

The Story of Lea Wood

Its History, Ecology and Archaeology





A view of Lea Wood from the hamlet of Robin Hood, a painting completed in 1844 by Parthenope Nightingale, elder sister of Florence.

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The Lea Wood Heritage Community Project

An Introduction to Lea Wood

This booklet is intended as an introduction to the fascinating history, ecology and archaeology of Lea Wood in Derbyshire's beautiful Derwent Valley. It has been produced as part of a Heritage Lottery-funded community project that has investigated different aspects of this fascinating and multi-faceted site.

Lea Wood is a prominent landscape feature, situated on high ground overlooking the River Derwent and its tributary the Lea Brook, with extensive views along the Derwent Valley (see location map inside back cover). By name it is associated with the nearby settlement of Lea and is predominantly semi-natural ancient woodland, home to ancient coppiced and pollarded oaks, small-leaved lime and examples of later plantings of beech, lime and conifer. Rhododendron was planted, probably when the wood was developed as a pleasure amenity for the Nightingale family (see page 23 below), but is now a widespread nuisance obscuring and threatening woodland features.

The accessible portion of the wood covers over 30 hectares (nearly 75 acres) and was purchased in 1997 with donations from local residents. In 2012 Lea Wood was gifted to the Derbyshire Wildlife Trust to manage for the benefit and enjoyment of the local and wider community. Access to the wood can be gained on foot via a number of well-established public footpaths from Mill Lane to the north-west and from Cromford Canal to the south (see pages 14-15 below).

Geology

The great upland massif of the Peak District and its distinct landscapes, including Lea Wood and its environs, are a product of its varied geology, evidence of a turbulent past of tropical seas, mud-laden river deltas and violent volcanism.

The majority of the rocks which give this part of Derbyshire its distinctive character were deposited during the Carboniferous period 350-300 million years ago, with the Carboniferous Limestone forming a great 'dome' at the centre of the Peak District, often known as the 'White Peak', where fertile steep-sided dry valleys punctuate the rolling grassland. Rain water draining through the permeable limestone has created caves and valuable mineral seams.

Moving progressively outwards from the central limestone of the White Peak, the rocks are progressively younger, with easily eroded shales forming the bedrock of the river valleys that flank the limestone, such as the middle reaches of the Derwent near Lea Wood. Outside the river valleys are the craggy moors of the Millstone Grit: the 'Dark Peak'. Formed from the mud of a giant river delta, this coarse-grained rock now forms a 'horseshoe' of Millstone Grit around the west, north and east of the Peak District, with prominent edges. Lea Wood is located on a spur of Millstone Grit of a type known as Ashover Grit. This is a softer grit, good as building stone, not used for large millstones but suitable for the smaller quern stones.



Landscape and Ecology

The underlying geology of the Peak District results in the dramatic scenery so associated with the region. The arterial valley of the River Derwent follows the line of the softer rocks between the White and Dark Peaks and forms one of the major low-lying routes from the north to the south. This dominant valley, intimately linked to Lea Wood, can undoubtedly be seen as a means of transmission for people, goods and ideas through the millennia of human activity, as well as a source of power for the nascent Industrial Revolution (see pages 20-21 below).

Lea Wood has a variety of trees revealing the complex history of management described below. A working landscape of oak and birch in the upper reaches, mixed alder and ash closer to the canal and prominent birch and other species planted as the wood became pleasure grounds of the landowners from the 18th century onwards.

When the Derbyshire Wildlife Trust took over management of the wood, an audit of the flora and fauna provided a glimpse of the rich ecology of the site with a variety of ferns and other plants including spectacular displays of daffodils and wood anemone. The wood also hosts, alongside important reptile communities, a variety of birdlife including Great Spotted and Green Woodpeckers and Pied and Spotted Flycatchers.



Looking west along the Derwent Valley, showing the prominence of Lea Wood covering the hill.



Lea Wood is a haven for a wide variety of flora and fauna and is currently managed as a wildlife reserve by the Derbyshire Wildlife Trust.



Looking west from the heights of Lea Wood commands a fine view across and along the Derwent Valley.



From Prehistory to Medieval

The Prehistoric Past

The prehistoric remains of the Derbyshire uplands are some of the best-preserved in the country and represent a fascinating palimpsest from the earliest post-Ice Age hunter gatherers to the Iron Age population that faced the Roman legions on their march north. In Lea Wood there are no features to which we can definitively give a prehistoric date, but there are enigmatic wall and bank fragments that do not appear on any of the estate maps, and may represent ancient land divisions, preserved beneath the centuries of woodland management.

Under the Pax Romana

The extent of ‘Romanisation’ of the Derbyshire uplands still provokes much debate, though there was a definite Roman presence in the vicinity of Lea Wood with pigs of lead with Roman inscriptions found at Wirksworth and Crich and Roman coins at the site of Shuckstone Cross above Lea village.

The initial advance of the Roman legions halted around the line of the River Don and it is possible that the Peak District was part of the frontier between Roman Britannia and the collection of tribes to the north often referred to collectively as the *Brigantes*. With the renewed advance of the AD60s the uplands came into the sphere of Rome, with the construction of forts controlling the major rivers and the exploitation of natural resources, particularly lead (see page 10).

The Anglians

Evidence for activity dating to the period following the Roman withdrawal is notoriously thin, and this is no different in the region surrounding Lea Wood. Nevertheless, Anglian pottery from a site at Carsington dating to the 5th or 6th century, and a 6th century grave at Musden indicates that Germanic Anglians had begun to arrive by this time. The 7th century *Tribal Hidage* lists all of the tribes and sub-kingdoms that owed fealty to the Kingdom of Mercia, including the *Pecsaetan* or ‘Peak-dwellers’. It is not known if these people were early Anglian settlers or the remnants of a surviving Brittonic tribe holding in the uplands.

The nearest indications of Anglian activity to Lea Wood are c.3.5km to the south-west at the important settlement at Wirksworth. The place-name derives from the Old English personal name *Weorc* or *Wyr*, and noun *word* meaning ‘enclosure round a homestead’. A land grant in Wirksworth dating to AD835 from Abbess Cyneuara of Repton to Humbert, a Mercian nobleman, was to be paid in an annual rent of lead, attesting to the importance of this industry during the early medieval period (see page 10).

With there being known activity from these periods in the wider vicinity of Lea Wood, it is tempting to speculate, given its prominent position overlooking the river, that there had been some activity in and around the wood itself. However, with the absence of hard evidence on the ground, it remains a speculation.





