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Woodland landscapes in Sheffield, England - reconstructing the evidence of four thousand years of human impact

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Abstract

The ancient woodlands of England have been extensively researched and in many cases thoroughly documented. However, despite the intensity of research and the enormous public and academic interest there is a surprising lack of awareness of some fundamental causative influences in the contemporary landscape. Furthermore, the archaeological evidence for these remains often enigmatic and under-appreciated. There is a dearth of collaborative research that considers both the ecology and archaeology of many of these sites.

This paper addresses two major problems. The first relates to most woodland ecologists having little experience or training in the recognition or interpretation of archaeological features. Furthermore many archaeologists are actively defensive and discourage ecologists from crossing the disciplinary divide.

The second problem relates to what is recognised as 'archaeology'. As shown by this research and indeed by others before, the soil, the ground and surface features, and the trees and other vegetation may all hold clues to former management and to former landscapes. Yet these aspects of wooded landscapes are often ignored by archaeologists, either more interested in 'monuments and earthworks' and 'artefacts' than earth and vegetation, or simply untrained to recognise these subtle landscape features.

Trained archaeologists tend to recognise archaeology 'in' woods, but not the archaeology 'of' woods. Both a cause and a consequence of this situation is that there is presently almost no literature to guide the would-be field worker or to inform a site manager, in surveying or evaluating the archaeology of their woodland resource.

Our case study sites are ancient woodlands in England. In some cases they are now in the heart of major urban areas, but even here hold evidence of landscape utilisation over four millennia. Recent work has both raised the level of knowledge of these areas and also highlighted that much of the evidence yet to be formally recognised.

Lack of awareness raises serious issues of an urgent need for cross-disciplinary collaboration and for effective training and support for field workers. Many of these ancient woodland landscapes are extremely vulnerable to inappropriate management or to intensive recreational disruption. Often unrecognised they may be lost or degraded very easily and very quickly.

Research is presented based on case studies from South Yorkshire and North Derbyshire in England. The arguments are supported by preliminary observations from elsewhere in Europe.

Introduction

Ancient woodlands in the UK are valuable and irreplaceable conservation resources. They provide habitat for vulnerable and interesting wildlife species, many associated exclusively with wooded environments. There is also an emotional response to wooded landscapes, especially 'ancient' woods, as fragments of a perceived primeval 'wildwood', although this is largely misconceived (see Pigott, 1993; Day, 1993 for example). In reality these wooded landscapes are complex palimpsests of human activity shaped over countless centuries. Perhaps the special importance of an ancient woodland is the feeling of walking in the footsteps of the ghosts of people that lived and worked there over thousands of years.

It is these 'ghosts' that have left their mark on the wooded landscape and even on the vegetation itself. Also (as suggested by Day and by Pigott (both 1993)) many of today's ancient woodlands probably incorporate phases of non-woodland, often agricultural or even settlement use. The soils, the landform, the vegetation, the hydrology and the fauna, all reflect human impact over the millennia. For many ancient sites such as our case studies in the Sheffield area being a woodland has preserved and protected the complex landscape from the massive destructive tendencies of the twentieth century.

This brings us to the main thesis of this paper. The unique histories of many ancient woodland landscapes has caused the complexity of environmental and human factors to be held in place and generally protected from gross disruption. These landscapes often hold the evidence of two main human influences – (a) those of the woodland and its utilisation and (b) those of non-wooded periods in the timeline of the site. The present day woodland has been formed and influenced by both sets of tendencies, though not always in equal measure. Furthermore each wood is to some extent a unique and living catalogue of its own landscape history.

Some of the evidence for this is in the ecology of the wood – in for example botanical 'indicators' of either antiquity or of disturbance. Other evidence is in the form of 'archaeological features or finds'. Understanding this complexity is important if a woodland is to be appreciated in its totality and to be conserved effectively for the future. Recognition of the evidence and awareness of its potential vulnerability is vital. However, there are pitfalls and problems inherent in this. One of these is the emerging awareness that these sites require a more holistic approach than is easily applied by the narrow focus of professional and academic divisions. For example, experience of professional ecologists and archaeologists is that they are often wary of crossing boundaries and are even suspicious of those that do. However, the approach required falls well within the remit of the environmental historian.

