

## *Sibthorpia europaea* (L.)

### Cornish Moneywort

An inconspicuous wintergreen perennial with hairy, kidney-shaped, shallowly-lobed alternate leaves no more than 15 mm across, and tiny yellow-pinkish flowers. It is typically found growing on thin, acid soils in humid, partially sheltered areas that have surface or ground water seepage and is found across a variety of habitats, including steep-sided woodland gorges, bank and ditch-sides, shaded paths and lawns, wet grassy heaths and stone walls. In the British Isles it occurs in Cornwall, Devon, southern and western Wales, with outlier populations in the Sussex wealds, and is a rare species in south-west Ireland. It is assessed as of Least Concern in GB.



©David Fenwick

#### IDENTIFICATION

A tiny, creeping plant that roots at the nodes and has hairy kidney-shaped pale-green alternate leaves (5-15 mm across) with 7 broadly-rounded and very shallowly notched lobes (Poland & Clement 2009). The tiny yellow-pinkish solitary flowers (1-2 mm wide) are inconspicuous, borne on short (2-5 mm) hairy petioles that arise from the leaf axils.

#### SIMILAR SPECIES

There are a number of similar winter-green species, including *Chrysosplenium alternifolium*, *C. oppositifolium*, and *Glechoma hederacea*, but they are readily separated in the field (Pearman 1998). *C. alternifolium* has minute glandular-hairs on the leaves and much longer petioles (to 9 cm), *C.*

*oppositifolium* has opposite leaves that are oblong and ±entire, and the much larger (-4 cm) and obtuse leaves of *G. hederacea* have a strong unpleasant smell when crushed.

Pryce & Chater (2000) found that *S. europaea* could also be overlooked and casually mistaken for young leaves or seedlings of *Alliaria petiolata*, *Filipendula ulmaria*, *Geum urbanum* and *Lamium galeobdolon* subsp. *montanum*, and they present morphological differences in the form of a botanical quiz in an article written for BSBI News <http://archive.bsbi.org.uk/BSBINews84.pdf>. However, once suspected, confirmation of *S. europaea* using the characters noted above is straightforward.

#### HABITATS

*Sibthorpia europaea* is typically found growing on thin acid soils in humid, partly sheltered areas that have surface or ground water seepage and periodic disturbance. It is recorded from western Atlantic ancient woodland on steep-sided gorges, banks, ditches and cattle-poached soils by small streams, on wet grassy heaths, shaded paths and lawns, damp shaded roadside verges, and damp stone walls (Horsfall 2002).

It is often found creeping over a carpet of calcifugous mosses and liverworts, with frequent associates including *Eurhynchium praelongum*, *Hookeria lucens*, *Lophocolea bidentata*, *Mnium hornum*, *Pellia epiphylla*, *Plagiomnium undulatum* and *Thuidium tamariscinum* (Chris Preston, pers.comm.). Vascular plants, such as *Cardamine flexuosa*, *Chrysosplenium oppositifolium*, *Dryopteris aemula*, *Oxalis acetosella* and *Wahlenbergia hederacea*, are usually only present as scattered individuals but may serve as useful indicator species (Preston 1994; Ian Bennallick, pers.comm.).



*Sibthorpia europaea* at Smallhanger Waste, Devon. ©David Fenwick

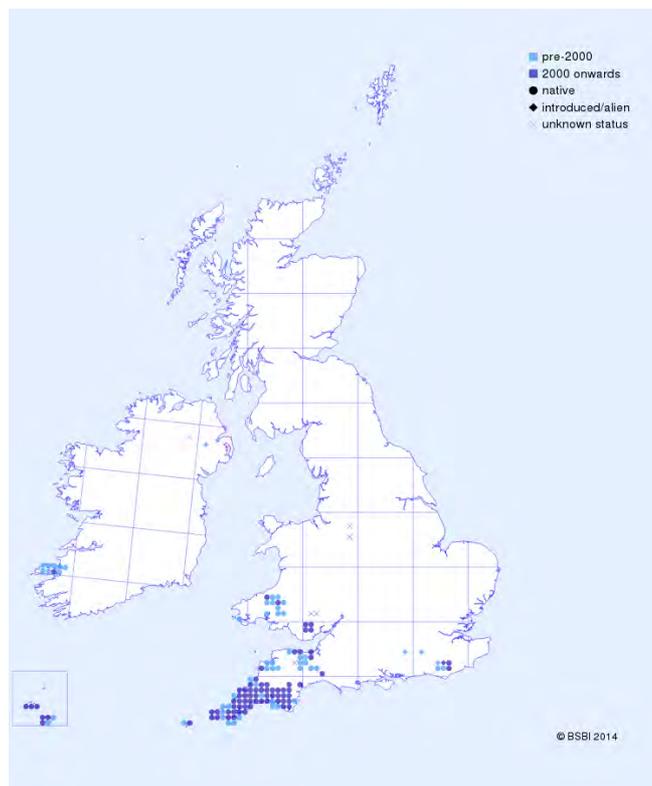
## *Sibthorpia europaea* (L.)