Many of the walls are well mapped, but there are a few enigmatic stone rows (main picture) and revetments (inset) that may be of a greater antiquity.

Querns and Quarries

A considerable number of quern stones (small millstones for the hand grinding of grain) have been found in Lea Wood. During the various stages of landscape survey within Lea Wood (both for this project and in earlier work by local archaeologist Paul Smith), a total of 44 querns of varying sizes, forms and dates have been recorded. A few examples were seemingly finished stones but most were part finished to varying extents, whilst 15 were part querns or fragments, some possibly deliberately cut for use as top stones on walls.

The ages of the querns in Lea Wood vary considerably, from possibly late prehistoric or Romano-British through to the medieval period and are a key indicator of the time-depth of the use of the wood. As it is unlikely that grain crops were grown to any significant extent on the small open areas within the wood, there could have been little requirement for grinding grain there. Also, there is no known specific evidence of mineral working in the wood which might have required the crushing of ore with large stones.

If this is the case then the large numbers most likely indicate that the querns were manufactured in the wood using local stone.

Given the landscape setting of Lea Wood



on a prominent outcrop of Millstone Grit, there are remains of quarrying in several parts of the wood. One of the largest of these, towards the top of the east end of the wood and cutting into the scarp of Ashover grit, is thought to have been the source of stone for the rebuilding of Lea Hurst House (see page 23). It is in the part of the wood nearest to the house, which would make transporting stone to the building site relatively easy. Another former quarry of some size lies nearby though closer to the canal. It would seem likely that this was a source of stone for constructing the canal, though no documentary evidence for that has come to light. The several smaller quarries or delphs are likely to have been sources of stone for walls and local buildings, also for the cutting of querns

No documented evidence for the commercial exploitation of the stone from the wood is known. Indeed, the opposite seem to have been the case with regard to the small quarry near to Aqueduct Cottage. In 1834, Peter Nightingale had been obliged to shorten the Leawood Arm of the canal (see page 20) following a dispute over possible loss of water from the main canal. This required the complete rebuilding of the wharf at the site still visible today. In documents relating to that matter, Joseph Wass (then owner of the Lea Lead Works) was granted use of the access road to the new wharf and entrusted with its management. He was also granted 'use of the quarry near Aqueduct Cottage to extract stone for his own use and not for sale'.

Medieval Times (to 1600)

After the Norman Conquest in 1066, and the significant rearrangement of land ownership that followed, a continental lord named Ralph fitzHubert was given extensive estates in the East Midlands, including manors in east Derbyshire previously owned by the Saxon lords Leofric and Leofnoth, with the seat of Ralph's barony at Crich near to Lea Wood. The barony of Crich, having passed through two co-heiresses, in the following centuries was shared between Hubert fitzRalph and Henry de Stuteville, with the fitzRalph manors known to comprise Crich, Shuckstonefield, Wirksworth, Tansley, and most importantly for this story, Lea.

In the reign of King John (1199-1216) the manor of Lea belonged to Robert de Alveley who left two daughters as co-heiresses. One moiety of the manor passed with one daughter to Ferrers of Lockesly, in Staffordshire, and was sold by her son to Sir Geoffrey Dethick. That moiety then descended to the Babington's, and acquired the name of "Babington's Manor".

The other moiety passed with the younger daughter to her husband, a de la Lea (possibly Alexander), and was subsequently sold by a descendent to a Frescheville, possibly Ralph (1216). It was held by the Freschevilles till the 14th century when it was purchased by John Rolleston and became known as as 'Rolleston's Manor' (1320/25). He built a manor house, the remnants of which are incorporated in the present Lea Hall. Events in subsequent years suggest that Lea Wood was part of this moiety of the manor of Lea, though no specific reference to the wood in this period has been found.

A later John Rolleston married Anne Babington, forming a family link between the Babington (Dethick) and Rollestone (Lea) parts of the manor (c.1500). The Rolleston ownership ended when Francis Rolleston was convicted and imprisoned in 1571 for his part in a plot to release Queen Mary (separate from the later Babington plot). His property was forfeit to the Crown and later leased to a Roger Haughton (1596).

Meanwhile the Babington manor passed down to Anthony Babington (1561 & 1571). Anthony, mindful of the likelihood of his later attainder for treason, transferred ownership of the Dethick manor house and some other parts of the manor, to his wife, Margery, and younger brothers, George and Francis (c1585). After Anthony was executed (in 1587) for leading a plot to release Queen Mary and to assassinate Queen Elizabeth, the remaining parts of his moiety of the manor of Lea were forfeited to the Crown and granted to Sir Walter Rayleigh. He quickly sold them to John Hopkinson of Ashover and Richard Wharton, probably a lawyer. Francis managed to re-purchase some of the forfeited properties but financial difficulties soon forced him to mortgage them to Godfrey Columbello of Darley and Thomas of Hassop (1590).

Early references to lead working in the area are to an ancient bole smelting site at 'Cold-Harbour, in Lea' and a site at 'Cromford Moor, S. of the Bridge' but the exact locations of these are not known. In Lea Wood, significant activities at this time included the making of charcoal and cutting quernstones.



Charcoal Burning

Charcoal is made by setting fire to wood then allowing it to smoulder by restricting the air supply. This was done by containing the smouldering mass within a pit or kiln or, more simply, by covering it with turfs and earth. The process would typically be carried out on flat areas (platforms) created within the woodland, close to the source of the raw material.

During the process of making charcoal, moisture and other volatile components in the wood are driven off. The result is a lightweight fuel that can be made to burn very cleanly at significantly higher temperatures than the original wood. It was used in metal smelting processes and by blacksmiths requiring high temperatures. Its light weight made it cheap to transport although its fragility made it difficult to move large quantities over large distances, though charcoal made from oak was harder and more transportable. Its 'clean' heat made it favoured for some domestic situations until superseded by coke (see pages 10-11 below).

As many as 35 possible charcoal burning platforms were identified in Lea Wood during the landscape survey that was undertaken as part of the fieldwork project. One platform was excavated (below), and the discovery of some sherds of 13-14th century pottery suggests that charcoal burning was taking place in Lea Wood in the centuries following the Norman Conquest - the 'high medieval' period.





A platform defined by a stone revetment to the front (right) with a later tree having grown out of its centre.

Derbyshire and Lead

Lead is most commonly found as its sulphide, an ore known as 'galena', often as veins in limestone, and the limestone-rich Peak District has been an important source of lead from Roman times. Metallic lead is obtained from ore by a smelting process, in which crushed ore was roasted to a high temperature, producing a mix of molten metal and slag residue from which the metal could be separated. Smelting sites were mostly in nearby Gritstone areas where wood fuel was more widespread. The smelting process was progressively developed to improve efficiency.

