

County: Cumbria

Site Name: Armboth Fells

District: Allerdale

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 288170 **Area:** 2,347.7 (ha) 5,801.1 (ac)

Ordnance Survey Sheet 1:50,000: 90 **1:10,000:** NY 21 NE, SE
NY 31 SW, NW
NY 22 SE

Date Notified (Under 1949 Act): 1975 **Date of Last Revision:** –

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, 1977, and published by Cambridge University Press.
2. The site lies within the Lake District National Park.
3. The site has been modified by extensions and deletions during this revision.
4. The site includes Falcon Crag “Geological Conservation Review” site.
5. The site lies adjacent to Great Wood and Lodore-Troutdale Woods SSSIs.
6. Land previously within Armboth Fells SSSI is now to be notified separately as part of Stonethwaite Woods and Thirlmere Woods SSSIs.

Description and Reasons for Notification:

The Armboth Fells are a broad ridge lying between Thirlmere and Borrowdale, and composed of andesitic rocks of the Borrowdale Volcanic Group. Centred around High Seat and High Tove at an altitude of some 450–600 m, but rising to over 700 m on Coldbarrow Fell to the south, the ridge has a small scale topography of rounded hillocks and depressions which is responsible for many of the vegetation features of the site; particularly the juxtaposition of heathland and mire communities. Calcitic intrusions in the bedrock are also an important influence on diversity. These extensive upland fells support the second largest area of blanket bog in the Lake District, large expanses of heather moorland, and a range of soligenous mires which is unique in Cumbria and of national importance. Additional interest is provided by small high level woodlands, the ungrazed vegetation of the steep-sided gill streams and crags, which also have outstanding geological exposures, and two upland tarns.

The higher ground of the ridge from Blea Tarn north to Castlerigg Fell has vegetation in which heather *Calluna vulgaris* is a major component. Blanket bog dominated by heather and hare’s-tail cottongrass *Eriophorum vaginatum* has developed on deep peat over much of this area. Heather moorland occupies the drier, often rocky ground as the depth of peat decreases. Both dry heath, in which heather is associated with bilberry *Vaccinium myrtillus* and crowberry *Empetrum nigrum*, and wet heath with bog mosses *Sphagnum* spp. and cross-leaved heath *Erica tetralix* are represented, although the distinction between the two is often blurred because of burning management.

Frequent within the blanket bog are *Sphagnum* filled hollows, and tracts of soligenous mire depending on ground water movement. The former have carpets of *S. papillosum*, *S. palustre*, *S. magellanicum* and hair-moss *Polytrichum commune* with a low cover of cross-leaved heath, heather, cottongrasses, cranberry *Vaccinium oxycoccus* and occasional bog rosemary *Andromeda polifolia*. Base-poor soligenous tracts have examples of deergrass-carnation sedge mire. There are a number of bottle sedge-bog moss mires with both *S. recurvum* and *S. auriculatum* as well as transitional stands with mixtures of bottle sedge *Carex rostrata* and sharp-flowered rush *Juncus acutiflorus*. Bottle sedge is also present with bogbean *Menyanthes trifoliata* in bog pools, which are particularly extensive at the head of Launchy Gill. Here bog rosemary is abundant on wet ground between peat hags in association with more base-rich mires and flushes, where yellow saxifrage *Saxifraga aizoides* and the local broad-leaved cottongrass *Eriophorum latifolium* may be found. The latter is also in similar flushes on the north side of Castlerigg Fell towards Low Moss.

Numerous small sedge mires occur. Many are dominated by star sedge *C. echinata* and bog mosses, but there are good examples of herb-rich sedge – brown moss mire with selfheal *Prunella vulgaris*, marsh violet *Viola palustris* and devil's-bit scabious *Succisa pratensis*. Among a wide variety of sedges found here, those of more restricted distribution nationally include slender sedge *C. lasiocarpa*, few-flowered sedge *C. pauciflora*, bog-sedge *C. limosa*, and the rare tall bog-sedge *C. magellanica*. Small examples of common yellow-sedge *C. demissa* flushes have round-leaved sundew *Drosera rotundifolia*, common butterwort *Pinguicula vulgaris*, bog asphodel *Narthecium ossifragum*, and marsh arrowgrass *Triglochin palustris*. Yellow saxifrage is occasional in this community, although often abundant when present.