Across Portugal and the Iberian Peninsula, *S. europaea* is associated with cold oligotrophic mountain spring communities of the *Montio fontanae-Cardaminetea amarae* that are dominated by bryophytes and evergreen soft helophytes (Costa et al. 2012). Disjunct European populations recorded from shaded spring-fed marshes and bogs in the White Mountains of central Crete grow in some profusion with associates such as *Polytrichum commune*, *Scirpoides holoschoenus*, and *Sphagnum auriculatum* (Atherden & Hall 1999; Blockeel 2007). Populations found in central Africa can be found growing in wide variety of moist and shaded microclimates, including within *Erica* forest with luxuriant carpets of *Breutelia* and *Sphagnum* mosses (Fischer 1993).

### BIOGEOGRAPHY

*Sibthorpia europaea* is an Oceanic Temperate species (Preston & Hill 1997) with a disjunct global distribution. It occurs in western Europe from the Azores, Portugal and Spain to south-western Ireland and Wales, where it attains its absolute northern range limit in Cardiganshire (Chater 2010), and is also found in Greece on Mount Pelion (Preston 1994), the White Mountains of Crete, and across tropical regions of central Africa from Cameroon south to Zimbabwe and east to Ethiopia (Ghazanfar et al. 2008). It is found up to 2150 m altitude near to the Rukuru Waterfall in Zambia, and to 1850 m by the Pungwe River in Zimbabwe.

In Britain, *S. europaea* has its core range in the mild, wet south-western counties of Cornwall and Devon, becoming more local in Somerset, Dorset, Carmarthenshire,



Distribution of *Sibthorpia europaea* in Great Britain and Ireland.

Cardiganshire, Pembrokeshire, Monmouthshire and Glamorgan and with outlier easterly populations in the Sussex Weald. It has also been recorded outside of its historical range since 2000 at Biddulph Grange Gardens, Staffordshire, and Rode Hall, Cheshire (John Hawksford, pers. comm.).

In Ireland, *S. europaea* is only present on the Dingle peninsula, and the small number of locations appears to be threatened by the spread of the non-native willowherb *Epilobium brunnescens* (Horsfall 2002). Although it was once relatively common along roadside ditches in the Isles of Scilly, it is now found at just one location, but recent reports indicate that this population is critically endangered (Rosemary Parslow, pers. comm.). It reaches its maximum altitudinal limit of 515 m in the British Isles at Connor Hill, near to Lough Dough in South Kerry.

### ECOLOGY

An inconspicuous, extensively creeping evergreen perennial, reproducing vegetatively and by seed. Plants flower from July to October and are largely self-pollinating (autogamous).

Seeds ( $\leq 2$  mm) fall close to the parent plant, but may subsequently be dispersed passively via water (hydrochory), as they have eglandular hairs and a reticulated coat that can trap air and increase buoyancy (Juan et al. 2000). Ridley (1930) reasoned that the presence of *S. europaea* on the Azores indicated dispersal by birds (ornithochory), and others have suggested that the presence of *S. europaea* on vehicle tracks and roadsides points to passive dispersal by man (anthropochory), with seed being spread through the active maintenance of ditches and lane banks.

Although seed longevity has not been quantified, in a study undertaken in *Juniperus-Laurus* forests of the Azores Islands (Elias & Dias 2009a), *S. europaea* seedlings comprised approximately one quarter of all seed bank germinants, and a second study on the slopes of the Morro Alton volcano by the same authors (Elias & Dias 2009b) found *S. europaea* to be associated with vegetation that had established following landslides. This evidence points to *S. europaea* forming a persistent seed bank, capable of germination and establishment following disturbance activities (e.g. cattle poaching; natural slumping of habitat) that lead to open areas with a suitably humid microclimate.

Ellenberg indicator values for light (Hill et al. 2004) infer that plants prefer semi-shaded areas, and the maintenance of suitably moist and humid conditions will play a key role in the persistence of populations, although Rilstone (1948) observed that populations that are reduced in size due to prolonged drought may subsequently grow back from surviving fragments, and Juan et al. (1999) found that seeds in the soil have the potential to survive periods of drought.

