

Three new British species of *Hieracium* (Asteraceae)

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This pdf constitutes the Version of Record published on 14 August 2025.

Abstract

Three new endemic British species of *Hieracium* are described. *Hieracium dentdaleense* B.Burrow **sp. nov.** and *Hieracium langscariense* B.Burrow **sp. nov.** are described from Yorkshire. *Hieracium aithense* B.Burrow & J.Crossley **sp. nov.** is described from Orkney.

Keywords: Hawkweed; Orkney; section *Hieracium*; section *Stelligera* Zahn; Yorkshire.

Introduction

Recent field work has revealed the presence of three distinct endemic *Hieracium* taxa which are worthy of recognition additional to the standard British and Irish *Hieracium* monograph (Sell & Murrell, 2006) and subsequent revisions. Two of the species are from Yorkshire (VC64 and VC65), additional to the excellent account of Jones (2014) and additional to the three species recently described (McCosh et al., 2020). The Orkney (VC111) *Hieracium* species were reviewed by Sell & West (1962) which took a relatively broad view of species, but there has been much work since including recent field work revealing another distinct un-named plant.

Methods

Descriptions were compiled following the general format of Sell & Murrell (2006). Conservation statuses were assessed following the IUCN Red List Categories and Criteria (IUCN, 2022).



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ROYAL BOTANIC GARDEN
EDINBURGH
E01536143

HOLOTYPE
Flora of North-west Yorkshire
(VC65)
Hieracium dentdaleense B. Burrow
sp. nov.
Widespread along the River Dee
Mossy Bottom area down by river
by Bridge End Cottage, Dentdale,
SD774846
Brian Burrow 9/6/2021

Figure 1. Holotype of *Hieracium dentdaleense* (E)

Results & Discussion

Hieracium dentdaleense B.Burrow **sp. nov.**

Holotype: Widespread along the River Dee, Mossy Bottom area down by river by Bridge End Cottage, Dentdale, North-West Yorkshire (VC65), SD774846, 9 June 2021, B. Burrow (Holotype **E**, barcode no. E01536143; Fig. 1. Isotype **E**).

Description

Perennial phyllopodous herb. *Stems* 45-60 cm, slender; lower stem with sparse medium to long 1-2 mm, pale, fine simple eglandular hairs and sparse stellate hairs, upper stem with numerous stellate hairs and scattered, very short to 0.3 mm dark glandular hairs. Rosette leaves 3-5, mid to pale yellowish-green on the upper surface, paler and often suffused reddish-purple beneath; outer rosette leaves with lamina to 4-12 x 2-4 cm, oblong-elliptical, apex obtuse or shortly mucronate, base rounded, margins remotely denticulate with small acute to shortly aquiline teeth at base; inner rosette leaves with lamina 5- 7(-9) x 2-3(-4) cm, oblong-lanceolate to elliptic-lanceolate, apex acute or acuminate on innermost leaves, base cuneate to rounded, margins remotely denticulate with small, very fine sharp to aquiline teeth at the base; upper surface glabrous or with a few simple hairs near the margin, lower surface with frequent short to medium to 1.0 mm simple hairs, especially on the midrib and margins, and numerous to dense stellate hairs; petioles up to 7 cm with numerous, long to 2.5 mm, wavy, pale simple eglandular hairs. Cauline leaves usually 0, or rarely 1 with lamina 2-6(-9) cm, linear-lanceolate, apex acuminate, base narrowly cuneate, finely toothed to lacinate-toothed on margin, upper surface glabrous, lower surface with numerous to dense stellate hairs and frequent to sparse simple hairs, or reduced and bract-like and at inflorescence branches petiolate. Inflorescence with (4-)5-20 capitula, paniculate-corymbose with erect-ascending branches; peduncles short 1-4 cm, slender and curved, with dense stellate hairs and frequent, short to 0.5 mm, dark glandular hairs (simple hairs absent). Capitula 20-30 mm in diameter, rounded at base. Involucral bracts prorect in bud, to 11(-12) mm x 1.0-1.3 mm, dark greenish-black, linear-lanceolate, acute to subobtuse at apex, with numerous, short to medium 0.3-0.9 mm, unequal dark glandular hairs, and dense stellate hairs on the margins with a few at the tip (senescent), simple hairs absent. Ligules yellow, glabrous or with occasional very short to 0.2 mm simple eglandular hair at apex in bud. Styles weakly discoloured when fresh, more strongly when dried. Receptacle pits and achenes not seen. Flowers May to June.

