

BIRD'S-EYE PRIMROSE (*Primula farinosa*)



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Summary

Bird's-eye Primrose is a Nationally Scarce species confined in Britain to certain areas in northern England. It is a most attractive plant that is very susceptible to drainage of its wet habitat and to the build up of nutrients, particularly nitrates, in the lime-rich soils where it grows. The first record for this species for Britain is believed to be from Great Harwood over 400 years ago, but over the last few decades it has declined to the point where it is now critically endangered in Lancashire.

The purpose of this Action Plan is to reverse the decline of Bird's-eye Primrose in Lancashire by protecting and managing its remaining habitats, and by re-introducing it to other suitable sites.

Action Plan Aim –

To reverse the decline of Bird's-eye Primrose in Lancashire

Species Description

This is a short-lived herbaceous perennial up to 150 mm tall with a basal rosette of leaves from which grows an erect stem carrying a cluster of attractive usually pinkish-lilac flowers with a central yellow eye. The surfaces of the leaves and stem have a whitish-grey mealy covering or 'farina' to which its alternative name of 'Mealy Primrose' and the scientific epithet '*farinosa*' refer.

Main Habitats

Bird's-eye Primrose grows in a range of habitats from flushes and mires to damp grassland. These habitats may involve either peat or mineral soils but are generally associated with limestone or influenced by ground water seepage with a high calcium status. Although usually an upland species, it also occurs close to sea-level.

National Status

Bird's-eye Primrose is a Nationally Scarce species, occurring in sixty-seven 10-km squares in Britain (Stewart *et al.*1994), and is largely restricted to the northern Pennines. Formerly it was also found in southern Scotland but its distribution has contracted significantly since 1970 (Preston, Pearman and Dines, 2002), having disappeared from areas on the north, east and south of its British range (especially Lancashire). It is now found only in the counties of Lancashire, Cumbria, North

Yorkshire and Durham. Even in its main area of distribution, it has gone from many sites, and is now rare east of the Pennines. This species is a member of the Eurasian Boreal-montane element of the British flora, all of whose representatives in Lancashire are rare and/or declining here.

Regional Status

As the species is confined to the north of England the regional population is of major significance. This is centred on the north Westmorland area of Cumbria, where despite many losses the species is described as 'locally still fairly common' (Halliday, 1997). The Lancashire sites are at the southern limit of both the regional and national range of the species.

Local Status

Although never common, Bird's-eye Primrose was formerly widespread in Lancashire north of the Ribble. Seventeen pre-1964 records have been traced in VC 60 alone, from Stodday near Lancaster (Greenwood pers. com.), Silverdale and from the Bowland fells and Leck (Wheldon & Wilson, 1907; Greenwood, 2004). South of the Ribble, it was recorded from several localities near Whalley, Clitheroe and Twiston (Savidge *et al*, 1963). The first British record for this species is given as 'Harwood' (Gerarde 1597; Savidge *et al*, 1963), which is believed to refer to the present Great Harwood.

In recent years the species is reported to have been lost from several of its remaining Bowland sites, and to be declining at its only surviving Silverdale locality. Today it is known from only 5 sites in Lancashire, 4 in the Forest of Bowland AONB (mostly in the Easington – Slaidburn - Gisburn Forest area) and another in the Arnside-Silverdale AONB. Three of the localities occur within SSSIs and the remainder are in Biological Heritage Sites. The species is now regarded as critically endangered in Lancashire.

Current factors affecting the Species

Whilst some of the remaining populations are relatively stable, decline has been reported at other sites including, Robert Hall Moor SSSI and Standridge Farm Pasture SSSI. At both of these sites inappropriate management or a lack of grazing appear to be the principal factors involved. In the last twenty years three known populations have been lost, through intensive agriculture, drainage and highway maintenance operations.

The species is sensitive to drainage, over grazing and the build-up of nitrates through fertilisers, manure, and/or atmospheric pollution. Under-grazing can result in competition with larger more vigorous species, whilst a build-up of 'thatch' of dead vegetation can smother this small plant. A slight amount of "poaching" by stock appears to help to open the ground for recruitment of young plants to the population.