The study area and the case study sites

The core study area is around Sheffield in South Yorkshire and extending into parts of North Derbyshire, north Nottinghamshire and the Peak District.

There are four main case study sites documented to date. These are:

- Ecclesall Woods in Sheffield. (SK 320 825)
- Gleadless Valley Woodlands in Sheffield. (SK 366 835)
- Grimethorpe Woods in Barnsley. (SK 425 085)
- The Upper Moss Valley Woodlands in Derbyshire. (SK 375 805)

The main study site reported here and for which detailed surveys have been undertaken and computer-generated maps produced is Ecclesall Woods.

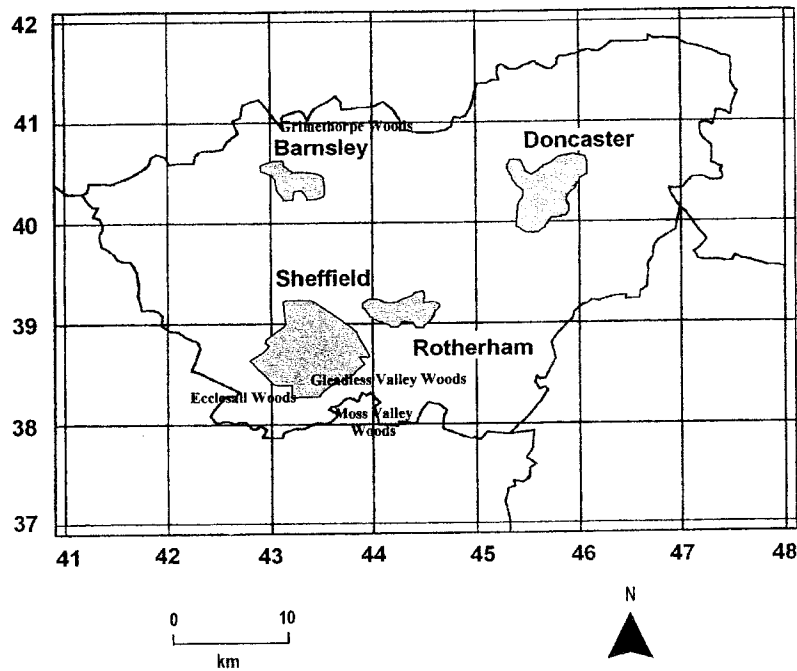


Figure 1. Study Sites

Figure 2. Charcoal burner's hut in Old Park Wood Sheffield – early 1900s



Methodology

For each of the sites or site complexes, a scoping evaluation was undertaken. A detailed site survey was then carried out. This included both landscape archaeology and ecology, and was supported by necessary archival research and geological and soil investigations.

Work in Ecclesall Woods was then supported by GPS Location mapping and detailed data logging and mapping with GIS. Surveys at the other sites were mapped manually. The site maps were then used to begin the process of interrogation of the substantial data sets produced. The Ecclesall Woods site has also had distribution maps of key botanical indicator species produced to further inform the process of interrogation. Specialist archaeological support was commissioned to consider in detail some of the 'finds' in Ecclesall woods and to attempt to place them in a regional and national framework.

Interviews were held with experienced archaeologists both across the region and at a national level to ascertain the background of professional archaeological recognition of the woodland archaeology features. To support this, when the GIS maps were being produced and the work was being prepared to be passed to the regional archaeological advisory service (The South Yorkshire Archaeology Service) the standard terminology for recognition and recording of such features was investigated. This was the contemporary version of *MIDAS - A Manual and Data Standard for Monument Inventories* (1998) and the current thesaurus associated with this.

