



Natural History of Ecclesall Woods



Trees, Plants and Ferns

89 trees and shrubs have been recorded, at least 209 herbs, and 49 grasses, sedges and rushes.

The Tree Canopy

The canopy comprises a varied mix of mature **Oak**, both Sessile (*Quercus petraea*) and Pedunculate (*Q. robur*), **Sweet Chestnut** (*Castanea sativa*), **European Larch** (*Larix decidua*) and **Scots Pine** (*Pinus sylvestris*), over a varied open, shrub layer characterised by mature **Holly** (*Ilex aquifolium*).

Major storm damage in 1962 opened up the canopy, allowing for natural regeneration of **Silver Birch** and **Oak** in particular, together with **Rowan** (*Sorbus aucuparia*), **Sycamore** (*Acer pseudoplatanus*), **Goat Willow** (*Salix caprea*) and **Sweet Chestnut** amongst others.

A number of distinctive woodland types can be identified within the wood-

Mixed aged Sessile Oak - Birch, Sweet Chestnut woodland

Much of Ecclesall Woods is dominated by mature examples of the above stand types. characterised by a mixed canopy of mature Oak, Sweet Chestnut, Scots Pine and European Larch, with a frequently well-developed sub-canopy of pole-stage, 20-30 year old Birch which has developed following the 1962 storm. Without intervention, these stands will become increasingly uniform in terms of structure, with detrimental knock-on effects for wildlife, whilst the

timber potential of the developing pole stage trees will be lost. The gradual re introduction of sensitive silvicultural management provides an opportunity to promote a structurally diverse, predominantly semi-natural woodland, with substantial benefits for both wildlife and the timber-potential of these areas.

Much of Wood 1 is characterised by a frequently closed canopy of mature Sweet Chestnut, with occasional Oak, Beech, Larch and Pine. This area was less affected by the 1962 storm although patches of 20-30 year old, pole-stage regeneration are present occasionally, but advance regeneration is rare. Overall, the stand is relatively structurally uniform. Increasingly even aged, this stand is benefitting from gentle thinning to encourage advance regeneration to develop and promote the developing areas of pole-stage Birch-dominated regeneration already present. Wherever possible, native species other than Sweet Chestnut are being forwarded during thinning, to help encourage a more mixed, semi-natural character in the long-term. The continuing decline of Chestnut because of Phytophthora strengthens the need to favour other species.

Acid Sessile Oak-Birch woodland

A large stand of acid Oak-Birch woodland is present along a steep, west-facing scarp in Wood 3. This area appears to have been little affected by plantation forestry, containing very few introduced species and a great variety of shape and form. It may have derived directly from abandoned coppice.



Distinctive Woodland Areas within Ecclesall Woods.

For key see text



Mixed coniferous/broadleaved woodland

In Ran Wood and the north of Wood 1 Scots (and Corsican) Pine, and European Larch form co-dominant parts of the canopy with Oak, Sycamore, and other occasional broadleaved species, giving these stands a unique character within Ecclesall Woods.

Pole-stage regeneration of Birch, etc is occasional, whilst natural regeneration is generally rare, and absent in terms of the coniferous species.

At present, the long-term contribution of Pine and Larch to the character and wildlife interest of these stands is in doubt. Whilst a reduction in the proportion of these and other introduced tree species would be beneficial in

promoting a more semi-natural vegetation and associated fauna, these species contribute greatly to the amenity of the woodland and are part of its history. The promotion of some replacements could therefore be supported.

Mature Beech woodland

Mature Beech forms a strong feature in areas of Woods 1 and 2. Under management has led to an increasingly closed and dark, shady, even-aged canopy, with frequent bare earth, and very limited structural diversity. At the same time, these areas are of particular aesthetic interest.

