

File ref: (L) SD 47/6

County: Lancashire **Site Name:** Hawes Water

District: Lancaster

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: Lancaster City Council

National Grid Reference: SD 478766 **Area:** 90.2 (ha) 222.9 (ac)

Ordnance Survey Sheet 1:50,000: 97 **1:10,000:** SD 47 NE

Date Notified (Under 1949 Act): 1951 **Date of Last Revision:** 1979

Date Notified (Under 1981 Act): 1986 **Date of Last Revision:** 1986

Other Information:

1. The site is listed in "A Nature Conservation Review", edited by D. A. Ratcliffe, Cambridge University Press.
2. The site boundary has been revised on renotification by extensions and a deletion.
3. The site lies within the Arnside-Silverdale AONB.
4. The site is adjacent to Gait Barrows National Nature Reserve.
5. Otters and red squirrels, protected species listed on Schedule 5 of the above Act, have been recorded from the site.

Description and Reasons for Notification:

Hawes Water is situated in the centre of Arnside-Silverdale AONB. adjacent to Gait Barrows National Nature Reserve. Areas of peat overlying marl deposits contribute, along with the adjacent limestone exposures, to the remarkable range of habitats centred upon the lake which occupies a shallow basin of Carboniferous limestone at 15ft OD. This complex of limestone habitats includes a nationally important example of a marl lake; two nationally restricted types of woodland; fen, carr and grassland habitats including three rare plant communities; a number of plants and animal species which are notably scarce both in Lancashire and at a national level and an extensive reedbed which is of high ornithological importance.

Hawes Water is one of only two water bodies of natural origin remaining in Lancashire, the other being Marton Mere SSSI near Blackpool. It is the only marl lake in Lancashire and one of only a small number in the north of England, others including Sunbiggin Tarn SSSI in Cumbria and Malham Tarn SSSI in North Yorkshire. The water is highly calcareous but low in other plant nutrients which are precipitated and lock up in the calcareous basal sediment (marl) which contains numerous shell fragments. This results in low phytoplankton production but provides good growth conditions for mainly rooted aquatic higher plants such as the shining and broad-leaved pondweeds *Potamogeton lucens* and *P. natans*, bladderwort *Utricularia* sp. and yellow and white water-lilies *Nuphar lutea* and *Nymphaea alba* which are found in beds of the stonewort *Chara aculeolata*. The bottom-living fauna is rich and seven species of snails are present including species such as *Bithynia tentaculata* which is restricted to hard water. Eight species of mayflies have been recorded including *Caenis robusta* which had previously only been found as far north as the West Midlands.

The lake is fringed by a belt of emergent mixed fen dominated in places by common reed *Phragmites australis* or great fen-sedge *Cladium mariscus*, accompanied by common club-rush *Schoenoplectus lacustris*, bulrush *Typha* sp., mare's-tail *Hippuris vulgaris*, bur-reed *Sparganium* sp., two very localised sedges *Carex pseudocyperus* and *C. vesicaria* and the blunt-flowered rush *Juncus subnodulosus*. This is the only location in Lancashire for the fen-sedge and the community dominated by it is rare at a national level. The blunt-flowered rush is a rare plant in Lancashire known to occur elsewhere only at Crag Bank SSSI, Robert Hall Moor SSSI and a few other scattered locations.

To the west of the lake the fringe grades into alder and willow carr containing shrubs such as guelder-rose *Viburnum opulus* and alder buckthorn *Frangula alnus* and underlaid by shorter fen vegetation including marsh-marigold *Caltha palustris*, water mint *Mentha aquatica*, yellow iris *Iris pseudacorus*, meadowsweet *Filipendula ulmaria*, hemp-agrimony *Eupatorium cannabinum* and bittersweet *Solanum dulcamara*. This mixed scrub community on fen peat is rare at a national level. This is backed by a band of marshy grassland on peaty soil dominated by purple moor-grass *Molinia caerulea* and accompanied in places by abundant carnation sedge *Carex panicea* and numerous other species including wild angelica *Angelica sylvestris*, meadowsweet, devil's-bit scabious *Succisa pratensis*, yellow iris, common marsh-bedstraw *Galium palustre*, marsh thistle *Cirsium palustre*, betony *Stachys officinalis* and common, glaucous and false fox-sedge *Carex nigra*, *C. flacca* and *C. otrubae*. This species-rich *Molinia* community is nationally rare. It is, however, being invaded rapidly by willow and alder scrub from the adjacent carr woodland.

