

# ***Hieracium elizabethae-reginae* (Asteraceae), a new English species of hawkweed named after Her Majesty Queen Elizabeth II**

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## **Abstract**

*Hieracium elizabethae-reginae* **sp. nov.** is named in honour of Her Majesty Queen Elizabeth II. It is a member of *Hieracium* section *Hieracium* distinguished by its glaucous rosette leaves, partly-stylose capitula and the absence of simple hairs on the bracts. About 500 plants are known in two sites on calcareous grassland in East Gloucestershire, England. It is IUCN Threat Category 'Endangered'.

**Keywords:** endemic; England; Gloucestershire

## **Introduction**

During searches for a 1986 record of the rare endemic *Hieracium subplanifolium* Pugsley at Painswick, East Gloucestershire on 4 June 2022, JW found a glaucous-leaved hawkweed which differed from *H. subplanifolium* in lacking simple eglandular hairs on the involucre bracts. The plants were shown to TR on 5 June 2022, but he was unable to name them and provisionally proposed them as a new species. On the 8 June 2022, Brian Burrow visited the site and suggested them to be an unknown member of the *H. exotericum* group in section *Hieracium* (pers. comm., June 2022). Vouchers were sent to David McCosh who also confirmed them as an unknown member of the *H. exotericum* group (pers. comm., June 2022).

As this glaucous-leaved Painswick plant does not match any known British species (Sell & Murrell, 2006; McCosh & Rich, 2018), it is described as a new species following the format of Sell & Murrell (2006) to allow comparison with related species.

***Hieracium elizabethae-reginae* T. C. G. Rich & J. K. Warren, **sp. nov.****

HOLOTYPE: Painswick Beacon (v.c. 33 East Gloucester), England, SO8611, 2 June 2023, T. C. G. Rich no. 2023-45 (**K**, Fig. 1; Isotype **BM**).

Vernacular name: Queen Elizabeth II's Hawkweed

## **Description**

Phyllopodous perennial herb with a branched stock. Stems to 45 cm tall, green or flushed reddish-purple below, stout, with sparse, white simple eglandular hairs and stellate hairs below, with sparse white, simple eglandular hairs, frequent dark glandular hairs and numerous stellate hairs above. Leaves glaucous, often flushed purple below and sometimes above and often becoming reddish with age, with numerous long, white simple eglandular hairs abaxially, and frequent hairs adaxially especially towards margins. Basal

rosette leaves with lamina 4–8(–9) cm; outer rosette leaves small c.1 x 1 cm, broadly elliptic, truncate, obtuse, mucronate, remotely denticulate, flat; middle rosette leaves with lamina 3–8 x 2.5–4 cm, elliptic-ovate, with base truncate to rounded, with apex acute to mucronate, with margins remotely denticulate towards apex and with a few slightly larger, forward-pointing teeth towards base, cupped; inner rosette leaves 4–7 x 2.5–4 cm, elliptic-lanceolate, with base cuneate to rounded, with apex acute to acuminate or with drawn out tip, with margins denticulate with larger, more or less mammiform teeth at base, cupped. Petioles 2–5 cm, with dense, long white simple hairs. Cauline leaf usually absent but 1 on larger plants (exceptionally with a second leaf), 3–8 x 1–1.5 cm, lanceolate to linear-lanceolate, acuminate, petiolate, and with a small, linear-triangular bract at base of lower inflorescence branch. Inflorescences furcate-corymbose; each peduncle with (2–)3–5 capitula, the lowest branch often long; peduncles curved with dense stellate hairs and numerous short to medium, dark glandular hairs. Capitula strongly to weakly stylose, c. 10–25 mm in diameter, rounded at base. Involucral bracts incumbent in bud, 11–12 x (0.8–)0.9–1.2(–1.3) mm, dark green with paler margins, narrowly linear-lanceolate, acute to long-acute, with dense, black, short to medium (0.3–1.0 mm) glandular hairs and numerous, white stellate hairs mainly on the margins and with a small tuft at the apex (simple eglandular hairs absent). Ligules mid-yellow, variably developed and often stylose, with sparse simple hairs at tips in bud. Styles weakly discoloured when fresh. Pollen sparse. Receptacle pits incised-dentate. Seeds 3–3.5 mm, blackish-brown.

*Hieracium elizabethae-reginae* is characterised by the glaucous, elliptic-ovate rosette leaves which have simple hairs on both surfaces, the 0 or 1(–2) stem leaf, the few-headed, furcate-corymbose inflorescence with long peduncles, the variably stylose capitula with acute bracts 11–12 mm long with dense, short to medium glandular hairs and stellate hairs on the margins (simple eglandular hairs absent) and the discoloured styles (Figs. 2 and 3).