It would appear that *S. europaea* is a mobile 'landscape' species with populations capable of recolonising new areas or fluctuating in size from year to year, depending on short-term seasonal climatic variation and available habitat.

## *Sibthorpia europaea* (L.)

### THREATS

*Sibthorpia europaea* is vulnerable to drainage and intensive mechanized ditch clearance operations that result in the loss of suitable hydrological conditions, and populations on cattle-poached soils, wet grassy heaths, paths or lawns are at risk of being out-competed by other vegetation if there is a cessation of grazing regimes. Where *S. europaea* is present on man-made structures (e.g. stone walls), instability has led to the structure collapsing, resulting in the loss of a population.

### MANAGEMENT

Management should aim to promote the continuation of suitable microclimatic and hydrological conditions necessary for the persistence of *S. europaea*. Often this will be achieved through a 'minimum intervention' approach, although where populations are vulnerable to the encroachment of more competitive species, management should either continue or reinstate a traditional grazing regime that allows *S. europaea* to flower and set seed. The implementation of a targeted monitoring programme would add to our knowledge of the ecology of *S. europaea* and assist in future management of extant populations.

### REFERENCES

- Atherden, M.A. & Hall, J.A. 1999. Human impact on vegetation in the White Mountains of Crete since AD 500. *Holocene* 9: 183-193.
- Blockeel, T.L. 2007. Notes on some rare and newly recorded bryophytes from Crete, Greece. *Journal of Bryology* 29: 197-198.
- Chater, A.O. 2010. *Flora of Cardiganshire*. Privately published, Aberystwyth.
- Costa, J.C. 2012. Vascular Plant Communities in Portugal (Continental, Azores and Madeira). *Global Geobotany* 2: 1-180.
- Elias, R.B. & Dias, E. 2009a. Gap dynamics and regeneration in strategies in *Juniperus-Laurus* forests of the Azores Islands. *Plant Ecology* 200: 179-189.
- Elias, R.B. & Dias, E. 2009b. Effects of landslides on the mountain vegetation of Flores Island, Azores. *Journal of Vegetation Science* 20: 706-717.
- Fischer, E. 1993. Taxonomic results of the BRYOTROP-Expedition to Zaire and Rwanda. *Tropical Bryology* 8: 13-37.
- Ghazanfar, S.A.; Hepper, F.N. & Philcox, D. 2008. Scrophulariaceae. In: H.J. Beentje & S.A. Ghazanfar (eds), *Flora of Tropical East Africa*. RBG Kew, London.
- Horsfall, A. 2002. *Sibthorpia europaea*. In: C.D. Preston, D.A. Pearman & T.D. Dines (eds & comps), *New Atlas of the British and Irish Flora*, pp. 561. Oxford University Press, Oxford.
- Juan, R., Fernandez, I., & Pastor, J. 1999. Estudio de microcaracteres en frutos, semillas y polen de *Sibthorpia europaea* L. (Scrophulariaceae). *Lagasalia* 21: 53-60.
- Juan, R., Pastor, J., & Fernandez, I. 2000. SEM and Light Microscope Observations on Fruit and Seeds in Scrophulariaceae from Southwest Spain and their Systematic Significance. *Annals of Botany* 86: 323-338.
- Pearman, D.A. 1998. *Chrysosplenium alternifolium* / *C. oppositifolium* / *Glechoma hederacea* / *Sibthorpia europaea*. In: T.C.G. Rich & A.C. Jermy (eds.), *Plant Crib 1998*. Botanical Society of the British Isles (BSBI), London.
- Poland, J. & Clement, E. 2009. *The Vegetative Key to the British Flora*. Botanical Society of the British Isles, London.
- Preston, C.D. & Hill, M.O. 1997. The geographical relationships of British and Irish vascular plants. *Botanical Journal of the Linnean Society* 124: 1-120.
- Preston, C.D. 1994. *Sibthorpia europaea* L. In: A. Stewart, D.A. Pearman & C.D. Preston, *Scarce Plants in Britain*, pp. 380-381. JNCC, Peterborough.
- Pryce, R. & Chater, A. 2000 Overlooking *Sibthorpia*. *BSBI News* 84: 50-51.
- Ridley, H.N. 1930. *The dispersal of plants throughout the world*. Reeve & Co., Kent.

### AUTHOR VERSION

Peter Stroh. Version 1: 5 March 2015.

### SUGGESTED CITATION

Stroh, P.A. 2015. *Sibthorpia europaea* (L.). Cornish Moneywort. Species Account. Botanical Society of Britain and Ireland.