



# **Grouped Species Action Plan**

## **‘Hawkweeds’**



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**Living Shetland Biodiversity Action Plan**  
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## Grouped Species Action Plan

# HAWKWEEDS *Hieracium* spp.

### Species profile

#### **UK B/D status**

Section Alpestria is the subject of a national Grouped Species Action Plan, the main aims of which are to establish at least two secure populations, numbering at least 200 individuals, of each species by 2008 and to deposit seed of each species in the millennium seedbank.

#### **UK lead partners**

Paul Harvey, Shetland Amenity Trust

#### **Shetland status**

Scarce and rare

#### **Relevant HAP's**

AgriBAP, Freshwater Habitat plan, Roadside plan, Community Biodiversity Action Plans (Bigton, Bressay, Fetlar, Sandwick, Yell), ungrazed areas

#### **Statutory Protection**

Three species belonging to section Alpestria – *H. attenuatifolium*, *H. northroense* and *H. zetlandicum* – are listed on Schedule 8 of the Wildlife and Countryside Act 1981, making it an offence to uproot the plants or remove or damage any part of them. The group is classified as *Vulnerable* in the IUCN red list

### Current Status

#### **UK status**

All species listed in this plan are endemic to Shetland

## Local status

Hawkweeds occur widely on the larger islands of Shetland but are particularly abundant in the north and west Mainland, Muckle Roe and parts of Yell. They have never been recorded in Fair Isle, Foula, Papa Stour or any of the smaller islands with the exception of Vementry and are also absent from the Mainland south of Channerwick. Many populations recorded during the 19<sup>th</sup> century have since been lost and it is likely that hawkweeds were once much more widespread and perhaps ubiquitous, although it is also possible that some areas, particularly the more remote islands, were never colonised.

Because of their sensitivity to grazing hawkweeds occur only in locations that are inaccessible to sheep or in areas, such as hay meadows, where stock have been regularly excluded during the summer. Some species are relatively common and widespread but others are represented by only a few plants at a single location. The latter are clearly particularly vulnerable. Two species are known to have become extinct in the wild: *Hieracium hethlandiae*, whose only station at Mavis Grind was quarried away in the 1970s and *H. maritimum* lost as a result of grazing.

### Culture & Folklore

Hawkweeds are not known to have had any special medicinal, material or craft value and do not feature in folklore.

### Ecology & management

The hawkweeds are perennial plants belonging to the family Compositae, which also includes the daisies, dandelions, thistles and marigolds, among others. The genus *Hieracium* consists of a large number of superficially similar species (or strictly, microspecies) varying in height from about 20 to 50cm with yellow, dandelion-like flowers and lance-shaped leaves, sometimes toothed or blotched with red. All species have a basal rosette of leaves from which one or more flowering stems arise. The plants' height, the number of leaves on these stems and the ratio of leaf length to width vary from species to species.

The species are grouped into a number of sections, of which *Alpestris*, *Oreadea*, *Tridentata* and *Vulgata* are represented in Shetland. All the Shetland species belonging to section *Alpestris* are endemic to the Islands and are presumed to have evolved here, a fact that makes the group of particular interest to botanists and taxonomists. A number of Shetland-endemic species also occur in other sections. This diversity of species has arisen as a result of the plants' unusual reproductive mechanism: the hawkweeds are apomictic, that is, they produce seed asexually, without the need for fertilisation by pollen.

In most plant species, viable seed is produced by fertilisation of the ovum by pollen. Usually plants are self-sterile and this pollen must come from other individuals, which has the effect of mixing the gene pool at each generation and producing new genotypes (combinations of genes). Even in those species where individuals can pollinate themselves, a limited number of different genotypes will be produced in the offspring as a result of "shuffling" the small gene pool represented by one individual. This does not occur in the hawkweeds - seedlings are genetically identical to their parent except for chance mutations. When mutations occur, provided they are not detrimental to the survival of the plants, they will persist in all the successive offspring, rather than being diluted or lost through the genetic "shuffling" of sexual reproduction. Where mutations result in recognisable physical differences, the result is a new microspecies.

### **Current Factors causing loss or decline**

**Grazing** – Hawkweeds survive only in areas where they are not routinely subjected to heavy grazing. Observations in the field<sup>1</sup> suggest that the latex produced by the plants may make them unpalatable so that rabbits will normally avoid them and sheep take only the flowering spike, which may have a lower latex content than the basal leaves. Populations are therefore unlikely to be directly destroyed by grazing but will be prevented from reproducing and become extinct as the existing plants grow old and die out.

**Agricultural improvement/changes in meadow management** – areas inaccessible to sheep are unlikely to be affected by agricultural improvement, either directly by seeding and fertilising or indirectly by transfer of nutrients in animal dung. The same cannot be said of meadows. In such circumstances, the hawkweeds generally grow in those parts of the meadow that are not cut for hay or silage, but improvement of the cut areas may lead to nutrient transfer to the rest of the meadow. This would promote the growth of grasses at the expense of the hawkweeds and other forbs. Improvement may also bring earlier cutting of the grass crop and earlier aftermath grazing, with possible consequences for hawkweed seeding.

**Lack of management** – although less likely than "overmanagement" (grazing and improvement), on richer soils grasses may choke out hawkweeds unless removed by cutting or grazing. This appears to have been the end of one population on a roadside verge at Tumblin

**Development** – As with all species with a very localised distribution, hawkweed populations are vulnerable to loss of land to development such as quarrying, building and road widening.

**Natural disasters** – Similarly, very localised species are vulnerable to natural events such as floods and landslides.

### **Opportunities & Current Action**

For many years, Walter Scott has been collecting seeds and plants from the wild and propagating them in his garden. By this means he has been able to prevent *H hethlandiae* being lost entirely when the wild population was quarried away.

In the 1990s, four SSSIs were notified for hawkweeds and beneficial management secured by means of management agreements.

Since 1999, the Shetland Amenity Trust has been propagating the most vulnerable species of section *Alpestris* for planting out in the wild to fulfil the targets of the national SAP. Planting has usually been carried out by the Shetland Conservation Volunteers.

### **Action table – there isn't one**

## **Objectives & Targets Could be called, actions, objectives & targets**

Publicise the significance and conservation needs of the hawkweeds through media articles etc. (SNH, SBRC)

Continue to survey and record hawkweed populations and identify any at risk, particularly from grazing, in order to provide protection where necessary. (SNH, SBRC, Walter Scott)

Maintain “captive” populations of at least 2 individuals of each Shetland-native species and at least 5 individuals of each Shetland-endemic species as a safeguard against extinction of wild populations. (SAT, Walter Scott)

In addition to the national SAP targets for maintaining populations of section Alpestris in the wild, secure or establish at least two populations of each Shetland-endemic species of other sections. (SAT, SNH)

## **References box**

<sup>1</sup> Survey of Shetland Hawkweeds in the North-west Mainland: B Vincent, 2001 – unpublished report to SNH

## **Key contacts**

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