The evidence

The impacts of charcoal and whitecoal production in woodlands

The impact of topsoil disturbance and turf-stripping associated with charcoal production, on woodland vegetation, was first described by Rotherham and Doram (1990) and also noted by Hart (1993). Observations relating to woodland ground flora in the Sheffield area, indicated a link between charcoal and whitecoal production, and both loss of topsoil and impoverishment of vegetation. The scale of this impact, along with the implications for woodland vegetation has been almost totally overlooked by previous workers. The occurrence of both charcoal and whitecoal production in local woodlands, and the associated impacts on woodland vegetation, were discussed by Ardron and Rotherham (1996). Detailed analysis was presented by Ardron and Rotherham (1999).

The combined or individual impacts of whitecoal (kiln-dried wood for use in post-medieval lead smelting) and charcoal production on woodland vegetation are potentially very significant. Areas of woodland apparently unaffected by coaling were found to have a well developed 'A' horizon with a soil with a neutral or only slightly acid pH. These areas were characterised by typical ancient woodland indicators, such as *Mercurialis perennis* (dog's mercury), *Lamium galeobdolon* (yellow archangel), *Anemone nemorosa* (wood anemone), *Allium ursinum* (ramsons), *Galium odoratum* (woodruff), *Sanicula europea* (sanicle), *Stellaria holostea* (greater stitchwort), *Veronica montana* (wood speedwell), *Circaea lutetiana* (enchanters nightshade), *Melica uniflora* (wood melick) and *Milium effusum* (wood millet).

Soils within woodland areas affected by intensive 'coaling', often over several centuries, were found to have very thin 'A' horizons, and low pHs (c.3.5-4.5). The typical species of these

impoverished zones were *Holcus mollis* (creeping soft-grass), *Rubus fruticosus* agg. (bramble), *Lonicera periclymenum* (honeysuckle), *Deschampsia flexuosa* (wavy hair-grass), *Pteridium aquilinum* (bracken), with *Dryopteris dilatata* (broad buckler fern), *Hyacinthoides non-scripta* (bluebell) and sometimes *Luzula pilosa* (hairy woodrush). These differences are very significant and very interesting. At a national conference on ancient woodlands, held in Sheffield in 1992, ecologists and archaeologists from all over the UK visited our core case study site of Ecclesall Woods. The general view (and indeed that of earlier writers on the woods of the district suggest the same) was that these sites are of inherently low botanical diversity and are 'naturally' relatively species poor. It was also felt that these were sites of relatively low conservation interest.

Although it has been recognised that these 'kilns' were constructed on hearth surfaces (sometimes called pitsteads) descriptions of the latter are rather basic. Hart (1993) describes a faint bowl type earthwork; Franklin (1991) and Crossley (1993) mention the occurrence of platforms. These descriptions offer a little help when trying to identify features in the field, but do not take into account variation in size and design of hearths or possible confusion with other archaeological features commonly found in local woodland. This narrow perception of the appearance of these structures and frequent failure by field workers to recognise features, means their full significance in woodland landscapes remains unappreciated.

Furthermore, presented with field evidence of varying features (since evaluated and reliably 'typed'), senior archaeologists at the 1992 national conference on the archaeology and ecology of ancient woods made suggestions as to the interpretation of what they saw (or didn't see) in Ecclesall Woods. This in itself was an interesting exercise. Some features were recognised and correctly identified, many others (the majority) were overlooked, and a lot were significantly misunderstood. The so-called Q-pits (mostly but not all associated with the manufacture of kiln-dried wood) are generally obvious and this 100 ha wood holds over 100. However, the charcoal platforms are more difficult to recognise and some are superficial. A detailed survey by an experienced archaeologist in preparation for the 1991 conference revealed only 60-70 'coal kilns' and 'charcoal hearth pits' in the Woods. The current intensive survey has confirmed 3-400 charcoal hearths in addition to the Q-pits.

With practice it is generally easy to find and confirm suspected charcoal hearths. The typical form (a sub-circular and recessed levelled surface) on either level or on sloping sites is the first clue. Blackened earth, rich in charcoal dust and fragments provide confirmation. These deposits are often exposed in bare patches resulting from dense shading or animal activity. True charcoal is usually distinguishable from wood burnt on open woodland fires by its hard nature. (It doesn't readily crumble to dust when squeezed between the fingers).