Boles (pre-1570)

The smelting process requires a substantial airflow to generate the necessary temperature. Early smelting often used simple circular shallow hollows, called 'boles', cut into hillsides in locations exposed to strong winds. The boles, usually several metres in diameter, would have a sump in the base to collect molten lead which sometimes also flowed out along a channel. The process was inefficient and at best, only about half of the lead could be recovered, often less, with a large fuel requirement of about two tons of wood per ton of lead recovered.

Ore Hearths (1570-1740)

Around the middle of the 16th century, William Humfry developed more efficient smelting techniques. In 1570 he constructed a water-powered lead-smelting furnace in Sheffield and the widespread adoption of 'ore hearth' smelting enabled a rapid expansion of

the industry. A typical ore hearth was a low square or oblong stone cavity about 1' deep and 2-3' feet wide, with a sloping work stone at the front onto which material was raked out of the hearth, broken and re-smelted. Molten lead overflowed via a channel into a pot and was ladled into moulds. Air, from foot or water-powered bellows, entered through a pipe at the rear, and a low roof over the hearth conveyed the fume to a flue or chimney. The airflow through the blast pipe could be regulated. The preferred fuel was kiln-dried wood known as 'white coal' (see page 12). This process was about twice as fuel-efficient as boles, and as both low and high grade ore could be processed the recovery of lead was substantially increased. Not dependent on natural draught, ore hearths were mostly sited for access to water power.

Cupola Furnaces (from 1740)

The cupola furnace resembled a large oven with an arched roof. The furnace was bisected by a low wall, with a fire in the smaller front section. The rear section contained the ore charge on a concave base to collect the molten lead, a flue to a chimney produced a strong airflow. The separation of the fire from the ore bed in cupola furnaces reduced contamination of the ore with combustion residue and allowed the increasingly available coal to be used as fuel. The controlled induced draught drew the hot combustion gases over the ore and heat 'reverberated' from the domed roof onto the ore bed. Efficiency was again increased and following its first introduction at Ashover, cupolas had completely replaced ore-hearths by 1782

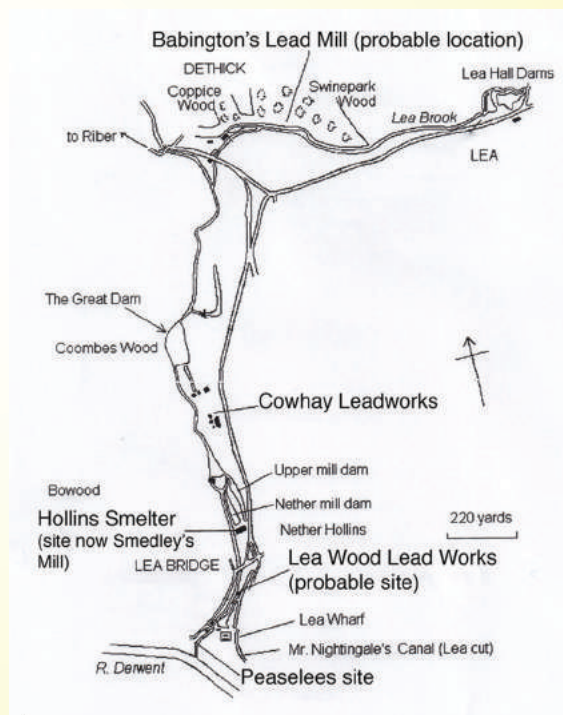


Smelters local to Lea Wood

Although the topography of Lea Wood would seem to provide suitable sites for bole smelters, no evidence has been found, in the form of lead slag for instance, to indicate that any of the pits in the woods was a such a bole. But there was early smelting in the vicinity (see page 7) and the Babington's had boles at nearby Dethick and Riber. They and the Rollestons went on to build ore hearths at several locations along the Lea Brook. The earliest, in the 1580s (precise locations not known), were around the upper parts of the brook at Lea and Dethick with another, linked to Bow Wood, thought to have been near the confluence of Lea Brook with the river (the Peaselees).

The more significant developments were established by the by the Peshalls at Cowhay (1633) and by Wigley at Hollins (1679). These later passed to the Spatemans with a contractual link to Lea Wood as a source of fuel (white coal). By the early 1700s, the Cowhay smelters, including Lea Wood, had been acquired by the Nightingales adding the Hollins smelters in 1758. Around 1740, Peter Nightingale took the progressive step of upgrading initially the Cowhay work, later the Hollins, by installing cupolas. This change removed the need for white coal from Lea Wood. A cupola was also built by a John Alsop on a site below Lea Bridge, this was known as the Lea Wood Lead Works, but was short-lived, closing in the 1850s. At the time these two works were described as the most up to date in the county.

The Cowhay site became the Lea Lead Works. Although Nightingale ownership continued into the 19th century, the works were leased to, and operated by, successive local lead merchant families of Alsop and Wass. Expansion and improvement continued; additions included a rolling mill and red lead works. It became the largest lead works in the county and continued operation until closure in 1938.



White Coal

White coal was kiln-dried wood and its prime use was as fuel for 'ore hearth' lead smelting (see pages 10-11). It continued to be used until coal-fueled processes were introduced in the mid 18th century, and the production of white coal declined rapidly after 1740. It was made in simple 'kilns': shallow circular holes dug into the ground typically 4-5m diameter and 1-1.5m deep. The hole was sometimes lined with stone where available. White coal kilns are usually found in woods in lead-working areas, providing ready access to raw materials and ease of transport to the smelting sites. In North Derbyshire wood-drying kilns are often termed 'Q-pits' on account of their plan form, which incorporates an entrance gap with a shallow trench or channel extending down-slope. During the landscape survey, more than 40 pits and hollows were identified in Lea Wood of which 18 were considered probable white coal kilns, of which two were excavated.

No records have been found with specific mention of the extent of white coal production in Lea Wood. However, the elder Peter Nightingale, in his personal ledger did make a note, dated 13th June, 1755: "In March 1738, Leashaw was cut and Whitecole sent to Cowhay Mills was 164 foddors as appears by a loose paper found". Whilst this does not relate directly to Lea Wood, it is of interest as a specific reference to white coal in a wood nearby. Because of the changes in lead smelting technology around that time, it was probably one of the last batches of white coal to be made.

