

Hypochaeris glabra L.

Smooth Cat's-ear

Hypochaeris glabra is a hairless plant with shiny pale-green leaves that form a basal rosette from which several stems may arise, bearing yellow flowers that only open in full sun and are usually closed by early afternoon. It is an early colonist of warm, periodically disturbed sandy or gravelly nutrient-poor soils, and is found in a variety of habitats including forestry rides, grasslands, dunes and arable margins. Core populations occur in east Anglia, the Surrey heathlands and the Welsh borders. It has declined in many parts of its historical range, most notably as an arable plant, and is assessed as Vulnerable in Great Britain.



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IDENTIFICATION

Hypochaeris glabra, as the species name implies, has hairless leaves and stems. The shiny pale-green (often reddish) spear-shaped leaves (1-8(20) cm in length) have shallow, wavy margins and are broadest at the tip, gradually narrowing towards the base (Wilson & King 2003; Poland & Clement 2009). Leaves form a basal rosette from which 1-several stems arise. Stems (5-15(50) cm) do not have true leaves, but instead have small, scale-like bracts.

Flower heads (5-15 mm in diameter) contain a cluster of tiny flowers, each with a single yellow petal twice as long as broad (Wilson & King 2003). Each flower produces an outer (beakless) achene and an inner (usually beaked) achene that is 6-9(13.5) mm long (Stace 2010). Flowers only open in full sun and close by early afternoon (Pearman 1994).



Hypochaeris glabra in typical Breck habitat at Thetford Forest, west Suffolk. ©John Martin.

SIMILAR SPECIES

Small specimens of *H. glabra* are sometimes confused with *H. radicata*, and the two species are known to hybridise with each other (Grime et al. 2007). However, *H. radicata* has larger (20-40 mm in diameter) flowers, outer and inner achenes that are both usually beaked, and obviously hairy leaves and stem (Sanford & Fisk 2010; Stace 2010).

HABITATS

An early colonist of periodically disturbed, dry, nutrient poor sandy or gravelly acidic soils in areas that have open, sunny and warm aspects. It occurs in sandy grasslands, heathy pastures and commons, sand pits and dunes, arable margins and fallow fields.

In Breckland it can also be found along forestry plantation rides with other bare ground pioneer annuals such as *Aphanes arvensis*, *Filago minima*, *Rumex acetosella* and *Senecio sylvaticus*, and in restored areas of heathland along with local rarities such as *Crassula tillaea* and *Viola tricolor* ssp. *curtsii* (Pearman 1994; Beckett et al. 1999; Sanford 2010).

In dry Mediterranean climates it occurs within typical Steppe vegetation dominated by the stress-tolerant species *Brachypodium retusum* and *Thymus vulgaris* (Buisson et al. 2006), and is also considered a typical component of pioneer dwarf siliceous grassland similar to Breckland habitats in Atlantic, sub-Atlantic and supra-Mediterranean Europe, along with associates such as *Aira caryophyllea*, *Filago* spp., *Ornithopus perpusillus*, *Scleranthus annuus* subsp. *polycarpos*, *Teesdalia nudicaulis* and *Tuberaria guttata*.

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BIOGEOGRAPHY

Hypochaeris glabra has a Southern-temperate distribution that encompasses Europe, northern Africa, and temperate and western Asia. It is also widely naturalised across Australia, New Zealand, southern Africa, South America and North America.