On the northern and north-eastern edges the reed swamp is backed by a low cliff in shell marl which forms a shelf between the water's edge and the former lake margin at the foot of the surrounding cliffs. The peaty soil overlying the marl is dominated by *Molinia*, but where the marl is exposed this gives way to blue moor-grass *Sesleria albicans* which grows in association with a number of species which are very restricted in Lancashire, notably grass-of-Parnassus *Parnassia palustris*, fragrant orchid *Gymnadenia conopsea* and black bog-rush *Schoenus nigricans* for which this is the only location in the County. This area also supports bird's-eye primrose *Primula farinosa* and dark-red helleborine *Epipactis atrorubens*, two other uncommon plant species.

To the south of the lake lies Hawes Water Moss: a mossland once reclaimed for agriculture but now reverted to *Phragmites* reedbed with extensive invasion of willow scrub in recent years. It represents one of only two extensive reedbeds in Lancashire, the other being the nearby Leighton Moss SSSI. Reed, sedge and grasshopper warblers breed here and the reedbeds are also used by bittern, a nationally rare species. Along the western edge of the Moss, separated from it by Moss Dike, is a strip of sump alderwood, a nationally rare stand type, developed on a waterlogged peaty soil with an undergrowth of shaded marsh vegetation including yellow iris, meadowsweet, marsh-marigold and bittersweet.

To the north of the Hawes Water basin an extensive area of woodland has developed on carboniferous limestone which outcrops in a series of ridges and in places in the form of limestone pavement. This forms a natural extension of the woodland of the adjacent Gait Barrows National Nature Reserve and is of the 'northern calcareous hazel-ash' type characteristic of this locality but scarce in the country as a whole. The wood has evidently developed by neglect from a nucleus of hazel-ash coppice and in some areas the sessile oak standards are still extant today at their original spacings. To the west of Ford Lane the woodland displays a particularly well-developed and varied structure, unusual in former coppice woods, containing scattered oak and elm standards with patches of dense ash, holly and blackthorn regeneration and occasional juniper, dog-rose and spindle in the understorey.

Limestone ridges with their shallow soils support typical yew-ash woodland while more open central areas have been colonised by birch. To the east of the lane hazel, ash and sycamore have grown up into the canopy alongside oak standards while, as elsewhere, birch has colonised open ground and areas of exposed limestone support yew-ash woodland.

Limestone exposures, in the form of ridges, scars and pavements are a feature of the site and, in places, support typical grassland communities. To the south-east of the site is a wooded limestone gorge known as the 'Trough' on the western slopes of which carboniferous limestone grassland has developed over an extensive area of thin soils. The sward is typically dominated by the nationally scarce blue moor-grass *Sesleria albicans* and includes such characteristic species as quaking grass *Briza media* meadow oat-grass *Avenula pratensis*, crested hair-grass *Koeleria macrantha*, thyme *Thymus praecox* spp *arcticus*, common rock-rose *Helianthemum nummularium* and the nationally scarce limestone bedstraw *Galium sternerii*, spring sandwort *Minuartia verna* and rare spring-sedge *Carex ericetorum*. A number of scarce orchids have been recorded here in the past, including green-winged orchid *Orchis morio*, frog orchid *Coeloglossum viride* and fly orchid *Ophrys insectifera*. The remainder of the allotment below, with its deeper soils and shallower slopes, supports another type of grassland characteristic of limestone bedrock. The main community is characterised by grasses such as red fescue *Festuca rubra*, meadow oat-grass, downy oat-grass *Avenula pubescens*, yellow oat-grass *Trisetum flavescens* and cock's-foot *Dactylis glomerata* and herbs such as salad burnet *Sanguisorba minor*, ribwort plantain *Plantago lanceolata*, lady's bedstraw *Galium verum*, dropwort *Filipendula vulgaris*, knapweed, cowslip, rock-rose and oxeye daisy. Together these grassland communities combine to produce the largest extent of unimproved calcareous grassland known in Lancashire.

Twenty species of butterfly have been recorded from the site including the notably rare high brown fritillary, northern brown argus and pearl-boarded fritillary and the wide range of habitats support an outstanding breeding bird community. Others are occasionally seen on the lake and red squirrels are resident in the woods.