A new species of section *Hieracium* characterised by the dense stellate hairs underneath the rosette and stem leaves, the narrowly cuneate stem leaf, the unequal, short to medium glandular hairs and dense stellate hairs on the margins of the involucral bracts (simple hairs absent), the discoloured styles and the ± glabrous ligule tips.

Like other members of the informal *H. exotericum* aggregate, it lacks simple hairs on the involucral bracts. The most closely related species is *H. kentii* P.D.Sell from South-east England which is similar in having dense stellate hairs on the margins of the bracts, dense stellate hairs underneath the stem leaf and discoloured styles, but differs in having truncate leaf bases, and shorter involucral bracts to 10(-10.5) mm.

This taxon was first mentioned by Jones (2014, page 188) as an undescribed species of the *H. exotericum* aggregate found in abundance in Dentdale which he

considered was worth taxonomic recognition, though did not describe it himself. When plants are shaded, the teeth on the leaves can become quite large.

Distribution and habitat

English endemic confined to c.2 km of Upper Dentdale, Yorkshire. In addition to the type locality, it has been recorded at Dent Head viaduct, abundant over 200 m of railway embankment, SD77588396, 9 June 2009, V. Jones (**E**); along the river below Dent Head viaduct for at least 2 km (scattered plants in shade), 2008, B. Burrow; Stone House, Dentdale, scattered plants in three patches, SD77208574, 9 June 2009, V. Jones (**E**); 2000+ plants near Hazel Bottom south of Dent Head Farm SD774841 on the riverbanks, by the waterfall and on the railway bank and ballast area, 2010, B. Burrow.

The main habitats are open areas or sometimes in more shade by the river, on small cliffs and railway banks. It occurs at altitudes of 250-350 m.

Conservation status

This species is assessed as IUCN (2022) threat status 'Least Concern' based on it being abundant over a relatively limited area but with a population of over 2000 plants.

Vernacular name

Dentdale Hawkweed.

Etymology

Hieracium dentdalense is named after the Yorkshire Valley in which it occurs.



ROYAL BOTANIC GARDEN
EDINBURGH
E01536144

HOLOTYPE
Hieracium langscariense B. Burrow sp. nov.
Scar Close pavement, Ingleborough
Mid-west Yorkshire, England VC64
Grid ref SD7488577569
Brian Burrow
7 June 2018



0 1 2 3 4 5 6 7 8 9 10
cm
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Figure 2. Holotype of *Hieracium langscariense* (E)

***Hieracium langscariense* B.Burrow sp. nov.**

Holotype: Scar Close limestone pavement VC64, SD7488577569, 7 June 2008, B. Burrow (Holotype **E** barcode no. E01536143, Fig. 2).

