

**County:** Cumbria

**Site Name:** Duddon Valley Woodlands

**District:** Copeland and South Lakeland

**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:** SD 200940      **Area:** 359.8 (ha) 888.7 (ac)

**Ordnance Survey Sheet 1:50,000:** 96      **1:10,000:** SD 18 NE, SD 19 SE, SD 28 NW, SD 29 NW

**Date Notified (Under 1981 Act):** 1994      **Date of Last Revision:** –

**Other Information:**

1. The site lies within the Lake District National Park.
2. The site lies within the Lake District Environmentally Sensitive Area.

**Description and Reasons for Notification:**

The Duddon Valley lies in the south-west of the Lake District National Park and runs north from Duddon Bridge to Wrynose Bottom. It is a narrow valley, seldom more than a mile across. In the main part of the valley the woodland is concentrated along the steep western slopes between the fells and fertile farmland of the valley bottom, reaching a height of approximately 250 m A.O.D.

The valley lies predominantly on the Borrowdale Volcanic series of rocks, but Tail Bank Wood (Duddon Bridge) is close to the boundary between this and the Silurian Slates. The soils are mainly free draining and acid with some poorly drained patches. More base-rich soils occur on the lower slopes, particularly in the south of the valley.

The Duddon Valley Woodlands are one of the largest series of woodlands in the Lake District, the others being Borrowdale and Ullswater. Most of the woodlands are on moderate to steep slopes facing east to south-east. There is a contrast provided in Tail Bank Wood and Newfield Woods where the slopes are more gentle and facing south and west.

As a natural consequence of the features described above, the site exhibits a wide range of both different woodland communities and number of species present. The woodland is in a mosaic with other habitats such as flushes and mires, running water and acidic grassland. The juxtaposition of woodland, open habitat and water is essential for those birds and invertebrates which require the presence of a number of habitat features on one site to complete their life cycles. There are natural transitions of woodland to heather fell at Wallowbarrow, juniper *Juniperus communis* scrub at Lily Wood and also to cliffs, flushes and mires, the latter particularly shown at Crook Wood.

The different woodland communities are associated with the different soil conditions. The most widespread community, occurring on the lower slopes of the valley, is upland oak-birch woodland. This site is one of the largest areas of this type in the Lake District. Sessile oak *Quercus petraea* and birch *Betula* spp. are the most frequent trees in the canopy, often with varying amounts of sycamore *Acer pseudoplatanus*. The understorey consists of frequent hazel *Corylus avellana* with occasional holly *Ilex aquifolium* and rowan *Sorbus aucuparia*,

although in some woodlands this layer is somewhat sparse. In ungrazed woods such as Tail Bank, holly can be abundant. Ferns are abundant in the field layer, in particular broad buckler-fern *Dryopteris dilata*, narrow buckler-fern *D. carthusiana*, scaly male-fern *D. pseudomas* and lady-fern *Athyrium filix-femina*. Hard fen *Blechnum spicant* is frequent particularly in the northern end of the valley. Other prominent species in the ground flora include bluebell *Hyacinthoides non-scripta*, common violet *Viola riviniana*, wood sorrel *Oxalis acetosella* and the grasses common bent *Agrostis capillaris*, sweet vernal-grass *Anthoxanthum odoratum* and creeping soft-grass *Holcus mollis*. Bryophytes such as *Rhytidiadelphus squarrosus*, *Mnium hornum* and *Thuidium tamariscinum* are always present. Fine examples of small-leaved lime *Tilia cordata* are also found in this woodland community, particularly on damper ground. Small-leaved lime is towards the northern limit of its range in Cumbria. Bracken *Pteridium aquilinum* can be abundant in the clearings during the summer.

On the steeper, rockier ground, and often at higher altitudes, the upland bryophyte-rich oak-birch woodland predominates. Sessile oak dominates the canopy, but birch occurs occasionally throughout and there are scattered rowan trees. The only shrub species that is frequent is hazel with occasional holly. The ground flora can be grassy with frequent wavy hair-grass *Deschampsia flexuosa*, sweet vernal-grass and common bent, with purple moor-grass *Molinia caerulea* in wetter stands. The typical herbs present are tormentil *Potentilla erecta*, heath bedstraw *Galium saxatile* and bilberry *Vaccinium myrtillus* with heather *Calluna vulgaris* on the rocky outcrops. However, the main distinguishing feature of the ground flora is the bryophytes, especially on the boulders, cliff ledges and tree boles. The most frequent are *Rhytidiadelphus loreus*, *Polytrichum formosum*, *Dicranum majus*, *Hypnum cupressiforme*, *Plagiothecium undulatum*, *Isothecium myosuroides* and *Leucobryum glaucum*. Of particular note is the presence of two nationally scarce species, the moss *Grimmia retracta* and the liverwort *Jamesoniella autumnalis*. In addition there are several "Atlantic" species present. Atlantic bryophytes are those restricted to the far western, oceanic regions of Britain and western Europe. Broad buckler-fern and scaly male-fern can be locally frequent in this vegetation type and climbing corydalis *Corydalis claviculata* is locally abundant in Cragend Wood.