Left unmanaged, these stands will continue to decline in overall nature conservation interest in the medium-term, as they become increasingly



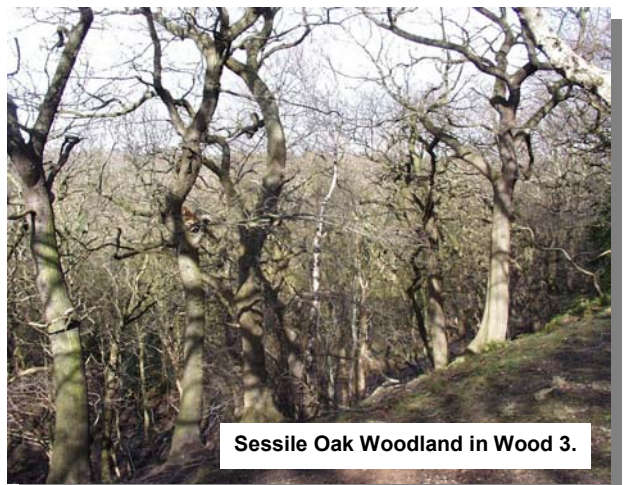
Mixed Birch/Oak/Chestnut in Wood 1



Ongoing Maintenance of Scot Pines in Ran Wood



Bare ground under Beech Canopy in Wood 1.



Sessile Oak Woodland in Wood 3.

mature and uniform and as the remaining ground flora is gradually lost. At the same time, advance regeneration is generally scarce or severely suppressed, presenting little current potential to ensure the long-term future of these stands.

Ash and Sycamore woodland

Areas beside the streams are characterised by remnants of much modified wet woodland, with Sycamore predominant in an intimate mixture with Ash, Hazel, and along watercourses, drainage ditches and amongst flushes, Alder.

These areas support some of the richest plant communities within the

site, including a good variety of ancient woodland species, as well as being of most importance within the woodland for bryophytes, and of generally high value for invertebrates.

However, Sycamore is particularly prevalent within the stands. It would be preferable to encourage a greater proportion of locally native trees and shrubs such as Ash, Alder, Crack Willow, Hazel and Guelder Rose, as appropriate, to increase opportunities for associated wildlife.

Young mixed plantations

A number of poorly-formed mixed broadleaved and coniferous plantations are present with Rycroft Glen and

around the Limb Lane car park. Seemingly unmanaged since establishment, these dense stands are in urgent need of periodic thinning to promote healthy crown-development and an appropriate mix of species. Although these areas are predominantly recent secondary woodland, they do adjoin extensive ancient semi-natural woodland and it would therefore be prudent to promote the best-formed native species wherever possible, ensuring the semi-natural composition of Ecclesall Woods is not further compromised in the future by the spread of further introduced species, whilst increasing opportunities for “ancient woodland” species to expand their range.

The Woodland Field Layer

The field layer is varied, but typically comprises **Bluebell** (*Hyacinthoides non-scripta*), **Soft Creeping-grass** (*Holcus mollis*), **Honeysuckle** (*Lonicera periclymenum*), **Bramble** (*Rubus fruticosus*), **Broad Buckler Fern** (*Dryopteris filix-mas*) and **Bracken** (*Pteridium aquilinum*), with localised concentrations of other herbs like **Wood Anemone** (*Anemone nemorosa*), **Yellow Archangel** (*Galeobdolon luteum*) **Greater Stitchwort** (*Stellaria holostea*) and **Wood Sorrel** (*Oxalis acetosella*).

Where coniferous species are predominant in the canopy the increased acidity of the leaf litter has led to a reduction in Bluebell and other herbs. Young natural regeneration is occasional, with a range of broadleaf species present.

More acid soils, particularly those on steep-ground or perhaps most affected by human activities, are characterised

by different plant communities, where **Wavy Hair-grass** (*Deschampsia flexuosa*), and occasionally **Heather** (*Calluna vulgaris*), **Bilberry** (*Vaccinium myrtillus*) and **Great Woodrush** (*Luzula sylvatica*) are typical. Bare ground can be frequent in these areas. Some of these species particularly Bilberry, occur as isolated small patches here and there across the woodland, perhaps as remnants of once more extensive areas present when the woodland was more open and less shaded.

The frequent flush lines, streams and drainage ditches crossing the woodland are characterised by narrow belts of **Common Alder** (*Alnus glutinosa*), with **Ash and Sycamore**, as well as frequent **Hazel**.

