

Conservation status of two British members of *Hieracium* section *Alpestria*: *Hieracium mirandum* and *H. solum* (Asteraceae)

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ABSTRACT

Population surveys of two members of *Hieracium* section *Alpestria* (Fr.) Arv.-Touv. were carried out to assess their conservation status. *Hieracium mirandum* P. D. Sell & C. West, Remote Hawkweed, is currently known from only two out of its six sites in northern England, with a total population of six plants. *Hieracium solum* P. D. Sell & C. West, Solitary Hawkweed, is currently known in two of its three localities in South-west Scotland, with a total population of 21 plants. Both species have an IUCN Threat Status of ‘Critically Endangered’.

KEYWORDS: England, IUCN Threat Status, Remote Hawkweed, Scotland, Solitary Hawkweed.

INTRODUCTION

In their revision of *Hieracium* section *Alpestria* (Fr.) Arv.-Touv., Sell & West (1965) described six new species of hawkweed, including *H. mirandum* P. D. Sell & C. West, Remote Hawkweed, from northern England and *H. solum* P. D. Sell & C. West, Solitary Hawkweed, from South-west Scotland. Both species are listed in the Vascular Plant Red Data Book (Wigginton 1999, where they are both erroneously listed for Shetland) but there is very little recent information available about either species. Surveys of both species were therefore carried out to provide an IUCN Threat Category as required under the Global Plant Conservation Strategy (Secretariat for the Conservation of Biodiversity 2002). *Hieracium* section *Alpestria* is also a priority under the UK Biodiversity Action Plan (UK Biodiversity Group 1998); the action plan includes all British Section *Alpestria* species (C. Cheffings, pers. comm. 2008). The survey results are summarised in this paper; full details for each species are given in Rich & McCosh (2008a, b) which are available on request to T. Rich.

Hieracium mirandum is a very rare, little-known plant. At the time it was described it had only been found once at Stean, Yorkshire (Sell & West 1965). By 1968 two further localities were known in Derbyshire and Yorkshire (Sell & West 1968, where the Derbyshire record was erroneously plotted in SE25 rather than SK25). Details of three further localities subsequently came to light in Cumbria (Halliday 1997). As pointed out by Halliday (1997), in northern England, *H. mirandum* is a distinctive species with 3–6, elliptic, nearly untoothed stem leaves, the lower petiolate and the upper semi-clasping. The heads are blackish-green with dark glandular hairs and a few simple and stellate hairs on the involucre bracts, and it has discoloured styles.

Similarly, *H. solum* is also very rare and poorly known. Cunningham & Kenneth (1979) recorded it only from the Cruach Lusach area in Knapdale, South-west Scotland, where it has been collected in three sites. About ten other *Hieracium* species have been recorded in the central Knapdale area, from which *H. solum* is easily distinguished by its up to 6, entire, semi-clasping, ± glabrous stem leaves and large capitula with a blackish involucre with scattered simple eglandular hairs and a few black glandular hairs, and its discoloured styles. In the field, the leaves have a slight glaucous hue, but are not caesious as described by Sell & West (1965).

METHODS

Historical records were compiled from herbaria (BM, CGE, E, LANC, MANCH, YRK) and the literature and were used to direct the field surveys. Surveys for *H. mirandum* were carried out in July 2008. Surveys for *H. solum* were carried out in 2006 and 2008. Population sizes were counted as far as practicable, and notes were made on associated species.

RESULTS

HIERACIUM MIRANDUM

1. MASSON HILL (V.C. 57 DERBYSHIRE)

Hieracium mirandum was collected from Masson Hill above Bonsall (c. SK2858) on 4 August 1946 by J. E. Lousley and by E. C. Wallace (**BM**), but has not been seen there since. Unsuccessful searches of the area were carried out by Mills & Mills (1970) with C. West in 1967, by R. Smith in the late 1980s, and by R. Smith with J. Bevan in 1990, but the hill had become rather unsuitable with much agricultural improvement; further searches were not considered worthwhile.

2. STEAN (V.C. 64 MID-WEST YORKSHIRE)

The holotype of *H. mirandum* was collected on 29 July 1962 by Miss C. M. Rob from the aqueduct near Well House, Stean, SE0774 (**CGE**). It was searched for again in 1963 and 1964 but was not refound (Sell & West 1965). The site was searched again on 28 July 2008 without success. The plant is certainly extinct at this site and the level of shade makes the occurrence of any *Hieracium* here unlikely.

3. GAYLE BECK, GEARSTONES, RIBBLEHEAD (V.C. 64 MID-WEST YORKSHIRE)

Hieracium mirandum was first collected from a small river at Ribblehead on 9 July 1902 by A. Ley (**CGE**). It was refound, presumably at Ley's site, in 'moderate' quantity in *Salix* scrub on the bank of the Gayle Beck at SD7880 on 10 August 1968 by J. N. Mills (**MANCH**) but was reported to be in grave danger from grazing animals with most of the capitula nibbled off (Mills & Mills 1970). It was collected again anonymously on 30 June 1974 (**BM**), and again by J. N. Mills on 2 July 1975 (**CGE**).