Following these early observations, considerable work has been undertaken, in recognising and identifying the evidence of charcoal making in woodlands around Sheffield. This has generated increased awareness of the occurrence of charcoal-associated features in woods, and the implications of this for understanding present-day woodland ecology, as described by Ardron and Rotherham (1996 and 1999). Table 1 presents a first attempt to assess and evaluate the occurrence of charcoal hearths and Q-pits in the region's woods.

Ideally field evidence should be corroborated by documentation. In this case, the production of charcoal using 'clamp-kilns' in some of our local woodlands is well known from references in post-medieval documents (Jones, 1993) and a number of papers concerned with the industry have been produced (Crossley, 1993; Hart, 1993; Jones, 1993).

Since many so-called 'indicator' plants and animals of ancient woodlands rely on a lack of major disturbance and require continuity of woodland cover, they will undoubtedly have suffered through these long-term activities.

Table 1: Q-Pits and Charcoal Hearths in the Sheffield Area and Eastern Peak District

		Grid Ref. SK	Q-Pit	C.H.
Fearfall Wood	Upper Derwent	189873	0	14
Lee Wood	"	186878	0	27
Hagg Side/Ridges Coppice	"	170888	0	40
Haggtor Coppice	"	164886	0	3
Blackley	"	155887	0	11
Grimbocar Wood	"	176870	0	c.50
Rough Wood	"	185864	0	c.30
Wrenhey Coppice	"	165909	0	6
Gores Plantation	"	168904	0	7
Nahs Wood	"	168899	0	21
Lockerbrook Coppice	"	168892	0	1
Hey Bank	"	174921	0	c.3
Grainfoot Clough	"	192879	0	2
Lodge Cote	"	193874	0	1
Dingbank Wood	"	196867	0	1
Wiseman Hey Clough Plantation	"	183858	0	1
Blackbrook Wood	Rivelin Valley	295868	1	3
Rivelin Coppice	"	295876	+	+
Ecclesall Woods	Sheaf Valley	323825	c.140	c.300
Ladies Spring Wood	"	325815	c.10	c.15
Hutcliffe Wood	"	334828	-?	c.5
Poynton Wood	"	322808	+	+
Old Park wood	"	331808	?	?
Parkbank Wood	"	336818	+	+
Chancel Wood	"	342822	+	+
Cobnar Wood	"	348824	?	?
Gulleys Wood	"	333815	?	?
Buck Wood	Cleadless Valley	371844	?	?
Leeshall Wood	"	366836	c.5	c.5-10
Rollestone Wood	"	372835	c.	c.5-10
Bowden Housteads Wood	Car Brook	398866	0	0
Coalpit Wood	Moss Valley	365809	0	0
Nor Wood	"	367805	?	?
Long Wood	"	371807	0	c.10
Bridle Road Wood	"	377807	c.5	-
Newfield Spring Wood	"	375812	?	c.5-10
Stoneley Wood	"	382824	?	?
Gillfield Wood	Totley Brook	308788	+	?
Holmesfield Park Wood	Holmesfield	319785	c.20	+