As indicated by the glandular heads, *H. elizabethae-reginae* is probably a member of *Hieracium* section *Hieracium* though the glaucous basal leaves and long peduncles are more characteristic of section *Stelligera* Zahn. Within section *Hieracium*, it is part of the informal *H. exotericum* group in lacking simple hairs on the involucral bracts, but differs from most species in having long peduncles and glaucous leaves. There are only two other glaucous-leaved species in this group in Britain; the Shetland endemic *H. ronasii* P. D. Sell which differs in having smaller heads with obtuse bracts, and Sutherland endemic *H. pollinarium* F. Hanb. which has leaves glabrous above. There are no obvious similar species in Europe as far as can be determined from Zahn (1921–1923).

We have only confirmed one historic herbarium specimen of *H. elizabethae-reginae* which equates to our Barrow Wake site. The specimen is labelled '*H. platyphyllum* [now *H. leyanum* (Zahn) Roffey], Crickley, July 1912, J. W. Haines with H. J. Riddelsdell' (**GLR**) and is reported as *H. leyanum* from Birdlip to Crickley Hill in Riddelsdell *et al.* (1948; Rich *et al.* (2007) had accepted this record as *H. leyanum* but had not traced any material at the time; see their Appendix 2). At first sight, *H. elizabethae-reginae* and *H. leyanum* are very similar in having stylose heads and broad, glaucous leaves, but *H. leyanum* differs immediately in having numerous simple eglandular hairs on the bracts. There is a second specimen labelled '*H. murorum*, banks near Stroud, September 1864, G. A. O. St Brody' (**GLR**), with a later A. Ley determination as *H. pachyphyllum* [now *H. pachyphyloides* (Zahn) Roffey], which may also be *H. elizabethae-reginae* but the heads are normally developed rather than stylose and given the late date of collection we cannot be sure of the identification. *Hieracium pachyphyloides* also has glaucous leaves and differs in having

simple hairs on the involucre bracts (Sawtschuk & Rich, 2008). We have traced no other specimens in **BM**, **BRISTM**, **CGE** or **NMW**.



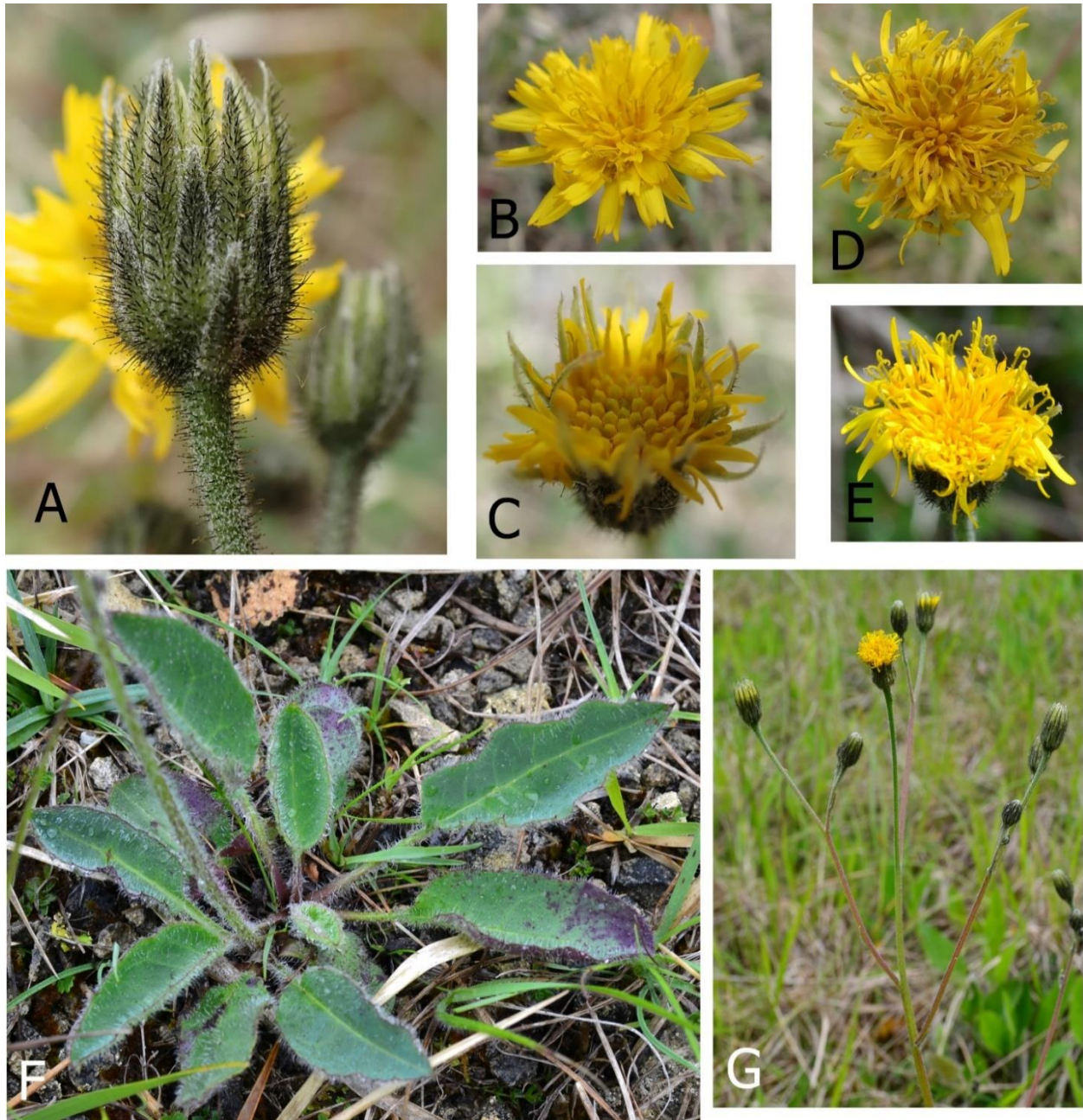
Figure 1. Holotype of *Hieracium elizabethae-reginae* (K)