A 'fodder' (or more usually a 'fother') was a quantity measure of lead, about 24cwt. It is unusual to use it as a measure of white coal and it is not clear how much a fother of white coal was, but it seems likely that it was a cart load of c.24cwt in line with the suggestions of other researchers. The estimates of Kiernan (see additional reading) are that around a cart load of white coal was required to produce 1 fother of lead. On that basis a 'cut' of Lea Wood might have given sufficient fuel to make about 250 fothers of lead. The maximum annual output of an ore-hearth smelter was about 300 fothers, hence Lea Wood would seem to have been sufficient to support just one smelter. The conclusion of this in a wider sense is that large areas of woodland were required to provide the fuel requirements for smelting and it seems to have been usual for smelter owners to directly own or lease woodland to safeguard their fuel requirement.

An early indication of the strong linking of a smelter to woodlands is given in the 1590 agreement drawn up when Francis Babington mortgaged his moiety of the Manor of Lea. The agreement stipulated that the woods should, for a specified time, be used only for the purposes of lead smelting in the Babington mill in Lea. Similarly, in 1682, an assignment of mortgage linked smelting mills at Cowhay and Hollins to specified woodlands. Lea Wood was clearly linked to the Cowhay smelter in the 1732 will of Thomas Nightingale bequeathing to his son Peter his half of the smelter and half of the 'lande and woods commonly called the Lea Woods'.



White coal kilns with stone walling and trees now growing out of the side of the bowl; images (main) show a site in its present state and (inset) another after excavation.

To reach the end of the trail, continue down the track and turn left onto a driveway; there is no access via the private driveway to the right. Follow the driveway for a short distance to a cottage on the right. Wharf Cottage stands adjacent to what was the wharf at the end of the Nightingale branch from the main canal, with original stonework still visible. To return to the carpark, take the signed footpath on the right to reach the road or continue ahead to rejoin the canal towpath near Aqueduct Cottage.

From High Peak Junction Car Park cross the river and railway to the south and turn left along the canal towpath. On your way toward the wood you will pass the Leawood Pump-house on your left (page 20). Continue over the aqueduct and turn left along the side branch of the canal, before crossing it to Aqueduct Cottage.

Enter Lea Wood by the footpath to the left of Aqueduct Cottage and head up hill, taking the right branch at Point 1. At Point 2 the level area to the left of the path is a 'charcoal burning platform' (see page 8-9). A trench dug here revealed remnants of charcoal and pottery, some of which dated to the 13th-14th century. Above the platform are the remnants of a simple kiln or Q-Pit for the production of 'white coal' (see page 12).

Wild daffodils are widespread in Lea Wood in late March/April and in May there is wood anemone, wood sorrel, golden saxifrage, bluebells and stitchwort. A local legend tells how Florence Nightingale received a gift of wild daffodils from wounded enemy Russian soldiers she had treated in the Crimea. If true, it may be that many of the wild daffodils in Lea Wood are descendents of those original flowers.



As you emerge into the open field at Point 3 look to your right for a circular stone feature, thought to be an 18th century or earlier water trough, likely as the field was part of Leawood Farm (see page 18-19). Continue along the edge of the open area to a stone seat.

Look for a public footpath arrow at the north edge of the open area and go a short way downhill to Point 4. Below the path are the foundations of a large stone wall with the remains of a small structure. Maps show a boundary running downslope from here, but none indicate the presence of a building of any sort and so the remains are a puzzle!



A Walk Through the Wood

Continue down the track flanked by several beech and lime trees, some of which are up to 300 years old and will have been planted either as a source of wood or for decoration. Towards the bottom of this track on the right are covered water reservoirs associated with mills alongside Lea Brook. They are fed from two springs and the overflow creates a small stream flowing down the hillside, on which golden saxifrage can be found. Water for the now-demolished estate cottages at the top of the wood was fetched from these springs (see page 25).

At Point 9 steps on the left give access (with care) to another Q-pit. Climb the steps back to the track, turn right and return to where the path takes a hairpin bend to the right.

At Point 8 below the track is another stone seat, known locally as 'Florence's Seat' (see page 22). Continue along the track, which becomes indistinct through an area of stones, and look out for a path crossing from left to right. The trail continues ahead to reach a broad track. Follow this main carriageway leading to Point 9.

Point 7 is a large old quarry, thought to have been the source of stone for Lea Hurst, the house that William E. Nightingale built as the family's Derbyshire home (see page 23). The stone slab on plinths is known as the 'Bacon stone'. It is thought to have been a slab on which meat was prepared for curing in the farm house previously on the site of Lea Hurst house. From this point the trail continues to the left.

From Point 5 the path zig-zags up the hillside. The 19th century development of the wood created carriage-ways, rides and several seating places such as that at Point 6 (see page 24). Ornamental plants such as rhododendron were also planted, which are now more of an invasive nuisance. After the seat, the path continues up to emerge onto a level carriageway.

Continue to Point 5 where the path forks, the trail continues up the path to the left but an optional diversion for woodland flora is to continue straight ahead and then return to point 5.

Return to the stone seat and follow the path south across the open area. Look out for the large 'hills' of wood ants, particularly near walled enclosures of conifer.

Along this path and other areas of the wood most of the common woodland birds can be seen and heard; pied and spotted flycatchers breed in the wood and woodpeckers frequent some areas, occasionally a woodcock may fly up and buzzards circle overhead.



Woodland Products

Coppicing is the practice of periodically cutting down the young growth of trees to stumps just above ground level. It takes advantage of the characteristic of many species of deciduous trees to re-grow shoots from the cut stump (stool). As the young growth is the more vigorous, it is a means of maximising the yield of wood for which such growth is required, notably fuel for domestic and industrial purposes. Coppicing has been practised from very early times, and the scale of industrial production in Roman Britain implies extensive coppicing. The practice continued to a lesser extent in Anglo-Saxon times and then progressively increased through the medieval and post-medieval periods, supporting the needs of industrialisation and an increasing population until coal became widely available from the late 18th century.

Coppiced woodland was divided into compartments that would be cut in sequence, and physical barriers around a compartment were often necessary to prevent animals browsing new shoots. The time interval between cuts needed to be sufficient to allow for adequate growth to occur, and the required 'rotation period' can vary significantly from one species to another (e.g. 6-10 years for hazel to 18-35 years for oak). Different species were also favoured for different uses e.g. hazel for thatching spars or hurdles, lime for wood turning.

Pollarding is an alternative practice that involves removing the lower branches and cutting the tree to 2-3 metres above ground to allow a crop of new shoots at that height. Pollarding was less common

than coppicing as it required considerably greater effort. The most oft-cited reason for pollarding over coppicing is that it ensured the new growth was out of reach of browsing animals.