These support a diverse field layer dominated by **Lesser Celandine** (*Ranunculus repens*), with a wide range of associated herbs like **Wood Anemone**, **Red Campion** (*Silene dioica*), **Yellow Pimpernel** (*Lysimachia nemorum*), **Meadowsweet** (*Filipendula ulmaria*), **Bugle** (*Ajuga reptans*), **Opposite-leaved Golden - saxifrage** (*Chrysosplenium oppositifolium*), **Creeping Buttercup** (*Ranunculus repens*) and **Tufted Hair-grass** (*Deschampsia caespitosa*).

More unusual plants like **Common Valerian** (*Valeriana officinalis*), **Pendulous Sedge** (*Carex pendula*), **Sanicle** (*Sanicula europaea*) **Remote Sedge** (*C. remota*) and **Floating Sweet-grass** (*Glyceria fluitans*) are present in places in these stands.

The best **marginal aquatic flora** within the site is found in the silted-up Ryecroft Mill pond, with species like **Water Forget-me-not** (*Myosotis scorpioides*), **Skullcap** (*Scutellaria galericulata*) and **Common Valerian**.



Where **Beech** (*Fagus sylvatica*) forms extensive stands with a generally closed canopy, bare ground and a sparse shrub layer is now prevalent. Herbs like Bluebell do survive, but are very restricted.

A range of **garden escapes** and other deliberately planted ornamental species are present within the site, particularly along the woodland margins, including **Monkshood** (*Aconitum napellus*) and **Snowberry** (*Symphoricarpos albus*).

More invasive species like **Himalayan Balsalm** (*Impatiens glandulifera*) and **Japanese Knotweed** (*Reynoutria japonica*) are present in localised concentrations along watercourses and in damp areas, whilst **Rhododendron** (*Rhododendron ponticum*) is occasional around the bird sanctuary and elsewhere, and **Cherry Laurel** (*Prunus laurocerasus*) is present in small quantities, mainly in Wood 1.

The woodland supports a large number of **ancient woodland plant indicators**; plants which are generally found only in areas of ancient woodland-

Moschatel
Ramsons
Wood Anemone
Enchanter's Nightshade
Pignut
Climbing Corydalis
Broadleaved Helleborine
Sweet Woodruff
Bluebell
Toothwort
Yellow Pimpernel
Yellow Archangel

Wood Sorrel
Wood Sanicle
Greater Stitchwort
Wood Sage
Common Valerian
Wood Speedwell
Early Dog Violet
Remote Sedge
Wood Sedge
Pendulous Sedge
Great Woodrush
Hairy Woodrush
Common Cow-wheat



Bluebell and Yellow Archangel;
 Typical Ancient Woodland Indicators.

Ferns

Nine common ferns have been recorded from the woodland, with Bracken and Broad Buckler Fern the most frequent.

Mosses and Lichens

An outline report on the bryophytes of Ecclesall Woods records sixteen liverworts and forty-two mosses. In general, the bryophyte (moss flora) is poor, being either heavily shaded under Beech, or with a dense cover of grass. Those which do occur are found predominantly in damp ditches, on gritstone boulders/walls, or rotting wood, fallen trees and tree bases, with the richest communities found in and along the streams and stream banks. The richest is along the small stream in the south-west of the wood.

Invertebrates

A long-list of invertebrates have been recorded from Ecclesall Woods amounting to over 420 species (including 11 bugs, 14 beetles, 15 butterflies, 220 moths, 2 craneflies, 38 hoverflies, 23 other flies, and over 100 spider species). The interest is such that the site is included on English

Nature's Invertebrate Site Register.

The following are Regionally Notable-

The crab spider *Philodromus praedatus* (1980), found on the lower branches of large Oaks near woodland edges; the **fly** *Suillia dumicala* (1970, 1980), found on woodland and open moorland, which probably develops in fungi; the **hoverfly** *Sphegina verecunda*, (1980-93), found in shaded areas near streams and probably living in deadwood, the **hoverfly** *Didea fasciata* (1989); and the **micro-moth** **Angle-striped Sallow** (1965-91) which occurs in mature Birch woodland, the larva feeding on Birch.

A wide variety of species which are Local in the UK have also been recorded, and highlight the value of deadwood, damp areas, open glades and rides and species rich, graded woodland margins. Interestingly, several of these species are more typically found on moorland or heath. This is no surprise, considering the woodlands geographic and climatic position on the fringe of the Peak District National Park.