		Grid Reference SK	Q-Pit	C.H.
Smeekley Wood	Milthorpe Brook	298769	c.5	c.20
Bank Wood	"	302772	?	1
Cockshuts Wood	"	304766	?	1
Burrs Wood	"	301756	1	?
Hollin Wood	"	315752	?	+
Rose/Stripes/Meekfield Wood	"	311756	+	+
Monk Wood	nr Chesterfield	348762	1	c.10
Sherriff Wood	Grindleford	238787	?	c.2
Bolehill Wood/Yarncliff Wood	"	250792	1	c.10
Froggatt Wood	"	248772	1	?
Bank Wood	Calver	233730	0	1
Bramley Wood	"	240737	0	0
Manners Wood	Bakewell	234683	0	0
Chaney Field Wood/Wigley Wood	Linacre Brook	315725	c.2	c.3
Birley Wood	"	323729	c.8	10
Linacre Wood	"	332726	8	10
KitchenRat Wood	"	339729	c.4	c.4
Ductstick Wood	"	343723	4	?
Shining Cliff Woods	Crich	330521	?	1
Redcar Hillside	Wingerworth	370657	?	c.10
Acorn Hill/Little Matlock Wood	Loxley Valley	307893	?	?
Summerhouse Wood	Sheaf Valley	355826	?	?
Trippet Wood	Porter Valley	318854	?	+
Ladybank Wood	Moss Valley	426802	0	c.10
Cook Spring Wood	"	373805	1	4
Owler Car Wood	"	375803	c.10	c.3
Low Spring Wood	High Green	334962	?	?
Low Hall Wood	"	333965	?	?
Frith Wood	Dronfield	367787	c.5	c.10
Upper Wood	Upper Derwent	166940	0	1

KEY
+ Present, but numbers unknown
? Perhaps absent, but site not fully surveyed
0 Absent (site thoroughly surveyed)
1,2,3 etc Numbers of pits/hearths located
Q-Pit Whitecoal Kiln
C.H. Charcoal Hearth



Figure 3. Traditional Charcoal clamp early mid 1900s

Drains and ditches

Along with 'coaling' platforms and kilns, ditches and drains are major features within the case study woodlands. Dating these is not easy, and they vary from minor alterations to otherwise natural streams, to quite significant, constructed, stone-lined features. Some were previously attributed to coppice or other management compartment boundaries, though detailed mapping does not support this assertion. It seems likely that they originated over a long period of time as part of land improvement for woodland management. Evidence for the earliest drains in the case study woods suggests they are probably from the fifteenth and sixteenth centuries and imposed as part of the development of a coppice woodland system on the sites. However, it is quite possible that some of these may be derived from a much earlier period perhaps as far back as the Romano-British settlers on the sites. It is likely that the most dramatic imposition of drains into the woods was during the late eighteenth and nineteenth centuries as part of an obsession with land improvement by drainage that occurred on both farmland and on wooded landscapes. When some of the woodlands were taken into local authority ownership in the early twentieth century, the drainage network was often maintained with a vigour almost amounting to zeal.

In today's Ecclesall Woods the bulk of the site is dry and free draining. Small areas of species rich vegetation such as 'Mirey Wood' remain reasonably intact, but even these have been substantially affected by drainage. An indication of how wet and boggy the woods may have formerly been is the relict *Sphagnum* flora identified during field surveys. Ecclesall Woods supports a flora of around eight species of *Sphagnum* mosses growing in fragmentary populations and as inconspicuous small patches in degenerate mire communities (Ardron, 1997). Similarly, Owl Car Wood (which means a wet alder wood) in the Moss Valley is now extremely dry and appears to have lost its topsoil and any significant organic deposits. This may have been due to a combination of downwash and sediment degradation associated with drainage of the wood on conversion to coppice in the 1700 and 1800s.

The impact on these woodlands has been huge with only small areas remaining wet. The effect on woodland ecology has been very significant. Many woodland species require wet and humid conditions and these will have suffered dramatically due to this impact.

Understanding the impact of these imposed drainage networks is vital to effective landscape evaluation. For both nature and archaeological conservation it may be desirable to manipulate watercourses to decrease surface run-off.

