

County: Cumbria

Site Name: Brothers Water

District: Eden

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

Local Planning Authority: Lake District Special Planning Board

National Grid Reference: NY 403127 **Area:** 34.1 (ha) 84.3 (ac)

Ordnance Survey Sheet 1:50,000: 90 **1:10,000:** NY 41 SW

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

Other Information:

1. This is a new site.
2. The site lies adjacent to Low Wood SSSI.
3. This site lies within the Lake District National Park.

Description and Reasons for Notification:

Brothers Water lies at the foot of the Kirkstone Pass 3 km south of Patterdale and 20 km south-west of Penrith in the same glacial trough as Ullswater. It is a lake of a type typical of base-poor upland areas being an example of a low-level (173 m O.D.) unproductive, nutrient-poor (oligotrophic), clear, open water on doleritic rocks of the Borrowdale Volcanic Series. It is relatively free from disturbance and unmodified. In comparison with other lakes of a similar type, such as Ullswater, Buttermere, Ennerdale and Wast Water it is very small being the shallowest example (15 m maximum depth), it is especially important for its range of bottom-rooted plant communities and the animals dependent upon them. Its characteristic freshwater flora includes examples of nationally rare and local species.

As an example of relatively intact and natural lake hydrosere Brothers Water is second only to Ennerdale amongst the nutrient-poor lakes. On the south side there is a fine natural gradation from open water through gravel and stone on the lake edge to single species swamp, birch/willow carr and beyond into acidic marshy grassland and/or neutral grassland with scattered trees. Along the northern shore this zonation is absent. There is a narrow herb-rich marshy fringe adjoining a series of neutral semi-improved grasslands cut for hay.

The entire lake bottom is covered by a thick layer of organic matter, except that part adjoining Low Wood, where the substrate is stony. This organic layer supports a flora characteristic of shallow unproductive lakes and includes water lobelia *Lobelia dortmanna* and quillwort *Isoetes lacustris* which are frequent in Cumbria but uncommon elsewhere in England, and the nationally uncommon awlwort *Subularia aquatica* together with shoreweed *Littorella uniflora*, small pondweed *Potamogeton bertholdii* and intermediate bladderwort *Utricularia intermedia*. Yellow and white water-lily *Nuphar lutea* and *Nymphaea alba* also occur in sheltered areas on the east side. Near the lake outflow and along the southern lake shore bottle sedge *Carex rostrata* and common reed *Phragmites australis* form bands of marginal swamp behind which the vegetation comprises abundant sharp-flowered rush *Juncus acutiflorus*, marsh violet *Viola palustris*, purple moor-grass *Molinia caerulea* and various sedges.

Acidic grassland and patches of birch/willow carr extend southwards from the southern lakeshore. Sharp-flowered rush occurs with devil's-bit scabious *Succisa pratensis*, marsh

pennywort *Hydrocotyle vulgaris*, common yellow-sedge *Carex demissa*, star sedge *C. echinata*, marsh hawk's-beard *Crepis paludosa* and sneezewort *Achillea ptarmica*. In addition the grassland supports greater burnet *Sanguisorba officinalis*, betony *Stachys officinalis* and locally frequent heath spotted-orchid *Dactylorhiza maculata* ssp. *ericetorum*. Particularly wet hollows support bog-mosses *Sphagnum palustre* and *S. recurvum*, round-leaved sundew *Drosera rotundifolia*, common cottongrass *Eriophorum angustifolium* and bog asphodel *Narthecium ossifragum*.

The narrow unimproved marshy fringe at the northern lake edge resembles that to the south with the important addition of globeflower *Trollius europaeus* which is also present in the adjoining hay meadow. The meadow itself is of a type of restricted distribution both nationally and within West Cumbria. This 'northern hay meadow' type comprises a broad range of grasses, predominantly sweet vernal-grass *Anthoxanthum odoratum* and common bent *Agrostis capillaris* with frequent great burnet, lady's mantle *Alchemilla glabra* and wood crane's-bill *Geranium sylvaticum*.

In addition to its botanical interest Brothers Water is part of an area of regional importance for the diversity and quality of the breeding bird community which includes a variety of upland, woodland and wetland species. Breeding species include teal, red-breasted merganser, snipe, dipper, common sandpiper and coot.

Aquatic invertebrates of note include a leech *Erpobedella testacea*, rarely recorded in the Lake District and the beetle *Ilyocryptus acutifrons*, seen frequently at this site but rare in Great Britain as a whole.