Within the above communities are localised areas of base-rich flushing along stream sides and at the base of slopes. Here, upland dog's mercury woodland occurs. Ash *Fraxinus excelsior* is the most frequent tree species but sycamore, oak, birch and lime are also present. There is an occasional understorey of hazel. The ground flora is a mosaic of moss-covered rocks and boulders on bare ground and grass-dominated patches. Wood melick *Melica uniflora* or dog's mercury *Mercurialis perennis* are abundant, occurring with false brome *Brachypodium sylvaticum*, wood sorrel, lords-and-ladies *Arum maculatum*, ramsons *Allium ursinum* and common violet. Herb Robert *Geranium robertianum*, opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium* and beech fern *Phegopteris connectilis* are occasional. The most frequent bryophytes are *Eurynchium striatum* and *Thuidium tamariscinum*. Broad-leaved helleborine *Epipactis helleborine*, a locally uncommon plant in Cumbria has been found in this community in Furnace Wood. The Duddon Valley Woodlands, particularly the southernmost ones, have some of the largest stands of this community on similar geology in the Lake District.

Another woodland community associated with wet stream sides and poorly-drained ground is alder woodland. Alder *Alnus glutinosa* is the commonest tree but other species such as birch, oak and wych elm *Ulmus glabra* are present. The ground flora includes remote and smooth-stalked sedge *Carex remota* and *C. laevigata*, yellow pimpernel *Lysimachia nemorum*, bugle *Ajuga reptans*, water mint *Mentha aquatica*, marsh bedstraw *Galium palustre*, creeping buttercup *Ranunculus repens*, meadowsweet *Filipendula ulmaria* and crested hair-grass

*Deschampsia cespitosa*. Narrow buckler-fern is frequent in some stands, and bird cherry *Prunus padus* is abundant in one stand in Furnace Wood.

In some woods there are small peat-filled hollows in which *Sphagnum*-rich birch woodland is found. Birch is the most frequent tree, with occasional alder, although the tree cover can be sparse. The ground flora is dominated by purple moor-grass *Molinia caerulea* with *Sphagnum* species *S. recurvum* and *S. palustre*, smooth-stalked sedge and bog asphodel *Narthecium ossifragum*. The locally uncommon Royal fern *Osmunda regalis* also occurs in this vegetation type. This community is nationally scarce and only occurs as ancient woodland within a few woods in the Lake District. The stand in Middle Park Wood is probably one of the largest areas in western Cumbria.

The Duddon Valley Woodlands support a good range of bird species characteristic of this habitat, including woodcock, cuckoo, buzzard, tawny owl, and green, great spotted and lesser spotted woodpeckers, pied flycatcher, nuthatch and siskin.

The woods are one of the most important sites for dormice in Cumbria. The dormouse is rare, and therefore is a protected species, and this valley is near its northern limit in Britain. Red squirrel, also a protected species is known to breed within the site.

Some of the woods have important populations of invertebrates. The locally rare weevils *Acalles ptinoides*, *Caenopsis fissirobris* and *Trachodes hispidus* are found in Rainsbarrow Wood associated with dead wood and leaf litter. The blue damselfly *Calopteryx virgo*, a rare species in northern Britain, is present in Forge Wood. Wood ant colonies *Formica lugubris* occur frequently throughout the site.

The present structure of the ancient woodlands is mostly a result of past management. A majority were managed as oak coppice and provided wood for the local bobbin mills and charcoal for a forge and blast furnace at Duddon Bridge in the sixteenth and seventeenth centuries. Small scale mineral (copper and slate) working was carried on in the valley in the eighteenth and nineteenth centuries, for example, in Low Hirst Wood.

Much of the coppice is now neglected and has grown into high forest. As with many other Cumbrian woodlands, the Duddon Valley has not escaped the introduction of non-native species such as pine *Pinus sylvestris*, spruce *Picea* spp., beech *Fagus sylvatica* and sycamore. Sycamore is scattered throughout the woodlands but is most frequent in the southern ones, whilst the other trees normally occur as small blocks within the site. Rhododendron, found in a small area in Furnace Wood, is the only known exotic shrub to have been introduced. The presence of these species in their present amounts does not detract from the nature conservation importance of the woodlands.

Much of the site is grazed by both sheep and deer and as a result there is little natural regeneration. However, Tail Bank Wood, Newfield Wood, Forge Wood and parts of Furnace Wood are stockproof and the canopy trees and shrubs are regenerating.