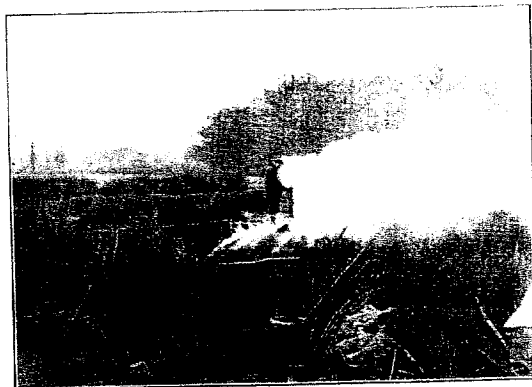
Boundaries, trackways and other features

The case study sites are extensively dissected by a mixture of sunken tracks including packhorse routes and drovers ways, industrial tramways from nineteenth century ganister quarries, numerous minor paths and tracks related to woodland management and contemporary recreational routeways. They have medieval wood banks, early medieval deer park pales, and possibly earlier administrative boundaries of more regional significance. They sometimes have extensive lynchets, hedges and walls of varying forms, sizes and origins. Within the woods are early settlement sites, from Romano-British settlements and field systems, to possible Anglo-Saxon farmsteads, with Bronze Age and possibly Neolithic sites. Further research is clearly needed to fully understand this rich heritage.

Along with the above is a dazzling array of early and later industrial use. This includes the charcoal and Q-pits referred to earlier, saw-pits, bell pits for coal and ironstone, mills and smelting sites for lead and iron manufacture. The woods were also important sources of stone from small-scale building stone quarrying to medium-scale ganister extraction for refractory materials. Ecclesall Woods for example contains numerous minor stone-getting holes, sites of Romano-British quern-stone manufacture and several large quarry workings.

Each activity has left its unique and often distinctive mark within and on the woods. Some we know happened but they are difficult to determine. The woodland craftsmen and their families must have spent much of their lives in the woods and probably they, their families and their livestock were in the woods for much of the year. However, apart from old photographs of charcoal burners settlements in the early 1900s, little evidence of their encampments remains on site. Perhaps all that remain are the ghosts.

Plate XV



CHARCOAL-BURNER AT WORK, PLAISTOW, 1936



PUTTING CHARCOAL INTO SACKS, PLAISTOW, 1936

Figure 4. Charcoal manufacture

In the course of research over eighteen years, numerous interviews have been held with experienced local authority archaeologists. From this, and from an examination of the literature and the handbooks for monument description, it is clear that this is a very under-appreciated area of interest. There is a lack of any effective typology and of any comparative site assessments necessary for site evaluation for conservation. There are almost no published diagrams or measured drawings, or descriptions of excavations to use in order to evaluate site finds, or to guide the field worker. There are some exceptions with descriptions of excavated Q-pits, and some plans of woodland boundaries. These apart there is little available in the academic or professional literature. These features remain overlooked or misunderstood.

Preliminary observations elsewhere in Europe suggest that woods have a rather similar heritage of landscape archaeological features relating to former management. Furthermore, discussions with researchers indicate that the lack of effective recognition is also a serious problem. So far we have considered sites in Northern Italy, in Turkey, in Portugal and in southern France. In all these situations there is similarity with the UK woodlands.

Conclusions

The archaeology both *of* a woodland, and *in* a woodland, are of huge interest. Much of the vital evidence for the unique site history is in subtle features combining human interference, ecological and edaphic characteristics. Since ancient woods often represent landscapes relatively unaffected by gross disturbance, they may hold evidence of cultural and ecological histories spanning many centuries. However, these clues to the past are very vulnerable to damage and destruction through contemporary management. This management is often intended to bring about environmental improvement and loss is usually (though not always) inadvertent.

The work so far has been important in establishing the nature importance of the resource and its high conservation value. Research in Eccesall Woods has recently been validated through an independent archaeological evaluation for the local authority, funded by the National Lottery. The site was considered of regional and perhaps national importance as a result of the archaeological interest demonstrated.

The case studies have highlighted the lack of comparative data and typologies for field survey and to enable effective conservation evaluation.

The work itself has been detailed in a number of extensive site reports. The outcomes will be published in the academic literature in due course. Guidance on field identification of woodland archaeology features is also planned. The Ecclesall Woods research is summarised in the timeline presented in Table 2.

The research brings into sharp focus the need for:

1. **More reliable and informative documentation.**
2. **Urgent need for awareness raising – especially for foresters, conservation managers, ecologists and indeed archaeologists.**
3. **Effective education for the public.**
4. **Further research to evaluate and quantify the resource.**
5. **Conservation guidelines for site managers.**

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timeline to be constructed for its landscape evolution.