The site was visited on 28 July 2008, and one plant was found on the low, south-facing side of a small (1–3 m high) Carboniferous Limestone gorge (photographic voucher **NMW**). The plant had a stem with the characteristic clasping leaves, but its apex had been eaten off and no flowering heads were present. Associated species included *Thymus polytrichus* A. Kern. ex Borbás and *Ctenidium molluscum* (Hedw.) Mitt. *Hieracium vulgatum* Fr. was present nearby.

4. ORTON (V.C. 69 WESTMORLAND)

Hieracium mirandum was collected from a grassy lane above Orton in August 1935 by A. Wilson (**YRK**, photograph seen; Halliday 1997).

The Orton area (NY60) was searched on 29 July 2008 without success. A few grassy lanes remain around Orton, but the area must have changed significantly since Wilson found it.

5. NEWBIGGIN-ON-LUNE (V.C. 69 WESTMORLAND)

Hieracium mirandum was collected in a long-abandoned limestone quarry between Gaisgill and Newbiggin-on-Lune in 1985 by M. Atkinson; the site was destroyed shortly after by dumping of farm refuse (Halliday 1997; the specimen cited probably never reached **LANC**, pers. comm. G. Halliday, 2008).

The roadside quarry at NY684053 was searched on 29 July 2008 without success; *Hieracium subcrassum* (Almq. ex Dahlst.) Johanss. and *H. vulgatum* were present.

6. TARN BECK, SEATHWAITE (V.C. 69 WESTMORLAND)

Hieracium mirandum was found on damp ground beside a streamlet by the Tarn Beck, Seathwaite at SD2396 on 26 July 1969 by J. N. Mills and J. R. J. M. Mills (**MANCH**). It was not refound on several searches during field work for the *Flora of Cumbria* (Halliday 1997).

On 29 July 2008, five plants of *H. mirandum* were refound with *H. sabaudum* L. and *Crepis paludosa* (L.) Moench under *Corylus avellana* L. and *Fraxinus excelsior* L. (**NMW**).

HIERACIUM SOLUM

1. LOCHAN DUGHAILL (V.C. 101 KINTYRE)

Hieracium solum was first found at Lochan Dughail at NR8080 by A.G. Kenneth on 11 July 1962 (holotype in **CGE**). Seed was collected in August 1963 and cultivated in Cambridge Botanic Garden (**CGE**).

Lochan Dughail was visited on 12 July 2006. Eleven flowering *H. solum* plants were found in a very small area on granite rock ledges and in crevices in a black organic soil in very open vegetation (**NMW**). Associated species were *Agrostis vinealis* Schreb., *Calluna vulgaris* (L.) Hull, *Deschampsia flexuosa* (L.) Trin., *Erica cinerea* L., *Rumex acetosella* L., *Solidago virgaurea* L. and *Succisa pratensis* Moench.

2. CRUACH LUSACH (V.C. 101 KINTYRE)

Hieracium solum has been collected in two places at Cruach Lusach; NR785832, 1 August 1964, A. G. Kenneth (**E**), and NR780831, 27 June 1968, A. G. Kenneth, A. C. Jermy & P. D. Sell (**CGE**).

Cruach Lusach was searched on 13 July 2006. Two groups of plants were found at the latter site, one with four clumps in nearly vertical, adjacent, west-facing granite crevices

associated with *Calluna vulgaris*, *Deschampsia flexuosa*, *Sedum rosea* (L.) Scop. and *Vaccinium myrtillus* L., and a second group of six plants on ledges with *Calluna vulgaris*, *Salix herbacea* L. and *Viola riviniana* Rchb. No *H. solum* was found at the former locality, although two other *Hieracium* species occur there.

3. AN STUCHD (V.C. 101 KINTYRE)

Hieracium solum was collected at An Stuchd (c. NR7580) by A. G. Kenneth in 1964 (CGE, E).

An Stuchd was searched on 15 July 2008 but *H. solum* was not refound. Given that *H. solum* is likely to be in very small quantity in this area, which is difficult to search thoroughly, it may still be present.

DISCUSSION

Hieracium mirandum is currently known from only two out of six sites in northern England, with a total population of six plants (Figure 1). It has declined at Ribblehead since being seen in moderate quantity in 1968, and is in imminent danger of extinction at both sites; its IUCN (2001) Threat Status is 'Critically Endangered'. *Hieracium solum* was refound in two of its three localities in Kintyre, with a total population of 21 plants (Figure 1). The second population at Cruach Lusach and the site at An Stuchd could still be extant, but if so are likely only to be present in very small quantity and consequently difficult to find. The IUCN (2001) Threat Status of *H. solum* is thus also 'Critically Endangered'. Both species are thus very rare with very small populations, which is typical of many species of *Hieracium* section *Alpestris* (Sell & West 1965).

The main threats to *H. mirandum* are over-grazing at Gayle Beck (Mills & Mills 1970), and shading at Seathwaite; conservation management is required at both sites. The only obvious threat to *H. solum* is from moor burning, which came within 2 m of the tiny



FIGURE 1. Distributions of *Hieracium mirandum* (● 2006–2008, ○ pre-2005) and *H. solum* (■ 2006–2008).

population at Lochan Dughail in 2006. In several places on the Cruach Lusach range, recent fires have swept over partly vegetated rocks and ridges where the hawkweed could have occurred, and burning has the potential to eliminate the very small populations. Longer term monitoring programmes for both species should be established, and the immediate conservation priority for both species is to get living material into cultivation and/or seed banks.

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