

County: Cumbria

Site Name: Appleby Fells

District: Eden

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

Local Planning Authority: Eden District Council

National Grid Reference: NY 760250 **Area:** 10,634.7 (ha) 26,278.3 (ac)

Ordnance Survey Sheet 1:50,000: 91 **1:10,000:** NY 62 NE
NY 71 NW, NE
NY 72 SW, SE,
NW, NE
NY 73 SW, SE
NY 81 NW
NY 82 SW, NW
NY 83 SW

Date Notified (Under 1949 Act): 1951 **Date of Last Revision:** 1975

Date Notified (Under 1981 Act): 1988 **Date of Last Revision:** 1988

Other Information:

1. The site is listed in 'A Nature Conservation Review', edited by D. A. Ratcliffe, 1977, published by Cambridge University Press.
2. The site is contiguous with Helbeck Wood SSSI, Swindale Wood SSSI, Moor House and Cross Fell proposed SSSI, Upper Teesdale SSSI and NNR and Moor House NNR.
3. The site was formerly known as, and part of, Upper Teesdale and Appleby Fells SSSI. The site is now divided into Upper Teesdale (Durham) and Appleby Fells (Cumbria) with areas around Burnhope Seat and Yad Moss to be included within the Moor House and Cross Fell proposed SSSI. The site also includes a small area previously within the Helbeck Wood SSSI.
4. The site has been modified by extensions and deletions at this revision.

The Appleby Fells form an extensive block of Pennine upland lying above the town of Appleby-in-Westmorland. The fells rise sharply from the Eden Valley up a scarp slope of deeply dissected valleys and outlying hills on a large tract of blanket bog, much of it between 500 and 750 m in altitude. The site stretches from Dufton Fell in the north to the Warcop and Helbeck Fells in the south and runs to the Durham border in the east. The underlying geology is largely of Carboniferous sandstones and limestones which variously affect the biological interest. The great importance of the area lies in its rich variety of habitats and associated plant and animal species. The most important vegetation communities are those of limestone grassland, limestone flush, blanket bog, heath and montane ledge, but other habitats of subsidiary interest are areas of acidic grassland, acidic flush, open water, limestone pavement and woodland. Amongst the animal life breeding bird populations especially those of the raptors and upland waders are particularly important. There is also significant geological interest with several exposures of the Great Whin Sill.

Above the 540 m contour, blanket mire has developed over most of the ground and represents the most extensive habitat within the Appleby Fells. Much of it is typical hare's tail cotton

grass *Eriophorum vaginatum* and heather mire in relatively good condition and showing less of the peat erosion that is more in evidence further south in the Pennines. There are few extensive areas of active bog moss *Sphagnum* growth, however there are some significant developments of *Sphagnum papillosum* and *S. magellanicum* hummocks interspersed with bog pools colonised by *S. cuspidatum* with bog asphodel and round-leaved sundew. In parts the blanket mire is also rich in dwarf-shrubs with much cloudberry *Rubus chamaemorus* and cowberry *Vaccinium vitis-idaea*.

Around certain of the hill tops and on parts of the steep Pennine escarpment calcareous grasslands have developed around outcrops of Carboniferous Limestone. Here may be found some of the finest examples of Pennine mountain top limestone grasslands. In places they resemble those found around Tailbridge Hill to the south, being formed over limestone pavement and thus forming a microtopography of hummocks and hollows. Sheep's fescue *Festuca ovina* is the dominant grass and is interspersed with several more local species such as crested hair-grass *Koeleria macrantha* and blue moor-grass *Sesleria albicans*. Wild thyme *Thymus praecox* is often extremely abundant and associated with rarer species such as mountain pansy *Viola lutea*, mossy saxifrage *Saxifraga hypnoides*, moonwort *Botrychium lunaria*, limestone bedstraw *Galium sternerii* and others often confined to northern montane habitats including alpine scurvy-grass *Cochlearia alpina*, alpine forget-me-not *Myosotis alpestris* and spring gentian *Gentiana verna*. Of the last two species, the former has the Appleby Fells as its only known English location, whilst isolated localities of the spring gentian in the northern Pennines are the only known stations in Britain.

Another form of *Agrostis-Festuca* grassland occurs along steep, partially screed slopes around the limestone scars. Here blue moor-grass predominates in association with spring and glaucous sedges *Carex caryophyllea* and *C. flacca*. Herb species include wild thyme and limestone bedstraw. Other notable and characteristic species include fairy flax *Linum catharticum*, rue-leaved saxifrage *Saxifraga tridactylites*, common rock-rose *Helianthemum nummularium*, musk thistle *Carduus nutans*, carline thistle *Carlina vulgaris* and Teesdale violet *Viola rupestris* for which the Appleby Fells is one of only three known British localities.

On less stable screes where grazing is minimal, a different flora has developed being composed mostly of montane or calcicolous fern species such as limestone polypody *Gymnocarpium robertianum*, parsley fern *Cryptogramma crispa*, green spleenwort *Asplenium viride* and brittle bladder-fern *Cystopteris fragilis*.

