

Minuartia hybrida (Vill.)
Schischk.

Fine-leaved Sandwort

Minuartia hybrida is an annual with erect slender stems, white petals shorter than the white-bordered sepals and lower leaves crowded near to the base of the stem, giving the plant a 'knotted' appearance. It is confined to light, infertile soils, with habitats including chalk grassland, arable margins and abandoned arable land, quarries, chalk spoil heaps, weathered calcareous slopes and bare stony ground. In the British Isles the bulk of records are from southern England. It is considered a neophyte in Ireland and Wales, is extinct in Scotland, and is assessed as Endangered in Great Britain due to substantial declines.



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IDENTIFICATION

Minuartia hybrida has white petals that are usually distinctly shorter than the white-bordered sepals, although sometimes only marginally so (Pilkington 2007a), and so other characteristics should be examined.

The presence of three stigmas and the absence of non-flowering shoots are useful characters for identification in the field (Crawley 2005). The hairless gradually tapering leaves (linear-subulate) are 5-15 mm long (Stace 2010), have smooth margins, and may be straight or recurved (Poland & Clement 2010).

The lower leaves are crowded near to the base of stems, often giving the plant a 'knotted' appearance. The erect, slender



Minuartia hybrida at Eynsford Castle, west Kent. ©Liam Rooney.

stems (to 20 cm) are also hairless and have swollen nodes with a purplish-tinge (Poland & Clement 2010).

SIMILAR SPECIES

M. hybrida may be confused with *Arenaria serpyllifolia*, and both have similar habitat preferences. However, *A. serpyllifolia* has oval-triangular leaves that are minutely hairy. In addition, its habit is rather prostrate and 'bushy', as opposed to the upright and 'knotted' habit of *M. hybrida*.

HABITATS

M. hybrida is a plant of light soils with a sunny and open aspect (Preston et al. 2002) and is typical of weathered calcareous rocky slopes, stony ground, chalk grassland, and open heathland, as well as abandoned sandy arable fields over a chalk substrate, quarries, old limestone wall tops, bare chalk spoil heaps cinder tracks, road verges, railway banks and sidings (Mountford 1994; Rand & Mundell 2011).

Populations comprising many tens of thousands of plants are known from Salisbury Plain, where it is typically found in regularly disturbed ground associated with military activities (Pilkington 2007b). It has also recently been recorded from short heathy turf next to the southern runway on Greenham Common and is colonising bare gravel where the former runway was removed (Crawley 2005).

In Breckland, *M. hybrida* is particularly widespread on abandoned arable land, and is often found with other uncommon Breckland plants such as *Medicago minima* and *Trifolium scabrum* (Mountford 2004).

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BIOGEOGRAPHY

M. hybrida has a sub-Mediterranean-sub-Atlantic distribution in Europe (Preston & Hill 1997), occurring from central Germany and the southern Ukraine, south to the north African coast, west to the Atlantic, and east into western Asia (Mountford 1994). It reaches its absolute northern limit in North-west Yorkshire (Preston 2007). It is considered to be a neophyte in Wales (Dines 2008) and Ireland (Lusby 2002), and is now absent from Scotland where it was last recorded in the nineteenth century (Fife & Kinross).

Minuartia hybrida is naturalised in New Zealand (Garnock-Jones 1981), Tasmania and North America (Bohner et al. 2010).

ECOLOGY

M. hybrida is a diminutive annual that flowers between May and June and reproduces entirely by seed (Mountford 1994). It requires open sunny ground on calcareous substrates, and is a poor competitor.

The seeds are very small (0.8-1 × 0.4-1 mm; 0.04 mg) with a central depression and smooth margins (Kanwall et al. 2012). The mode of dispersal is not known, but is almost certainly via a combination of wind (anemochorous) dispersal into bare ground close to the parent plant, and attachment to moving vectors such as vehicles, animals or walking boots. Pilkington (2007a) suggests that seeds are dispersed in soil on military vehicles on Salisbury Plain. Seed production and longevity are unknown, although species that produce large quantities of

very small seeds often have the ability to build up a persistent seed bank.

The taxonomic history of *M. hybrida* is complex, and a number of historic *Minuartia* and *Arenaria* taxa are now considered by Tutin et al. (1993) to be synonyms of *M. hybrida*, with the authors stating that the taxon is very variable. Kerguelen (2004) names two subspecies, subsp. *hybrida* and subsp. *tenuifolia*, with British material referable to the latter (Stace 2010). This subspecies would appear to be separated from subsp. *hybrida* by its glabrous, as opposed to glandular-pubescent, leaves and stem. However, more taxonomic work is required to validate this separation.

THREATS

Population declines across arable and grassland habitats are attributed to an increase in intensive farming methods (Preston et al. 2002). It has spread along railway banks and sidings in recent years, colonising stony and open ground. **However, the intensive 'tidying' of these habitats through the regular spraying of herbicides poses a current and future threat to extant populations.**

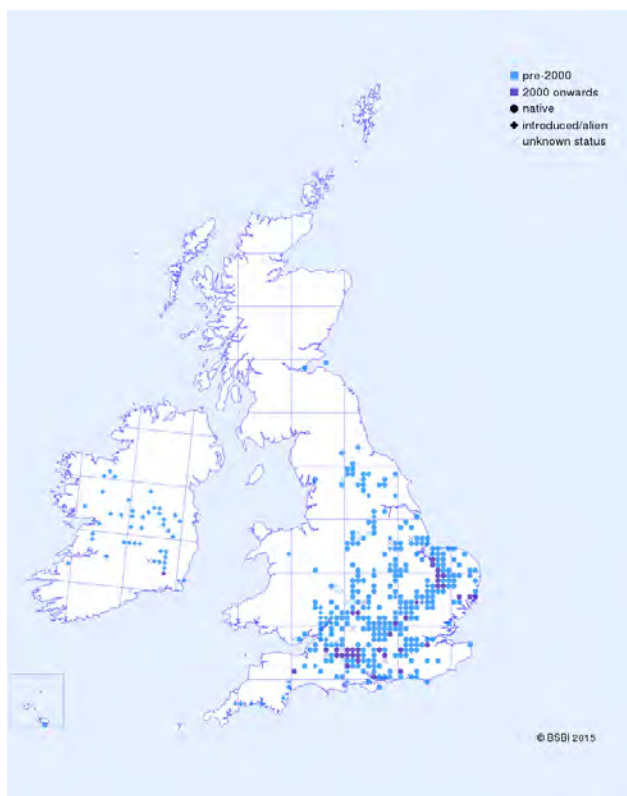
MANAGEMENT

When populations are located on arable farmland, targeted agri-environment scheme options may assist in providing support for establishing wide field margins that are not cropped or sprayed, but are instead periodically harrowed, with turf kept short to provide suitable conditions for germination and establishment.

Communication with rail companies and local site managers regarding the current location of known populations should help to alert the relevant people to the status and requirements of *M. hybrida*, and the need to cease the application of herbicide in these areas.

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Distribution of *Minuartia hybrida* in Great Britain and Ireland.

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AUTHOR VERSION

Peter Stroh. Version 1: 31 January 2015.

SUGGESTED CITATION

Stroh, P.A. 2015. *Minuartia hybrida* (Vill.) Schischk. Fine-leaved Sandwort. Species Account. Botanical Society of Britain and Ireland.