity" under Section 41 (England) of the Natural Environment and Rural Communities Act 2006.

Survey method

If too abundant for individual plants to be counted, the number of square metres occupied can be estimated. The number of plants in a typical square metre can then be counted and multiplied by the overall area occupied to give a population estimate. In dry summers, the swards where Annual Knawel is typically found can "burn off" quite early in the season, therefore surveys should be

timetabled before this occurs.

Reasons for decline

Annual Knawel has declined across Britain, particularly since the 1950s. For acid grassland populations, this has been a result of the loss of habitat and of appropriate grazing on remaining areas. On arable sites, the decline has been brought about through intensification (including use of fertilisers and herbicides). Atmospheric nutrient deposition is an ongoing threat.

Habitat management

Acid grassland sites should be close-grazed to maintain a short, open sward. Additional gross disturbance (e.g. through sporadic, rotational cultivation) may help to maintain and expand populations, depending on the site; however, more work is needed to understand the ecological processes that sustain it in semi-natural ecosystems

On arable land, the ground should be cultivated in the autumn and left undisturbed until the following autumn (although where spring-germinating species are also present, spring cultivation may be needed). The use of fertilisers and herbicides should be avoided.

It may be possible to restore the species to former sites by rotovating, harrowing or ploughing patches to expose any buried seeds.



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Typical Annual Knawel habitat on the Peddars Way in East Anglia.

Sources and further information

[Annual Knawel briefing sheet, Plantlife](#)
[Online Atlas of the British Flora](#)
[BSBI species accounts](#)