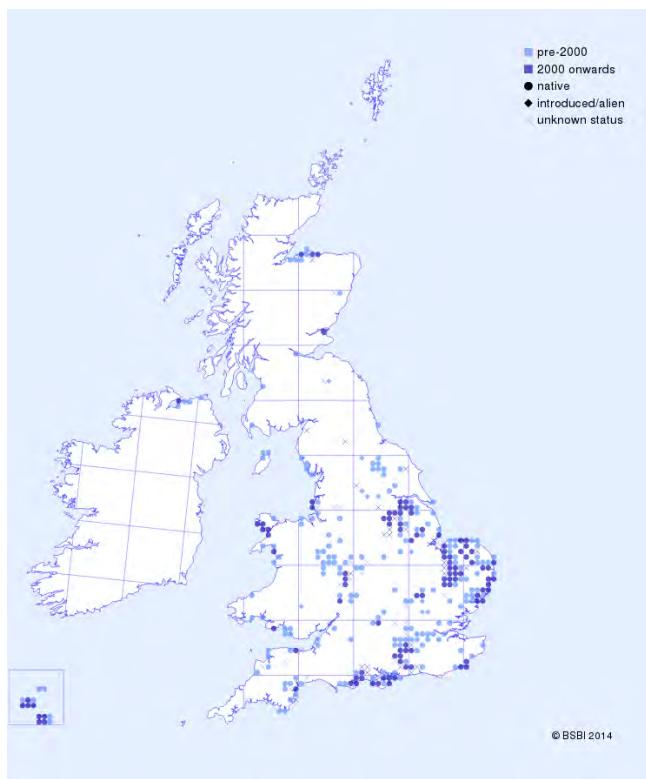
In Britain and Ireland it has been lost as an arable weed from many locations as traditional farming systems have been replaced by more intensive practices (Perring 2002), specifically alterations to cropping rotation regimes and the application of broad-spectrum herbicides.

The species has a major proportion of its current British and Irish distribution in East Anglia, the Surrey Heathlands and the Welsh Borders, with populations also widespread but scattered along the coasts of southern England and Wales, becoming infrequent along the north-western English coastline. In Scotland it is currently known from a small number of sites in Moray, Fife and Wigtownshire, and in Ireland it is restricted to a few sandy tracks and fields along the Londonderry coastline.

ECOLOGY

A rosette-forming annual herb that reproduces by seed, flowering from June to September, *H. glabra* is self-compatible and predominantly geitonogamously self-pollinated (i.e. using pollen from another flower on the same flowering plant; Ortiz et al. 2006).

The period of anthesis is relatively brief (c. 3-4 days)



Distribution of *Hypochaeris glabra* in Great Britain and Ireland.

compared with self-incompatible *Hypochaeris* species (e.g. *H. radicata*; *H. arachnoidea*) and the fruit to flower ratio is very high (Ortiz et al. 2006).

Seed dispersal is predominantly via wind (anemochory), although Peters et al. (2005) and Buisson et al. (2006) noted that ants collect *H. glabra* seeds, and Quinn et al. (2010) concluded that seeds of *H. glabra* can remain germinable after passing through the digestive system of horses. However, studies undertaken by Cobo & Andreu (1988) demonstrated that *H. glabra* seed does not survive ingestion by reptiles.

No information on *in situ* seed bank longevity or viability could be found in the literature, although other *Hypochaeris* species (e.g. *H. radicata*) are known to have a short-lived (<1 year) seed bank. *H. glabra* has been found to rapidly recolonise old sand pits and restored heathland cleared of plantation trees in Breckland (Beckett et al. 1999), but it is not known whether viable propagules survived for long periods of time in the soil and subsequently germinated following disturbance, or whether they colonised via windblown seed.

H. glabra is considered an invasive alien species throughout much of its naturalised range, with most ecological studies posing the question of how best to eradicate the species. Many methods have been trialled including burning, exposure to radiant heat treatment and hand-pulling. All experiments have been unsuccessful in their stated aims.

THREATS

Agricultural improvement, recent alterations to cropping regimes and the loss of semi-improved habitats have contributed to the decline of this species (Perring 2002). As a pioneer annual species, *H. glabra* requires an open sward on soils that are periodically disturbed, and consequently associated threats to extant populations include cessation of grazing, a lack of disturbance and succession to a rank, closed sward.

MANAGEMENT

Grassland management should aim to maintain conditions suitable for the germination and establishment of *H. glabra* via traditional grazing or mowing regimes that remove biomass, retain an open sward and also provide areas of bare, disturbed ground. Arable populations require the annual cultivation of sandy soils (Wilson & King 2003).

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