There is evidence of both coppicing and pollarding in Lea Wood with remnants of coppiced hazel, birch, and oak still to be seen, and many examples of oak trees with what may be the scars from the removal of lower branches. The division of Lea Wood into four 'coppices' was noted when Peter Nightingale (see page 18) purchased the second half of the wood in 1737, having already inherited half in 1733. Boundaries noted from early maps, and walls and lines of stone recorded during walkover survey, may represent divisions between the 'coppices'.

Lea Wood also produced oak bark, used as a source of tannin for leather tanning. Rackham (see further reading below) notes that the demand for oak bark increased markedly from the early 17th century. In later centuries, it has been claimed the Army became the largest customer for oak products as its requirement for leather for boots and saddles became greater than the Navy's requirement for timber for shipbuilding. It is a convenient coincidence for woodland owners in North Derbyshire that, as the requirement for white coal for lead processing was decreasing during the first part of the 18th century, the requirement for oak bark was increasing. Lea Wood and other local woods were also a source of timber for a variety of purposes, eg posts and rails, building material, spill and bobbin making and canal barge repair.





Veteran coppiced oak with characteristic multiple trunks springing from the stool (main) and evidence of pollarded lower branches (inset).

The 17th-18th Centuries

The archaeological and ecological evidence tells us about the industry in Lea Wood: e.g. quarrying and querns (page 6), coppicing and pollarding (page 16) or white coal production (page 12). The historical records, however, open a window onto the owners and tenants of the wood and its immediate environs, engaging us with the human story of the wood.

The Peshalls, Staffordshire baronets, acquired Lea Hall and Lea Hurst around 1620. Under their ownership George Spateman, manager of the lead smelter at Cowhay in Lea, was the first person named as an occupier of Lea Wood in 1630 and, shortly after, the wood was among a number of properties conveyed to a John Buxton of Brassington from the Earl of Kent.

The ownership of Lea Wood and the larger estate is complex in the middle of the 17th century, intimately tied to the uncertainties and conflicted loyalties of the Civil War. The Peshalls were royalists and some of their lands were expropriated and purchased by the puritan tenant George Spateman towards the end of the Civil War. A likely related John Spateman also appears at this time as a lessee of land in the immediate area of Lea Wood. The changes of ownership at Lea are mirrored in the nearby Dethick estate where a royalist member of the Blackwall family was forced to sell to the republican Nathaniel Hallows in 1650.

In the area around Lea Wood, John Spateman appears to have been succeeded as a tenant smelter at Cowhay by his son, also named John, who in 1681-2 bought the property from John Wigley who was in financial difficulties. Wigley retained the nearby

smelter at Hollins but subsequently sold that to the Wood family of Holloway in 1694.

At the start of the 18th century, Spateman had died without direct heirs and his will named Thomas Nightingale as one of three trustees. Considerable confusion arose over the will and matters were gradually resolved over the first three-four decades of the 18th century. An early outcome, however, was that Thomas Nightingale obtained half of the Spateman lead interests (ie the Cowhay smelter and its associated woodland, including half of Lea Wood). The other half of these properties was held by Samuel Clark, the husband of Spateman's neice, but Thomas Nightingale, who had already leased Lea Hurst in 1700, went on to purchase it outright from one of the other trustees in 1707.

When Thomas Nightingale died in 1735, his son Peter inherited Lea Hall and the half share of the smelting business. Peter quickly consolidated the family interests by purchasing the other half of the business from Samuel Clarke, thus becoming the owner of all of Lea Wood by 1737. He died in 1763 passing his property on to his son, also Peter, and in 1771, the younger Peter purchased Lea Hurst together with a large area of land.

Leawood Farm

When Peter Nightingale acquired the wood in 1736, it is recorded in his ledgers that he 'improved' 15 acres, possibly plot 322 and the adjacent ones on the 1835 map on the right. These became part of Leawood



Farm. The farm also included the strip of land lying between the river and the canal which is now part of the DWT Derwentside Reserve.

It is also recorded that he built a farmhouse and outbuildings, adjacent to plot 322. The tenant in 1763 was named Adam Young with the farm listed as comprising 25 acres. Plot 322 was divided into 'Near House Close' and 'Far House Close'. Plot 321 was 'North Close', 325 was 'Little Close' and 336 was 'Steep Close'. In 1771, Peter Nightingale noted 'I built him a barn at Leawood'. The site of this barn is not known but plot 327 was called 'Barn Meadow'. There is no trace of a barn, but it may have been lost when the canal was constructed, dividing the farm into Upper Leawood Farm and Lower Leawood Farm.

The house was later converted into two cottages – Leawood Cottages which remained occupied until the last tenants moved out in 1953 (see page 25), the cottages having been condemned as insanitary having only earth closets and no running water. They progressively fell into ruin and when the local community acquired the wood in 1997 were little more than piles of stone which were removed and sold to make a contribution to the purchase of the wood.

The land continued to be used for agricultural purposes into the 20th century but some areas reverted to woodland pasture. The present open meadow was being used to graze cattle and sheep c.1950.



Extract from the 1835 estate map showing Lea Wood, with the areas cleared for Leawood Farm shown pale.



Possibly a stone water trough close to the site of Leawood Farm and the later cottages. This feature was excavated as part of the project.



The Industrial Revolution

From the mid-18th century onwards, the development of Lea Wood and its surrounding area should be considered against the backdrop of the Industrial Revolution and the rapid changes not only in technological innovation, but also in economic and social conditions that accompanied it.

Cromford and Arkwright

Lea Wood, lies particularly close to the cradle of the Industrial Revolution - Arkwright's Cromford mills. Whilst there are a number of varied inventions or patents which are debated as the impetus for the Industrial Revolution, it is the advent of the water-powered factories of the Derwent Valley that are generally considered to be a key turning point.

Richard Arkwright patented his spinning frame in 1769, a machine allowing for the creation of strong yet cheap fabric and paving the way for the huge expansion of the cotton industry of the Pennine north. After its installation in Arkwright's first mill at Cromford, the spinning frame became known as the water frame, and 'mass production' was made possible by the introduction of water power into the spinning process, particularly when paired with a refined carding machine in 1774. Arkwright's national fame was also reflected in his local stature, buying land from the Nightingale family.

Peter Nightingale financed Arkwright's second mill at Cromford, then, in 1784, he demolished the smelt and corn mills at Hollins and ventured into the cotton business himself by constructing his own mills. They

were to be developed later into the present Smedley factory at Lea Bridge. Several occupants of the previous cottages in the wood worked at the factory (see page 25).