Tall herb vegetation is a further important feature of the Appleby Fells. This occurs on the ungrazed crags and ledges as well as on some of the steeper, inaccessible screes. The richest vegetation occurs on limestone rock, or ledges flushed by base-enriched water. Here many notable species are locally dominant, including burnet saxifrage *Pimpinella saxifraga*, mountain St-John's wort *Hypericum montanum*, vernal sandwort *Minuartia verna*, alpine pennycress *Thlaspi alpestre*, hoary whitlow grass *Draba incana*, lesser meadow rue *Thalictrum minus* and the very scarce Pyrenean scurvy-grass *Cochlearia pyrenaica*. A similar vegetation is also found on the shallow limestone pavement on Musgrave Scar and Middle Fell where woodland species such as dog's mercury, herb Robert, wall lettuce and hart's tongue-fern are found in the deeper, shady 'grikes'. On the more acidic sandstone, gritstone or whin sill ledges an acid flora has developed, dominated by wood sage, broad buckler-fern, heather and crowberry. In some instances this is over-topped by a dwarf canopy of rowan, elm, hawthorn and, on the more basic crags, the uncommon rock whitebeam *Sorbus rupicola*. In addition there is an excellent range of upland crustose lichens especially on the acidic siliceous rocks: *Cladonia* spp., *Cornicularia aculeata*, *Cetraria islandica* and *Ptarmica incurva*, the latter being confined to such montane habitats.

Throughout the altitudinal range of the Appleby Fells, and particularly at the periphery of the peat bog, there are numerous base-rich flushes. These are distinctly sedge rich with common sedge, flea sedge, long-stalked yellow-sedge *Carex lepidocarpa* and the local dioecious sedge *C. dioica*. Some of the rarer plants found within such flushes are at their highest English locations, such as chickweed willowherb *Epilobium alsinifolium* and bird's-eye primrose *Primula farinosa*. Others are of a more montane distribution, such as alpine willow herb *E. anagallidifolium*, the very rare marsh saxifrage *Saxifraga hirculus*, yellow mountain saxifrage *S. aizoides*, and the uncommon pale forget-me-not *Myosotis stolonifera*.

On the steeper acidic slopes of the eastern escarpment and especially on gritstone boulder screes is a well developed and extensive bilberry-crowberry *Vaccinium-Empetrum* dwarf shrub heath which, because of its extent, represents an important example of its type in northern England. This community also supports varying amounts of heather and species such as sheep's fescue, wavy hair-grass *Deschampsia flexuosa* and the mosses *Pleurozium schreberi*, *Dicranum scoparium* and *Hypnum cupressiforme*. Acidic grasslands occur more widely along the length of the scarp slope, presumably having derived from heathland through grazing pressures. They are typically dominated by mat grass in association with tufted hair-grass, bent grasses, sheep's fescue and sweet vernal-grass. Higher plants include heath bedstraw, tormentil and bilberry. The heath rush *Juncus squarrosus* co-dominates in parts, especially on drying margins to the blanket bog.

Woodland is found as small fragments throughout the site, mostly on the lower fells and along some stream sections. A mixed sessile oak-birch woodland with a rich lichen flora occurs on Warcop Fell. The ground flora is dominated by grasses and bluebells with occasional wet fen areas characterised by marsh violet *Viola palustris*, lady's smock *Cardamine pratensis* and rushes *Juncus conglomeratus*, *J. effusus*. Uncommon lichens include *Pertusaria leioplaca* and *P. hemisphaerica*, the presence of the latter being interesting as it is a species with a markedly southern distribution. Mixed ash-wych elm woodland with sessile oak, rowan, hazel, alder and some sycamore grows in the gorge of the Swindale Beck. The ground layers are extremely rich in plant species with over eighty having been recorded to date. These include ramsons, sanicle, wood melick and woodruff. Alderwood is developed below Brownber Hill and along several of the becks and has a ground flora often dominated by the soft and sharp-flowered rushes.

Open water occurs in the Appleby Fells in the form of several upland streams (or becks) and as peat pools and some larger tarns on peat (e.g. Little Rundale) or gritstone (e.g. Great Rundale). The range of upland streams cutting through basic and acidic strata is important, and although little studied they are likely to support valued and characteristic algal and invertebrate communities. This is also true of the pools and tarns, which are too acidic to support any significant higher plant vegetation.

The Appleby Fells support an outstanding assemblage of breeding bird species. Upland waders are particularly important, with good populations of species such as golden plover, dunlin, snipe, oystercatcher, common sandpiper and redshank. Birds of prey are also regularly seen, most notably merlin, peregrine, raven and barn owl. Other faunal interest is provided by mine shafts which are now hibernation sites for Brant's and whiskered bats.

Geologically there are important exposures of the Great Whin Sill quartz dolerite and most notably at Cauldron Snout between Cumbria and Durham. Here the 35 m high section is through the lower part of the sill where the quartz dolerite is exposed in well-jointed outcrops. Occasionally, the rock contains small pink segregations of felsic material and overall is particularly valuable because of the complete exposure through the lower half of the Whin Sill.