Description

Perennial phyllopodous herb. Stems 25-50 cm, green to reddish brown, usually robust with few to fairly numerous long to 4.5 mm simple hairs, especially near the base, decreasing in length and frequency up the stem, with sparse stellate hairs above. Rosette leaves 3-6, usually mid-green, occasionally greyish green; outer rosette leaves with lamina to 9 x 3 cm, elliptic, apex obtuse rarely mucronate, base rounded to cuneate, margins denticulate to dentate near base; inner rosette leaves with lamina to 11 x 4 cm, lanceolate, apex mostly acute or sometimes acuminate, base cuneate (rarely truncate, and rarely with one or two teeth extending down onto the petioles), margins with mammiform to aquiline mammiform teeth mostly in the lower half of the leaves; all glabrous or nearly so on the upper surface, hairy below with simple hairs especially on the mid-rib; petioles to 6 cm, with occasional teeth descending from the lamina, with sparse long to 4 mm, pale simple hairs. Cauline leaves 1-2(-3), the lowest often similar to the inner rosette leaves, petiolate, upper stem leaves ovate, shortly petiolate, sometimes more deeply toothed than rosette leaves. Inflorescence with 3-12 capitula, paniculate to corymbose, sometimes with a lower branch. Peduncles mostly short to 3 cm, straight or sometimes curved, with numerous medium to long simple hairs, few to sometimes more numerous short to 0.5 mm black glandular hairs and dense stellate hairs. Capitula large 30-45 mm diameter, mostly rounded at the base (occasionally truncate). Involucral bracts incumbent in bud to 13(-15) mm x 1.0- 1.4 mm, dark olive green, the inner with paler margins, apex mostly acute or the outer occasionally obtuse, with numerous medium to long to 2 mm, white-tipped and black-based simple hairs, a few short black glandular hairs, and few to occasionally more numerous stellate hairs. Ligules mid to darker yellow, ligules tips glabrous in bud. Styles discoloured. Receptacle pits dentate. Seeds c.4 mm, blackish. Flowers May to July.

A new species of section *Hieracium* characterised by the deeply lacinate, almost glabrous leaves with large teeth, the 1-2 stem leaves, the large heads 30-45 mm in diameter and the numerous simple long hairs to 2 mm and few stellate hairs on the bracts. *Hieracium lintonii* Ley (section *Hieracium*) is similar in appearance but differs in having more numerous glandular hairs, yellowish styles and ligule tips hairy in bud.

The large heads and usually single stem leaf indicate it is probably best placed in section *Hieracium*. Even so the nearest relative is possibly *H. cravoniense* (F.Hanb) Roffey in section *Vulgata* (Griseb.) Willk. & Lange which differs in being much hairier and in having stylose (*i.e.* reduced) ligules.

Although Vincent Jones was aware of this un-named species, he did not mention it in his hawkweed Flora of Yorkshire (Jones 2014).

Distribution and habitat

Conservation status

This species is assessed as IUCN (2022) threat status 'Least Concern' based on it being frequently recorded in Mid-West Yorkshire with many recent records.

Vernacular name

Langscar Hawkweed.

Etymology

The species is named after Langscar in Yorkshire where it was first recognised as distinct.



Figure 3. Holotype of *Hieracium aithense* (E).

Hieracium aithense B.Burrow & J.Crossley **sp. nov.**

Holotype: Very local on grassy cliffs near Bain's Hole, north-east side of Aith Hope, South Walls, Hoy, Orkney (VC111), ND29958895, 26/6/2024, J. Crossley (E barcode no. E01278625, Fig. 3)