Canals and railways

The gradual, and then later rapid industrialisation of the 18th and 19th centuries necessitated the creation of new transport links to move raw materials to production centres and finished goods to markets. Initially canals were the preferred means of transport, as they were generally safer and quicker than the often poorly maintained roads and tracks.

Comford Canal, adjacent to Lea Wood, was authorised by parliament in 1789, and was opened in 1794, to serve local industries including the mills at Cromford. Water shortage required the building of Leawood Pumphouse (pictured right top) to raise water from the River Derwent.

In 1802, Peter Nightingale constructed a branch (known as the Leawood Cut) from the main canal to a wharf at Lea Bridge, later to be moved when the Cut was shortened (picture right centre). That provided a means of importing materials for the lead smelters, cotton mills and other activities and exporting their products. At the wharf materials were transferred between carts and barges, the base on which the crane rotated can still be seen. Coal for local domestic uses was also brought to the wharf; the track to the wharf from Lea Bridge became known as the 'Slack Road'.



Disputes over the possible loss of water from the main canal via the Leawood Cut resulted in Nightingale being obliged to install a simple lock at the entrance to the cut. 'Aqueduct Cottage' (now ruinous, pictured right bottom) was built at the junction of the cut with the canal as home for the 'lengthsman' charged with overseeing a stretch of the canal and ensuring that the lock gate was always closed after a barge had passed through. This allowed the water level in the branch to rise above that in the main canal in order to prevent loss of water from the main canal into the branch.

To make a link between the Cromford Canal, itself linked to the canal system in the east, and the canal system in the west, the extensive Cromford & High Peak railway was constructed in 1825-30. The rapid expansion of rail transport in the early 19th century oversaw a decline in the use of canals, locally by the construction of the Midland Railway from Derby to Matlock (passing under Lea Wood) and on to Buxton and Manchester. The last tenant of one of the Leawood Cottages was a railway engine fireman, based at the Rowsley depot (see page 25). Following the construction of that railway, traffic on the Cromford Canal reduced appreciably and the Cromford & High Peak Railway was extended in 1853 from its original terminus by the Cromford Canal to a new junction with the main line. A second collapse of the Butterley Tunnel in 1900 isolated Cromford from the main canal system, some local traffic continued until the canal was finally abandoned in 1944. The railway continued to operate until 1967.



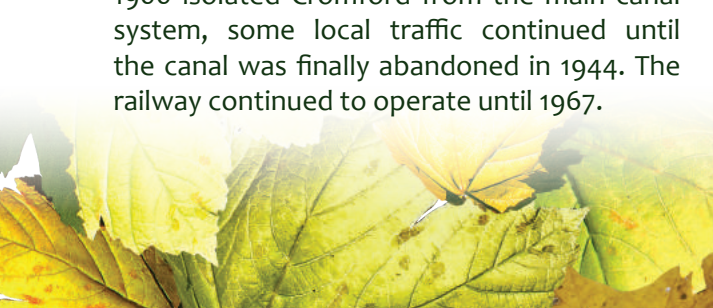
Lea Wood pumphouse on the Cromford Canal.



The former wharf at Lea Bridge.



The now-ruined aqueduct cottage at the foot of Lea Wood.





1860 estate map showing drives and carriage rides from the house through the wood. Inset: 'Florences Seat', one of several viewpoints along the drives.

1800 to the Present Day

Peter Nightingale the 2nd was to die childless in 1803, and left his estate in trust to his young great-nephew William Edward Shore, with his brother-in-law George Evans of Cromford Bridge House (Grandfather of William Edward Shore), as trustee. William changed his name to William Edward Nightingale as he came of age and inherited the estate in 1815. He became known as WEN.

Following their marriage in 1818, WEN and his wife, Fanny, left England for an extended honeymoon travelling around Europe. They returned to England in 1821 with their two daughters, Parthenope and Florence, born respectively in Naples and Florence. Lea Hall, the Nightingale residence in Derbyshire, was not to their liking (Fanny thought it too cold) and they lived initially in Herefordshire while WEN organised the rebuilding and enlargement, largely to his own design, of the Jacobean farmhouse on the Nightingale estate at Lea Hurst, completed in 1823.

On WEN's death in 1874, the Lea Hurst estate passed to his nephew William D. Shore Smith, who also assumed the name Nightingale. WEN's sister Mary, Florence's supportive 'Aunt Mai', was instrumental in ensuring an arrangement whereby Florence was to have possession of the houses at Lea Hurst and Embley (Hampshire) until her death. William Shore Smith/Nightingale died in 1894 and the Lea Hurst estate was inherited by his son Louis Hilary Shore Smith/Nightingale and, on Florence's death in 1910, he also took possession of Lea Hurst and Embley houses.

The beginning of the end of the 'Nightingale period' of ownership was the sale of Lea Hall in 1922. Louis Nightingale died in 1940 and the Lea Hurst estate passed to his two sisters. Six years later, Lea Hurst house with 395 acres of land was sold to the executors of Col. E.S. Holford in order to found a Florence Nightingale memorial nursing home. However, that did not come to pass and the estate was bought by William Bowmer of the Wheatsheaf, Whatstandwell. In 1951 Lea Hurst house and park was transferred to the Royal Surgical Aid Society to be a residential home for the elderly though Bowmer retained Lea Wood.

During the 1980s the Lea Hurst parkland, with Leawood Knoll, was sold separately. Part of the park, to the north-east of the woodland was fenced for deer. In 1997, the potential threat of some development loomed over the woodland and funds were raised within the community to enable its purchase (Leawood Knoll was not included). The Leawood Trust was formed to maintain the wood as a community amenity for the enjoyment of local residents.

In 2006, the RSA Society closed the Lea Hurst residential home and the house was sold to a private buyer; the parkland (now called 'Nightingale Park') and the Knoll remained in separate ownership. Finally in 2012, Lea Wood was donated by the Leawood Trust to Derbyshire Wildlife Trust to be managed by them as a nature reserve with public access; the Knoll remained part of 'Nightingale Park', currently under the ownership of Nightingale Park Farm.



Development of Lea Hurst Park

During the development of the estate under the Nightingales, particularly WEN (see page 22-23), a considerable area of parkland was established around the house, including Lea Wood. Carriage drives were constructed through the park, one from the south-east and one from the north-west, the latter passing through Lea Wood. Substantial stone revetments were needed to support the drive on the steep slopes of the wood, and these are still visible. The park and the wood were also developed for the pleasure of the family and visitors with additional carriage drives in the wood providing circular routes, as well as pathways and tracks to provide scenic rides and walks. There are several well preserved stone built seats still to be seen alongside some of these (see pages 14-15, 22).