**Figure 2. *Hieracium elizabethae-reginae***





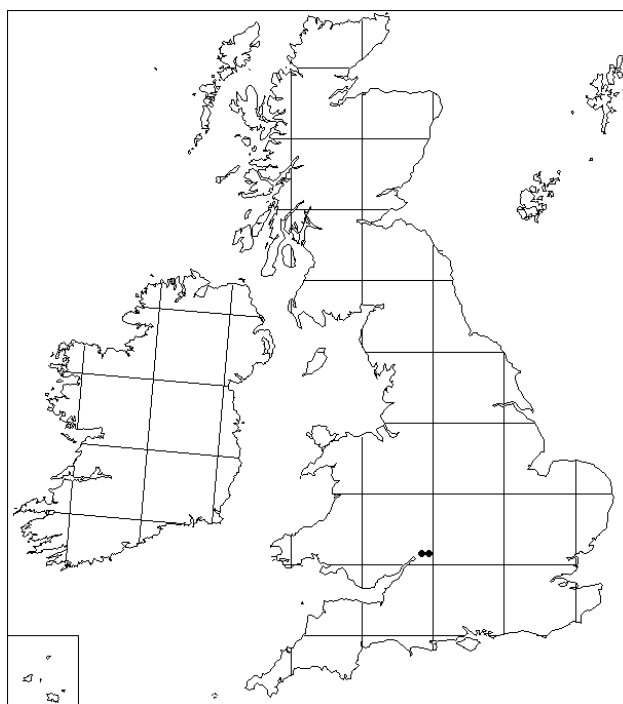
**Figure 3. *Hieracium elizabethae-reginae*. A, close up of buds showing incumbent tips and dense glandular involucre bracts. B-E, variation in stylose capitula. F, basal rosette. G, inflorescence showing long peduncles**

Other *Hieracium* species recorded in the Painswick and Barrow Wake areas are *H. argillaceum* Jord., *H. aviicola* Jord. ex Boreau, *H. cambrense* D. J. McCosh (*H. stenstroemii* auct.), *H. glevense* (Pugsley) P. D. Sell & C. West, *H. grandidens* Dahlst., *H. nemophilum* Jord. ex Boreau, *H. neosparsum* (Zahn) P. D. Sell, *H. sabaudum* L. and *H. subplanifolium* (Riddelsdell *et al.*, 1948; Holland, 1986; Bishop, 2008; D. McCosh *Hieracium* database, April 2022 version). The glaucous rosette leaves and partly-stylose heads immediately distinguish *H. elizabethae-reginae* from all of these.

In Sell & Murrell (2006), *H. elizabethae-reginae* would key out in leads 370–374 as *H. cinderella* (Ley) Ley from which it is immediately distinguished by the glaucous leaves.