Important characteristics for this large group include a varied woodland structure, glades, standing and fallen deadwood, graded woodland edges, wet ditches, flushes and streams, and gradation into other semi-natural habitats like unimproved grassland. Nectar sources such as Blackthorn, Bramble, Hawthorn, Rose and Willow are all valuable.

Amphibians, Fish and Reptiles

Common Toad, Common Frog and Grass Snake have all been recorded from Ecclesall Woods.

The native **White-clawed Crayfish** has been recorded in the Limb Brook. Traditionally thought to be widespread in clean, predominantly fast-flowing calcareous rivers, but also lakes and ponds, it is actually confined to the Coal Measures in the N Derbyshire/South Yorkshire area. It is considered globally threatened and as such is included in Annex II and V of the EC Habitats Directive. The main threats are a disease caused by a fungus carried by some introduced North American



crayfish, together with competition from introduced species; habitat loss and change; and pollution, particularly from pesticides and sewage.

Both predator and scavenger, it feeds mainly at night on snails, insect larvae and dead/dying fish. It lives in holes in the waterside banks or beneath large stones. Excessive disturbance from recreational use of waterside areas may affect the species.

Current survey work by the University of Sheffield is aiming to quantify its distribution along the Limb Brook in Ecclesall Woods.



Birds

The bird population of Ecclesall Woods has been well-recorded over many decades and continues to be regularly monitored by the Sheffield Bird Study Group. At present, around 42 species are resident, of which 21 are breeding, whilst 14 migrants are regularly recorded, of which 4 breed. Other species have been recorded flying over the canopy.

The following Key species have been recorded from the woodland in the last 20 years: **Song Thrush** is included in the UK BAP (Biodiversity Action Plan) short-list of globally threatened/declining species, whilst **Spotted Flycatcher**, and **Bullfinch** are on the middle-list. All are therefore priorities for conservation and protection. Older records exist for Turtle Dove, Tree Sparrow, Linnet and Tree Pipit.

Song Thrush is not dependent on woodland, preferring thick hedgerows and shrubby cover, and living on a diet of worms, snails, slugs, insects and berries. Encouraging a greater spread and diversity of woodland shrubs like Hawthorn and Holly where they are currently scarce would therefore be useful here, particularly along woodland edges. The western woodland edges are particularly valuable in this respect, because grassy areas are important for feeding. Other less graded edges could be improved. Those adjoining gardens are also important.

Bullfinch prefers scrub, hedgerows and woodland, and in mature woodland it is often found mainly at the edge where undergrowth is thickest, feeding on seeds, buds, tree flowers and berries.

Again the western margins of the site are valuable for this species, and those adjoining gardens are also important.

Spotted Flycatcher is found in mature woodland, parkland and large gardens. In woodland, it prefers stands with an open canopy or open spaces like tree gaps, rides and the edges of felling coupes. It feeds on insects. Its nest site is variable, in an open cavity or crevice, on top of a wide branch, against the trunk supported by a small branch, in a creeper. An increase in the amount of open areas within the mature woodland blocks would be valuable for this species.

A large number of other recorded species are included in the BAP long List;-

Buzzard, Lesser Spotted Woodpecker, Hawfinch, and Pied Flycatcher are included on the LRDB 'A' list, whilst **Snipe, Kingfisher, Green Woodpecker, Waxwing and Siskin** are on the 'B' list. All have been recorded from the site in the past twenty years. Only LS Woodpecker, Kingfisher and Siskin breed in the woodland at present.

Overall, the bird life is fairly typical of mature broad-leaved woodland on the Coal Measures: The majority of the woodland is mature and as such supports breeding, populations of **Sparrowhawk, Great and Lesser Spotted Woodpecker, Tawny Owl, Treecreeper, Blue and Great Tit, Nuthatch, Jay and Chiffchaff.**

Standing and fallen deadwood provide food sources for **woodpeckers, Treecreepers and Nuthatch**, whilst cavities for nesting are also important for these species as well as **Tawny Owl**



and all **Tit** species. More unusual are records for **Pied Flycatcher**, **Redstart** and **Wood Warbler**, particularly from the mature Oak stands to the north-west of the bird sanctuary.