Little detailed contemporary information has been found describing the park. With the rise to fame of Florence Nightingale, most mid-19th-early 20th century guides included mention of Lea Hurst as her Derbyshire home. One 19th century map has the label 'Pleasure grounds' near the western edge of Lea Wood. Although the label seems to refer to the wood and perhaps the park, it relates to a feature outside the wood. To the west of the wood, either side of Lea Brook, is a level area, likely cleared c.1730. By the end of the 18th century a stone mill, lead works and hat factory were established there; it was later described as an 'industrial hamlet' in a 1991 booklet by a local historian, the late George Wigglesworth.

An 1855 booklet by L. Jewitt, entitled "A Stroll to Lea Hurst", seems to have been the source of much of what appeared in the guides of that period. Jewitt describes a walk from Cromford to Ambergate, via

Lea Mills, Lea, Lea Hurst, Holloway and Crich. This extract describes the approach to Lea Bridge:

"At this point is placed the extensive hat and military cap manufactory of Mr Walker, romantically situated near the river side, and sheltered by the high hills which surround it on almost every side; behind the works, tall trees and wooded hills rise in profusion while in front, at the foot of a steep ascent, small pleasure grounds, in which the stems and branches of the young trees are tied into knots, drawn into circles, and curled and twisted into every fantastic form, are tastefully arranged, and planted with shrubs and choice flowers".

A 2006 article by Wigglesworth about the Lea Brook mills included a sketch map of the 'Lea Wood industrial hamlet', on which he labelled part of Lea Wood House's garden as 'Mr Walker's pleasure ground'. The house, built around 1800, was the residence of the hat factory manager. Jewitt went on to describe, in rapturous terms, the walk from the Lea Bridge lodge through Lea Wood to Lea Hurst, a likely source of information for many later guides. Abel Heyward (1911), includes a more restrained description:

"...following the course of the river the road leads presently into a most charming and picturesque valley, about a mile long. Emerging from this valley the hamlet of Lea appears, with its thriving merino and hosiery works. To the right a small lodge will be observed, which marks the entrance to the grounds of Lea Hurst. A circuitous carriage drive winds through a grove of luxurious trees, from whose occasional openings glimpses of most romantic scenery may be obtained. Pursuing this road, a gradual ascent is made until a considerable elevation is attained. Upon the highest point within the grounds, under a crest of venerable scotch firs, the visitor may rest awhile, and enjoy one of the finest views of which the neighbourhood boasts. Leaving this point and descending a gentle declivity, the mansion of Lea Hurst comes in view."



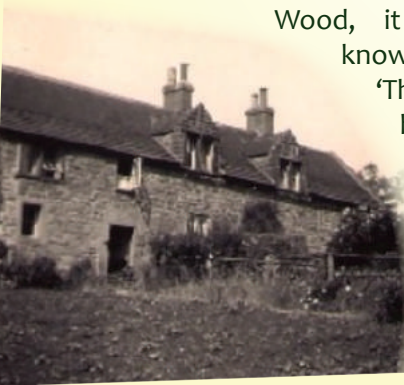
Memories of Lea Wood

A significant part of the project was the collection of memories of those local residents who have lived around Lea Wood for, in some cases, a substantial part of the 20th century. All memories were compiled and some are reproduced here.

“The last people had kept chickens in the bit that opened into the kitchen. When Grandma tried to clean it up with whitewash it wouldn’t stay on the dirty walls. They had to wash the walls with cow dung, diluted and brushed over so the whitewash would take. In the yard at the front by the canal we kept the coal. The barge men would throw us a few lumps of coal as they went past in their boats, we never bought coal. Harry Bonsall was one of the boat men. He didn’t have a horse, he pulled the barge himself” **(Mrs Ivy Turberville (nee Fletcher) remembering Aqueduct Cottage).**

“On written items I have, the address was put as ‘Lea Wood’, but when you think back to around 100 years ago, everyone knew everyone else in a village. Although the house was officially in Lea

Wood, it was commonly known or nicknamed as ‘The Tunnel’ House, because the house was over the main London to Manchester Railway Line. I recall dad telling me that



they could feel the vibration of the trains running underneath them!... There was no water on site at Lea Wood. The water came from the spring about a third of a mile away from the cottage and the children took it in turns to fetch the water. At first they used buckets, but later they had a 10 gallon tank that they used to put on a type of barrow, but more was spilt than arrived back home! The path was steep and rough and one pulled and one pushed the barrow. It was quite a feat to get it to the house. The way the next door neighbour got their water up was on a horse and cart. They must have been better off! Dad called it a spring but I think it possible that it had a pump to get the water up making it easier” **(Mrs Susan Tomlinson recounting her father Jack Knowles’ life in Leawood Cottages between 1916-1939).**

“The cottage had two bedrooms. One was occupied by my parents (Fred and Doris) together with me. For a time the other was occupied by Tommy and Roma Anderton (Tommy was Doris’s brother) as lodgers. Tommy was an old army mate of Fred and also worked at Rowsley railway depot. Roma operated a knitting machine at Lea Mills... Tradesmen would not deliver up to the cottages; post was left at the post office in Lea Bridge, milk was left near the lodge at the bottom of the drive, coal was delivered to the top of the drive but had to be carted manually across the meadow, which was often rather boggy”. Life was hard. **(Mr Edwin Else remembering his early childhood in Leawood Cottages between 1949-53).**

Volunteers excavating a post-medieval whitecoal kiln.



Rhododendron clearance being undertaken by DWT and a corporate group from Carillion PLC © Derbyshire Wildlife Trust.



Volunteers undertaking earthwork survey led by archaeologists from ARS Ltd.

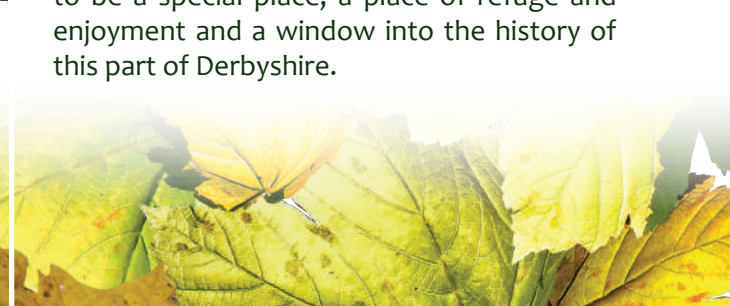


Into the Future

Upon taking over the management of Lea Wood as a nature reserve in 2012, Derbyshire Wildlife Trust prepared a management plan for conserving this wonderful semi-natural woodland into the future. A group of volunteers now works once a month on a variety of activities including clearance of the extensive and invasive rhododendron. This foreign ornamental plant has become dominant in certain parts of the wood since its likely introduction in the 19th century, at the expense of native flora.