Grange Fell has a different character to the remainder of the site. Here purple moor-grass *Molinia caerulea* is an important component of the vegetation and forms a large stand of a distinctive mire type of bog myrtle *Myrica gale* between Great Crag and Puddingstone Bank. Base of slope flushing in several places support a species-rich variant of this mire type with abundant common and heath spotted-orchid *Dactylorhiza fuchsii* and *D. maculata* ssp. *ericetorum*. There are also areas of wet heath where heather and purple moor-grass are co-dominant, and marginal stands dominated by purple moor-grass alone.

On the rocky north facing slope of Black Waugh lies a small relict high-level birch-hazel woodland with a diverse bryophyte flora including *Dicranum fuscescens*, *Douinia ovata*, and *Bazzania tricrenata*. The lichen assemblage, although not species-rich, has an interesting upland, high rainfall character with species including *Sphaerophorus globosus*, *S. fragilis*, *Mycoblastus sanguinaris* and *Ochrolechia tartarea*.

Emblesteads Wood, south of Reecastle Crag, is a small ungrazed example of upland birch-sessile oak woodland in which Emblesteads gill passes through a small gorge. This and other gills on both sides of the Armboth ridge support ash-wych elm woodland at low levels, but are notable for the richness of their flora which has developed in the absence of grazing. Yellow saxifrage is again abundant with alpine lady's mantle *Alchemilla alpina*, viviparous fescue *Festuca vivipara*, bitter vetch *Lathyrus montanus* and stone bramble *Rubus saxatilis*. Found locally in several gills are starry saxifrage *Saxifraga stellaris*, wood fescue *Festuca altissima*, mountain melick *Melica nutans*, columbine *Aquilegia vulgaris* and early-purple orchid *Orchis mascula*. Ashness Gill has the very local serrated wintergreen *Orthilia secunda* as well as lesser twayblade *Listera cordata*. Ledges are often luxuriant with a tall herb community of wood crane's-bill *Geranium sylvaticum*, wild angelica *Angelica sylvestris*, water avens *Geum rivale*, lady's mantle *Alchemilla glabra* and meadowsweet *Filipendula ulmaria*. Crevices and wet rock faces support a number of uncommon ferns including green spleenwort *Asplenium*

viride, brittle bladder-fern *Cystopteris fragilis*, and Wilson's filmy-fern *Hymenophyllum wilsonii*. Similar communities occur on some ungrazed crags, while carline thistle *Carlina vulgaris* is an indicator of more base-rich conditions on Iron and Goat Crags. Scattered trees on crags include aspen *Populus tremula* and the very local rock whitebeam *Sorbus rupicola*.

Dock Tarn and Blea Tarn lie to the south of Watendlath Fell and both are examples of base-poor (meso-oligotrophic) upland tarns. Species recorded from these tarns include shoreweed *Littorella uniflora*, common club-rush *Scirpus angustifolium*, bottle sedge and common reed *Phragmites australis*. Water lobelia *Lobelia dortmanna* which has its English stronghold in Cumbria is abundant in both tarns where it occurs in conjunction with the nationally scarce awlwort *Subularia aquatica*. Blea Tarn is also one of only two known English locations for hybrid yellow water-lily *Nuphar lutea* × *pumila*.

South of Blea Tarn and, in small stands, on Castlerigg Fell heavy grazing pressure has produced grasslands typical of many Lakeland fells in which mat-grass *Nardus stricta* and heath rush *Juncus squarrosus* are predominant. The steep slopes rising from the main valley floors have species-poor fescue-bent grassland with bracken and scattered trees.

Upland birds are well represented and peregrine falcons, buzzard, raven, ring ouzel, wheatear, stonechat, whinchat, and red grouse all breed within the site. Merlin are occasionally seen but breeding is unconfirmed. The heather moorland has a good invertebrate fauna which includes northern egg moth *Losiocarpa quercus-callunae* and emperor moth *Saturnia pavonia*. A herd of red deer and a few roe deer graze the fells east of High Tove and Shivery Knot.

In addition to the biological interest, rock outcrops in the faces of Falcon Crag and on the slopes of Brown Knotts provide excellent exposures of andesite lavas and associated volcanic deposits of the Borrowdale Volcanic Group, of mid-Ordovician age. The sequence here includes breccias (deposits containing angular rock fragments), formed in the early stages of the Borrowdale Volcanic Group. These exposures have enabled volcanologists to show that these rocks formed on the flanks of a large plateau-type volcano, with a gently sloping surface.