The dense bramble found within many parts of the site is important nesting habitat for **Wren**, **Long-tailed Tit**, **Willow Tit**, **Dunnock**, **Blackbird**, **Chaffinch**, **Song Thrush**, **Willow Warbler** and **Robin**, especially along woodland edges.

The wet, marshy ground along the streams, ditches and around the abandoned Ryecroft Mill is probably attractive to **Willow Tit** and **Woodcock**, and in the case of the disused millpond, **Mallard**, **Heron**, (and **Kingfisher**).

The areas of mature Beech, whilst damaging to the ground vegetation in their current condition, provide autumn seed - 'mast' - for birds like **Chaffinch**, **Greenfinch** and **Brambling**, whilst the scattered Scots Pine and European Larch are probably of value to **Coal Tit** and **Goldcrest**.

A Bird Sanctuary, covering 17 hectares was established within Wood 3 in 1929 and surrounded by a post and wire fence, last repaired in 1996. Since inception the area has been managed under a minimal intervention policy and is not open to the public. Nest box schemes have been attempted within the Sanctuary, but are not currently maintained because of vandalism problems, although a number of boxes erected by the Sheffield Bird Study Group in 1996 are monitored.

The Sorby Natural History Society (SNHS) undertook increasing bird census work in the 1970s and 1980s, and Common Bird Censuses were

undertaken between 1978-1981. The SNHS and others continue to record in the woodland.

Analysis of historical records indicates how the bird population has altered since the 1920s, mainly because the woodland has become more mature, and the canopy closed, resulting in the loss or decline of species associated with more open habitat like Nightjar, Hobby, Tree Pipit, Whitethroat and Garden Warbler. Those associated with more mature high forest, like Blackcap, have increased.

Mammals

There has been little systematic survey work on mammalian fauna within the site although a good range of species, 15 in all, has been recorded since 1980, including **Water Vole** along the Limb Brook and **Pipistrelle Bat** (both included on the BAP short-list), **Badger**, **Hedgehog**, **Roe** and **Red Deer** (all included on the BAP long-list), as well as **Wood Mouse**, **Bank Vole**, **Rabbit**, **Grey Squirrel**, **Brown Rat**, **Common** and **Pygmy Shrew**, **Mole** and **Fox**. **Water Shrew** is thought to be present.

Grey Squirrel is classed as a Characteristic species of the Natural Area, whilst Pipistrelle Bat is classed as declining. At present, the records for deer are generally thought to relate to animals passing through the area, although it is predicted that the wood will be colonised by Roe deer over the next decade.

Pipistrelle Bat is not a woodland specialist, but feeds in woodland clearings, along woodland edges, particularly those with hedges, scrub and gardens and amongst adjoining



semi-natural habitats like unimproved grassland. Clearly, a continuity in the range and quality of these niches is critical for this species. Furthermore, the creation of more (ephemeral) open space, and new glades would be beneficial, together with the retention of decayed/hollow trees (for roosts). Further survey of the bat population in the area is recommended and it is important that all major mature tree-felling operations are preceded by checks for signs of bats before works commence, through the Sheffield Bat Group. All bat species are fully protected under the 1981 Wildlife and Countryside Act.

Water Vole is found in fresh water, favouring steep river banks, with abundant grass and layered vegetation, for cover and food.

It has declined dramatically in recent decades across the country due mainly to loss of habitat, disturbance and



pollution. Within Ecclesall Woods, the heavy use of informal paths alongside the main streams has led to major loss of vegetation in many places, as well as frequent disturbance, with possible adverse effects on this delightful species.



Although grey squirrels can be easily spotted on any visit to the wood it is fun to discover signs of their lunch like the nibbled cones below. Other animals only make their presence known by leaving signs and tracks such as the badger tracks in wet mud and the fox hole (below).





Future Management Issues



The Saw Mill and the Timber Trade

The timber trade is contributing to the replanting of forests in the British Isles. Timber and wood are renewable resources and forests are being re-established as the demand for timber continues to grow. It is important to remember that many forests are created by man in order to harvest the timber as a crop, in the same way as we harvest wheat or potatoes and that felling these trees is not a bad thing, as long as others are planted in their place. Timber has many advantages over other building materials. As well as being a renewable and sustainable product, it is recyclable, waste efficient, biodegradable and non-toxic. It is also particularly energy efficient in use and can therefore play an important part in the battle against global warming.