Current Action / Mechanisms

- *Policy*
Bird's-eye Primrose is Nationally Scarce (Stewart *et al.* 1994) and classified as vulnerable with a high risk of extinction in Britain (Cheffings and Farrell, 2005). It is included in the *Provisional Lancashire Red Data List of Vascular Plants* and therefore capable of protection through the Biological Heritage Sites system (LCC 1998). All Local Development Plans in Lancashire contain policies to protect Biological Heritage Sites.
- *Site Safeguard*
Three of the localities occur within SSSIs and the remainder in BHSs
- *Land Management*
Positive habitat management now under way at Robert Hall Moor SSSI including scrub removal, removal of leaf litter and the re-introduction of grazing, will benefit this species. Similar measures are planned for other SSSIs holding Bird's-eye Primrose.
- *Advisory*
All land owners have been informed of the species presence
- *Research and Monitoring*
The Rare Vascular Plant Working Group are currently undertaking this work.
- *Public Relations*
No publicity has yet been attempted

Species Targets

Target	Area	Measure	Timescale
<i>To stabilise or increase the size of all existing populations</i>	Lancaster and Ribble Valley	No. of flowering/ non-flowering plants	2010
<i>To establish three new viable populations within its historical range</i>	Lancaster and Ribble Valley	No. of successful introductions	2015

Proposed Actions

Action (priority: H,M,L)	Area	Milestone/ Measure	Partners	Timescale
<i>Research and monitoring</i>				
Monitor all known colonies (H)	Lancaster and Ribble Valley	No. of plants/ non-flowering plants	LWT, NE, LCC	Ongoing
Identify former and other sites suitable for re-introductions (M)	Lancaster and Ribble Valley	No. of sites identified	LCC, LWT, LRF	2007
<i>Site safeguard and management</i>				
Ensure habitat in SSSIs is in favourable condition for this species (H)	Lancaster and Ribble Valley	% of SSSI habitat in favourable condition	NE, owners	2010
Seek to secure appropriate management for BHS with this species (H)	Ribble Valley	% of BHS habitat in favourable condition	LCC, LRF, Forest Enterprise, DEFRA, other owners	2007
<i>Species management and protection</i>				
Introduce by seed over 2 years to selected sites (M)	Lancaster and Ribble Valley	No. of sites introduced/ established	LWT, LCC	2010
<i>Advisory</i>				
Inform all site owners and managers of the species presence and habitat needs	Lancaster and Ribble Valley	No. of land owners informed	LCC, LWT, NE, LRF	2008
<i>Publicity</i>				
Promote Bird's-eye Primrose as flagship species for conservation of flushed grassland and mires (H)	Lancashire	No. of articles/ media appearances	LCC, LWT, NE	Ongoing

Related Action Plans

Habitat Action Plans

- Moorland/Fell
- Calcareous grassland

Species Action Plans

Primula farinosa belongs to a group of species found in upland flushes and calcareous grasslands. The species composition varies according to acidity/alkalinity and nutrient status but all the flush habitats are included within the wide-ranging Broad Babbitat 11, fen, marsh and swamp. In the National Vegetation Classification

they are considered as mires (Hill, Preston and Roy, 2004). The more acidic and nutrient poor flushes belong to M6 *Carex echinata* – *Sphagnum fallax/denticulatum* mire, which is very common throughout Britain, whilst the more base rich flushes may belong to M10 *Carex dioica* – *Pinguicula vulgaris* mire. This is also frequent throughout upland Britain but the decline in the abundance of *Pinguicula vulgaris* in Lancashire during the last 100 years suggests that this habitat is also declining. Of particular importance to Lancashire is the sub community M10b *Briza media-Primula farinosa*, which covers flushes rich in *Primula farinosa* and is limited to northern England. Linking the two extremes of M6 and M10 is a series of species-rich, small-sedge mires and flushes which are not described in the National Vegetation Classification. The whole range of communities found in these flushes is a major feature of upland Lancashire including several SSSIs. For a more detailed account of the communities involved and their conservation importance see Averis *et al.* (2004).

The following table provides a summary of the status of some of the rarer upland flush species in Lancashire and for which similar individual SAPs could be written (The National Conservation Status is taken from Cheffings and Farrell, 2005).