Description

Perennial phyllopodous herb. Stem 40-45 cm, often branched from near the base, pale green, purplish near the base, striate, robust, with numerous, patent, long to 5 mm, wavy, pale simple hairs at the base, fewer, shorter and black-based above, stellate hairs few below, more numerous above. Rosette leaves 3-6, dark green to slightly yellowish green, heavily blotched in open situations and in cultivation with dark blotches and streaks; outer rosette leaves with lamina 6-7.5 x 3-4.5 cm (to 8 x 5 cm in cultivation), broadly elliptic, obtuse at the apex, rounded to truncate at the base, mostly denticulate; the inner 8-10 x 4-5 cm (to 9-12 x 5-6 cm in cultivation), elliptic-ovate to broadly lanceolate with some large, apiculate, narrowly mammiform teeth, especially near the base; all glabrous or with a few scattered hairs above and few to many pale, simple hairs on the margins and below (outer rosette leaves more hairy than inner leaves), all hairs up to 3 mm; petioles 4-5 cm with many, up to 5 mm, wavy, pale, simple hairs. Cauline leaves 1-2, the lower usually shortly petiolate, ovate, 3.5-7.3 x 1.7-3.3 cm, tapering to an acute tip, with 1-3 pairs of narrowly mammiform teeth near the base; the upper if present sessile, lanceolate, 2.5-3 cm, with 0-1 pairs of mammiform teeth; glabrous above, with a few pale, simple hairs below and on margins, and sparse stellate hairs below. Inflorescence with (3-)4-7(-8) capitula on the main stem, 1-3 on branches, paniculate-corymbose; peduncles mainly short and straight, with few to numerous, medium, black-based simple hairs, few to fairly numerous very short, dark, glandular hairs (- 0.5 mm) and dense stellate hairs. Capitula 30-40 mm in diameter, base subtruncate. Involucral bracts incumbent in bud, to 13 x 1.2-1.5 mm, blackish green, obtuse to slightly acute at apex, with numerous, medium to 1.5 mm, dark based, simple hairs, few dark glandular hairs (up to 0.7 mm) and numerous to dense stellate hairs, mostly on the margins. Ligules mid yellow, glabrous at the tips in bud. Styles discoloured to slightly discoloured. Receptacle pits fimbriate-dentate. Achenes 3.5-4 mm, purplish black.

This is a new species of *Hieracium* section *Stelligera* Zahn which is characterised by the strongly blotched leaves with marked teeth and discoloured styles. Other than the discoloured styles it is a fairly typical member of section *Stelligera* Zahn which in Britain and Ireland is characterised by the numerous basal leaves, 0-1(-2) stem leaves with rigid simple hairs and medium to large capitula on long, erect peduncles (Sell & Murrell, 2006).

It was first discovered in 2022 and could not be named from existing *Hieracium* accounts. Plants were sent to B. Burrow who also could not name them, so they were cultivated and compared with other species. The description has been compiled from plants in the wild and from plants cultivated in 2024.

No other native species recorded in Orkney has strongly marked leaves (the non-native *H. scotostictum* Hyl. occurs as a rare casual and differs in lacking stem leaves). The strongly marked leaves together with the narrowly mammiform teeth on both basal and cauline leaves and dense stellate hairs on the peduncles make it a distinctive plant.

Distribution and habitat

Scottish endemic known from four subpopulations at Bain's Hole, north-east side of Aith Hope, South Walls, Orkney (VC111) between ND299888 and ND299889. It occurs on grassy ledges of sea cliffs of basic sandstone rock at an altitude of *c.* 20 m, with occasional plants in adjacent coastal heath. The cliff vegetation is herb-rich grassland characterised by *Armeria maritima*, *Cerastium fontanum*, *Festuca rubra*, *Galium verum*, *Holcus lanatus*, *Lathyrus pratensis*, *Lotus corniculatus*, *Plantago lanceolata*, *Plantago maritima*, *Rumex acetosa* and *Thymus drucei* with other less frequent associates and is a form of NVC community MC9 *Festuca rubra*-*Holcus lanatus* maritime grassland (Rodwell, 1991-2000). The coastal heathland is dominated by *Calluna vulgaris* and *Empetrum nigrum* with frequent *Erica cinerea* and *Plantago maritima* and is the NVC community H7 *Calluna vulgaris*-*Scilla verna* heath. Plants in the open heath are more robust and more strongly marked.

Conservation status

This species is assessed as IUCN (2022) threat status 'Endangered' based on it being restricted to one locality with a population of less than 250 plants though these are difficult to count due to the topography (Criterion D).

Vernacular name

Bain's Hole Hawkweed.

Etymology

The species is named after the inlet of Aith Hope where it occurs.

Acknowledgements

We would like thank Mark Lynes and Lesley Scott for their help.

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ISSN: 2632-4970

<https://doi.org/10.33928/bib.2025.07.133>