It is also intended to maintain the historic character of the wood through such processes as clearance and management of young sycamore to promote the re-colonisation of native species, and careful promotion of shrub and woodland floor plants. It is also hoped that the conservation of the flora will encourage the significant fauna, for example the clearance of rhododendron will promote heather growth, a habitat suited to reptiles. Some of the excavated archaeology has been left exposed for visitors to see and these sites will be kept clear.

With the help of local volunteers, and building on the success of the Lea Wood Heritage Community Project, the wood will continue to be a special place, a place of refuge and enjoyment and a window into the history of this part of Derbyshire.



Further Reading

For more information about the general and historical background see:

Hart, C.R. 1981. *The North Derbyshire Archaeological Survey*. Leeds, A. Wigley & Sons.

Hey, D. 2008. *Derbyshire: A History*. Cambridge, Cambridge University Press.

Kiernan, D. 1989. *The Derbyshire Lead Industry in the Sixteenth Century*. Published by the Derbyshire Record Society, Chesterfield. ISBN 0 946324 10 7.

Rackham, O. 2006. *Woodlands*. Glasgow, Collins.

Raistrick, A. 1948. Ore Hearth Lead Smelting in the 17th and 18th Centuries. *Proceedings of the University of Durham Philosophical Society* 10: 29-40.

Smith, P.E. 2010. *An Assessment of Woodland History and Archaeology: A Case Study Approach*. Unpublished MPhil Thesis, Sheffield Hallam University.

Wigglesworth, G. 1991. *Lea Wood – an Industrial Hamlet*. Matlock, Published privately and available in Derbyshire Records Office and Local studies Library.

Wigglesworth, G. 1992. *Lead Smelting in Lea*. Matlock, Published privately and available in Derbyshire Records Office and Local studies Library.

Willies, L. 1990. Derbyshire Lead Smelting in the 18th and 19th centuries. *Bulletin of the Peak District Mines Historical Society* 11 (1): 1-19.

Wood, M. 1982. Lead Smelting in Lea. *Derbyshire Miscellany* 9 (5): 128-36.

For further information about the results of the investigation of Lea Wood see the following reports (available in the Local Studies Library/Derbyshire Records Office, Matlock):

Brown, A., Hawksley, J., Aldred, H., and Bradley, D. 2014. *Lea Wood Heritage Community Project - A Cultural Heritage Assessment of Lea Wood, Derbyshire*. Archaeological Research Services Ltd Report 2014/53.

Brightman, J. and Walker, R. 2014. *Lea Wood (Derbyshire) Heritage Community Project – Report on a Landscape and Earthwork Survey*. Archaeological Research Services Ltd Report.

Walker, R. and Tong, J. 2014. *Lea Wood (Derbyshire) Heritage Community Project, Archaeological Excavation Report*. Archaeological Research Services Ltd Report 2013/67.

See also the project website at [www. leawoodhcp.wordpress.com](http://www.leawoodhcp.wordpress.com)



Acknowledgements

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Helen Aldred (Principal researcher), Bob Baguley, Don Bradley, Antony Brown, Christine Hooker, Dave and Julia Jackson, Catherine Sauzier, Lindsay Steele, Richard Walker and Ted Ward.

This research was, in turn, built on an extensive history of scholarship on the historical uses of woodlands in Derbyshire and beyond. For those wishing to learn more, much of what has come before and the findings of this project can be found in the recommended reading listed on the previous page.

The successful investigation of this fascinating, multi-layered woodland was achieved with the participation of a large cast of volunteers, some will continue to assist DWT Reserves Officer for Lea Wood, Kate Lemon, with ongoing conservation work; including (with apologies to anyone overlooked):

Helen Aldred, David Ashton, Diane Badger, Bob Baguley, Steve Bailey, Holly Bardell, Evie Bleach-Lawrence, Emma Bonwell, Sue Booker, Matthew Buckler, Michi Burrow, Rachel Clark, Robert Coope, Mike Coveney, Steve Dolton, Harry Dowding, Fred and Gill Dyson, Hilary and Ray Essen, Cathryn Frost, Dave Furniss, John Garth, Harry Goodman, Denise and Eric Grace, John Gregory, Ann Hall, Sue and Steve Hannath, Philip Hanson, James and Margaret Hawksley, Ian and Christine Hooker, Peter Hoy, Dave and Julia Jackson, Anthony Keaney, Lili Kidules, Kate Lemon, Kevin & Hilary McKay, Phillipa Michaels, Jackie Mitchell, Will Morris, Evan Odell, Adrian Partridge, Alison Pritchard, Maggie Robinson, Paul Robinson, Jan Roche, Denis and Catherine Sauzier, Paul Smith, Lindsay Steele, Joy Stevenson, Andrew Street, Andy Topley, Liz Tryner, Pat Ward, Peter Ward, Ted Ward, Alaina Weir, Bethan Williams, Dave Wolsey, Cheuk Wong, Neil Woodford, Glyn Woodruff, Nancy, and pupils and teachers from Alderwasley Hall School and Lea Primary School.



Getting to Lea Wood



Lea Wood can be reached by turning onto Lea Road at Cromford, south of Matlock Bath (signposted to Lea, Holloway and Crich). Continue past the Cromford Mills centre and after c.3km turn right into the High Peak Junction car park. The trail in the centre of this booklet starts from this point.

Lea Wood is a nature reserve managed by the Derbyshire Wildlife Trust for the benefit of all. It is a tranquil and beautiful landscape, but paths and routes through the wood can be slippery, particularly after bad weather. The wood blankets a hillside which is steep in places and the trail does require at least a low to moderate level of fitness. In addition to taking the usual care for exploring a wooded landscape, including abiding by the Countryside code, there are some features left exposed following the archaeological excavations. These have been left open specifically for visitors to observe, but care must be taken around these areas.



The spectacular and ancient woodland of Lea Wood blankets the sides of a prominent hill overlooking the middle reaches of the River Derwent south of Cromford in Derbyshire. In addition to an ecology of great variety, the wood has deep links to the family of Florence Nightingale and hosts the remains of centuries of human activity. This booklet provides a guide for you to explore this fascinating landscape.