Upland flushed mires, springs and pastures (Short vegetation characterised by moderately to very base-rich but nutrient poor spring water flushing the habitat keeping it wet. Often found in association with other habitats including nutrient poor acid habitats and beside streams. Species often have a northern or oceanic distribution and are likely to be especially sensitive to climate change, drainage and nutrient enrichment. They are lightly grazed.)		
Species	National Conservation status	Conservations status in Lancashire
<i>Primula farinosa</i> Bird's-eye Primrose	Vulnerable	A big decline with not more than five colonies in Lancashire. A species that in Bowland marks the boundary between national decline to the south and stability to the north but loss from Scotland
<i>Pinguicula vulgaris</i> Common Butterwort		Bowland marks the boundary between stability to the north and decline to the south with a huge decline in Lancashire for a once common species. . It belongs to the Circumpolar Boreal-montane element
<i>Parnassia palustris</i> Grass-of-Parnassus		Grass-of-Parnassus occurs on the Fylde coast sand dunes, in upland flushes in the east of the county and in other calcareous mires. Wentworth and Gornall (1996) showed that both diploid (2n = 18) and tetraploid (2n = 36) forms exist with tetraploids occurring mostly to the north of the approximate limit of the Devensian glaciation and diploids to the south. On the borders, in the central Pennines, both occur. Whilst populations of the tetraploids appear stable nationally there has been a considerable decline of diploids. Although never common individual sites for Grass-of-Parnassus were not generally recorded in Lancashire. However recent surveys show that at least 50% of the known populations have been lost in the last 20 years with perhaps 15 sites remaining. Grass-of-Parnassus belongs to the Circumpolar Boreo-temperate element of the British flora.
<i>Selaginella selaginoides</i> Lesser		As for <i>Pinguicula vulgaris</i> but never common in Lancashire. It belongs to the Circumpolar Boreal-montane element

Clubmoss		
<i>Carex dioica</i> Dioecious Sedge		As for <i>Pinguicula vulgaris</i> but decline in Lancashire not so great. It belongs to the Circumpolar Boreal-montane element
<i>Eleocharis quinqueflora</i> Few-flowered Spike-rush		As for <i>Carex dioica</i> (upland localities only). It belongs to the European Boreo-temperate element.
<i>Euphrasia scottica</i> An eyebright		The former status of this small inconspicuous plant is unknown but it is now very rare. It belongs to the European Boreal-montane element
<i>Myosotis stolonifera</i> Pale Forget-me-not		The former distribution of this small forget-me-not is unknown but whilst it is widespread in upland areas in Lancashire, in the British Isles it is confined to northern England and southern Scotland. Elsewhere in the world it is only found in Portugal and Spain. It is a Lancashire speciality. It belongs to the Oceanic Boreal-montane element.
<i>Eriophorum latifolium</i> Broad-leaved Cottongrass		One of the rarest Lancashire flush species found in perhaps two localities, one of which is highly endangered. However because it is easily overlooked its national status is unclear but in Lancashire there is evidence that it is declining. It belongs to the European Boreo-temperate element.
<i>Trichophorum cespitosum</i> ssp. <i>cespitosum</i> x <i>T. cespitosum</i> ssp. <i>germanicum</i> A deergrass		This inconspicuous, recently described sterile hybrid has been found in a few Lancashire flushes. Its status nationally is unknown but its conservation interest centres on the absence of one parent, <i>T. cespitosum</i> ssp. <i>cespitosum</i> . This belongs to the circumpolar Boreal-montane element and is a very rare British plant. This hybrid may have formed as early as late glacial times and has survived <i>in situ</i> ever since – perhaps for thousands of years.
<i>Wahlenbergia hederacea</i> Ivy-leaved Bellflower	Near threatened	Lancashire is close to its northern and eastern limits in Britain. One of its Lancashire habitats is upland flushes beside streams in Bowland. The communities in which it is found are dominated by <i>Juncus effusus</i> and <i>Sphagnum</i> spp. and lie somewhere between the <i>Juncus effusus</i> sub-community of M6 <i>Carex echinata</i> – <i>Sphagnum fallax/denticulatum</i> mire and the slightly more nutrient rich M23 <i>Juncus effusus/acutiflorus</i> – <i>Galium palustre</i> rush pasture, <i>Juncus effusus</i> sub-community. <i>Wahlenbergia hederacea</i> has suffered a marked decline in Lancashire consistent with the national situation (Preston, Pearman and Dines, 2002) although further losses since 1987 were not reported by Braithwaite, Ellis and Preston (2006)
<i>Scutellaria minor</i> Lesser Skullcap		Only two sites are known for this species in Lancashire and one of these is a flush similar to those favoured by <i>Wahlenbergia hederacea</i> , which formerly grew nearby. It has also declined in Lancashire and nationally (Preston, Pearman and Dines, 2002) but further losses since 1987 were not noted by Braithwaite, Ellis and Preston (2006). It

		belongs to the suboceanic Southern-temperate element
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