### Distribution and ecology

Endemic to Gloucestershire, England and confirmed from two sites (Fig. 4). At Painswick Beacon there are over 400 plants of which about a fifth were flowering in an area of c.70 x 20 m on a steep west-facing grassland. They occurred in short, open (c.70-90% vegetation cover) calcareous grassland with *Brachypodium pinnatum* s.l., *Bromopsis erecta*, *Carex flacca*, *Cirsium acaule*, *Hieracium grandidens*, *Linum catharticum*, *Poterium sanguisorba* and *Thymus drucei* (nomenclature following Stace, 2019) in shallow, stony ranker soils probably originating from quarry spoils from the underlying Oolite limestone. At Barrow Wake there were about 100 plants of which a third were flowering in an area of c.100 x 20 m on a very steep west-facing grassland with small cliffs and outcrops of a former Oolite limestone quarry. They occurred in short calcareous grassland with *Brachypodium pinnatum* s.l., *Briza media*, *Bromopsis erecta*, *Carex flacca*, *Cirsium acaule*, *Festuca ovina*, *Helianthemum nummularium*, *Leontodon hispidus*, *Lotus corniculatus*, *Pilosella officinarum* and *Poterium sanguisorba*. In terms of British plant communities (Rodwell, 1992), the vegetation is CG3 *Bromus erectus* grasslands and CG5 *Bromus erectus-Brachypodium pinnatum* grassland. The altitude at both sites is about 220-230 m.



**Figure 4. Distribution map of *Hieracium elizabethae-reginae*.**

The main flowering period is in mid-May to early June, with fruiting from June onwards. The capitula are variably stylose; that is the broad expanded part of the ligule is absent or poorly developed often leaving a tubular floret with an exerted style (Pugsley, 1948; Figures 3B-E). Like most other *Hieracium* species, it is likely to be apomictic though this has not been tested experimentally. To judge from the remains of previous years' stems, plants flower repeatedly. In 2023 there were numerous young plants and it reproduces readily by seed.

### Conservation status

*Hieracium elizabethae-reginae* is IUCN (2001) Threat Category 'Endangered' due its occurrence in only two sites in a small geographic area with fewer than 250 mature plants.

The site at Painswick Beacon is located within grasslands of the Cotswold Commons and Beechwoods Site of Special Scientific Interest (SSSI), and the Barrow Wake site is in the Crickley Hill and Barrow Wake SSSI which gives its habitats a degree of protection. The main threat is scrub or coarse grassland encroachment. One collection of seed from Painswick Beacon has been deposited in the Millennium Seed Bank.

### Etymology

*Hieracium elizabethae-reginae* is named in honour of Her Majesty Queen Elizabeth II as it was first discovered on her Platinum Jubilee Weekend 2-5 June 2022. With some imagination, the glaucous leaves can be thought of as almost platinum in colour.

### Acknowledgements

We would like to thank Brian Burrow and David McCosh for their advice, and the Keepers of **BM**, **BRISTM**, **CGE**, **GLR** and **NMW** for access to collections, and Aidan Fallon and Paul Baxter for help with permission to collect type specimens. The map was plotted using DMAPW by Alan Morton.

### References

- Holland, S.C., ed. 1986. *Supplement to the Flora of Gloucestershire*. Bristol: Grenfell Publications.
- IUCN 2001. *IUCN Red list categories and criteria. Version 3.1*. Gland: IUCN.
- McCosh, D.J. & Rich, T.C.G. 2018. *Atlas of British and Irish hawkweeds*. 2<sup>nd</sup> ed. London: Botanical Society Of Britain & Ireland.
- Pugsley, H.W. 1948. A Prodromus of the British Hieracia. *Journal of the Linnean Society of London (Botany)* 54: 1–356.
- Rich, T.C.G., Edwards, B. & Pearman, D.A. 2007. *Hieracium portlandicum* (Asteraceae), a new endemic hawkweed from the Isle of Portland, England related to *Hieracium leyanum*. *Watsonia* 26: 451-461.
- Riddelsdell, H.J., Hedley, G.W. & Price, W.R. 1948. *Flora of Gloucestershire*. Bristol: Chatford House Press
- Rodwell, J.S. 1992. *British plant communities. Volume 3. Grasslands and montane communities*. Cambridge: Cambridge University Press.
- Sawtschuk, J. & Rich, T.C.G. 2008. Conservation of Britain's biodiversity: status of the two Wye Valley endemics *Hieracium pachyphyloides*, Carboniferous Hawkweed and *H. vagicola*, Tutshill Hawkweed (Asteraceae). *Watsonia* 27: 109-118.
- Sell, P.D. & Murrell, G. 2006. *Flora of Great Britain and Ireland*. Volume 5. Cambridge: Cambridge University Press.
- Stace, C.A. 2019. *New Flora of the British Isles*. 4<sup>th</sup> ed. Middlewood Green, Suffolk: C & M Floristics.
- Zahn, K.H. 1921–1923. Compositae – *Hieracium*. In: Engler, A. *Das Pflanzenreich* 77 (IV, 280). Leipzig: Wilhelm Engelmann.

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