Whilst much of the woodland was planted with a view to harvesting the timber, a combination of under-management over many decades and the commercial over-maturity of many trees means that the timber potential of much of the mature stands within the woodland is limited. Future management of the wood, however, will aim to gradually improve the timber potential of the woodland where appropriate.

At present a good proportion of the mature Oak, Beech, Sweet Chestnut and Sycamore are suitable for fencing and a small proportion for prime timber-planking/furniture/joinery. Pole stage materials and thinnings would be utilisable for mining timber or pulp wood, firewood, woodfuel and charcoal.

Prices vary greatly depending on the quality and quantity of the timber concerned, the current market conditions, and the species. During the 1990's, the market has been severely depressed by a mixture of foreign imports, over-supply of small roundwood, and an increase in the recycling of wood, for example, pallets.

Seeing the **sawmill site** as an integral part of the whole woodland, indeed as its hub, is important. It is ideally placed to 'tell the woodland story' and to provide this dual role of increasing public benefit while providing relevant business opportunities. The site is shortly to be developed with a view to creating linkages with the wider woodland and its heritage and give opportunities for wood related businesses.



managing the wood to provide



In most cases, timber removed from Ecclesall Woods will be sold standing and hence conversion, extraction and transportation will be organised by the contractor. In each case, the methods of working expected of the contractor will be specified, for example disposal of lop and top, avoidance of damage to remaining trees, archaeological features, sensitive wildlife areas, etc. The majority of lop and top will be cut up and spread on site to rot down.

Extraction routes will be designated by the Council, and agreed with the contractor. Important areas of wildlife and archaeological interest will be avoided. Wherever possible, the pre-existing surfaced paths will be used and repaired once works are complete as necessary. The use of horse-extraction may be appropriate within parts of the woodland, for example, wet, ecologically sensitive areas and areas of high archaeological sensitivity where the use of more conventional forestry vehicles can cause severe damage.



Re-Introduction of Coppicing

In order to demonstrate examples of historic woodland management for educational use, and to maintain and promote the nature conservation value of selected areas, **coppice-with-standards management** is being introduced into one area near the Cow Lane entrance in Wood 1.

To minimise the initial visual impact of re-introducing this form of woodland management, which involves the initial clear felling of the area, the coppice coupe will be no more than 0.2 - 0.3 ha in size.

The following management practices will be followed:

- A rotation of 8-20 years, depending on the re-growth of cut stools
- In general 50 standards per hectare will to be retained during the first rotation, 30 during the second, 15 during the third and 5-10 during the fourth to fifth. Standards to be evenly spaced, and to occupy no more than 10% of the area of each coupe, so that coppice stools have sufficient light to re-grow properly. Wherever possible native trees will be promoted as standards. As the area involved is not directly derived from neglected coppice, these principles will need to be flexible.
- “Layering” of stools will be necessary within some coupes to reach an adequate stocking level. planting of locally native trees will



also be undertaken to help develop a shrub canopy and discourage Bramble (and Bracken) growth.

- Competing vegetation, such as Bramble, will be controlled by hand-cutting, etc. as necessary, to promote healthy coppice stool growth.
- Where these Compartments immediately adjoining residential areas, 20-30 m bands of trees will be retained as high forest, to protect landscape interests.

Over mature trees and Deadwood

A varied invertebrate fauna is present within the site, including many species dependent on dead and decaying wood. Standing dead and rotting wood provides nesting sites for hole-nesting birds and roosts for bats. Deadwood is also important for fungi. Apart from providing wildlife habitat, old trees and deadwood can have considerable intrinsic appeal and add diversity to the woodland structure.

For these reasons, a proportion of trees are being retained indefinitely throughout the various woodlands and allowed to develop to over-maturity and natural senescence. Similarly, a proportion of mis-shapen trees have been retained during all silvicultural operations. The trees chosen are generally be away from definitive routes and well-used, casual paths and formal access points.

Where possible, deadwood, both standing and fallen, has been left where it is to undergo natural decay processes. Large diameter timber of different tree species is particularly valuable and has been left uncut where possible.