Ecclesall Woods is located in the typical ancient woodland location – the edge of a parish and on relatively poor ground. It is also situated along the significant boundaries of the former Anglo-Saxon kingdoms of Northumbria and Mercia, and of the later counties of Yorkshire and Derbyshire.

To the north and west lay the upland moors of the South Pennines; to the east and south the rolling farming countryside of South Yorkshire and Derbyshire. Much of the area is now urban development.

[The uses given in many cases don't have sharp beginnings and ends, but merge and overlap one with another].

Landscape	Use and management	Evidence
<p><i>Wildwood</i> Ancient but secondary woodland in patchwork semi-open landscape. More woodland probably along stream-sides and in wet areas or on poor ground.</p>	<p>Pre-management Nomadic or transient use of area.</p>	<p>No identifiable specific evidence remaining. Perhaps some botanical indicators survive from the early woodland – in wooded fragments, boundaries and stream-sides. Mesolithic / Neolithic flints; cup-and ring marked stones (Bronze Age); hilltop enclosure (Bronze Age / Iron Age?);</p>
<p>Non-wooded or fragmentary woodland in farming landscape with perhaps heath (1)</p>	<p>Nomadic or transient use of area. Farming land use in small settlements.</p>	<p>Neolithic flints; cup-and ring marked stones (Bronze Age); hilltop enclosure (Bronze Age / Iron Age?); Barrows and cairns. Romano-British field system; plough marked stones and soil-eroded areas. Double orthostat walls – Romano-British.</p>

<p>Non-wooded or fragmentary woodland in farming landscape with perhaps heath (2) <i>Wood pasture; common; and 'waste' (1)</i></p>	<p>Farming land use during Anglo-Saxon period. Post-Conquest clearance of farming settlements. Imposition of Norman overlord and Deer Park until 1400-1500s Grazing by deer and small game plus perhaps livestock.</p>	<p>Settlement sites (house platforms); track-ways; associated ditches and banks. 1200s Sir Ralf de Ecclesall established chapel as part of the holdings of the nearby Beauchief Abbey. 1317 Robert de Ecclesall granted Royal Licence to impark the Ecclesall Woods area. Place name evidence and physical remains – major boundary bank. Depositions taken on 2nd October 1587: George Sixth Earl of Shrewsbury claimed that he, his father and grandfather 'used sett and placed Crosbowes for to Kyll the Deare in Ecclesall Afforesaid and to hunte at all tymes when so it pleased them'. 'he sayeth that ye said Erle George grandfaster to ye said now Erle of Shrewsbury hath sett Nets & long bowes to kyll deare in Ecclesall and hunted dyvers tymes there and he thinketh that the said Erle ffrancis father to ye Erle that now is did the lyke' 'he saith that he hath sene the lord ffrancis hunting in Ecclesall byerlow and that the said lords officers sett decoersthre at such places as they thought convenient.'</p>
<p><i>Wood pasture; common; and 'waste' (2)</i></p>	<p>Some usage continuing until 1700s. Grazing by livestock and use for materials for fuel and building by local commoners on lands outside the Park.</p>	<p>Some ancient woodland and dead wood insects (hoverflies and beetles) perhaps hanging on from ancient parkland trees. Place name evidence.</p>

<p>Coppice wood and during later phases intensive 'industrial' coppice.</p>	<p>1400s-1800s Intensive management for woodland produce from oak coppice and timber. Drainage.</p>	<p>Detailed documentary evidence of management, ownership and sales of produce from 1700 onwards. Place name evidence; physical remains – coppice stools, singled trees, banks; ditches. Charcoal hearths. Botanical indicators of ancient coppice wood. Botanical indicators of open (heath or grassland conditions). Contracting in range towards end of 1900s. Birds of open and heathland environments surviving into late 1800s and early 1900s, but largely replaced by mid-late 1900s by typical high forest bird communities. Charcoal hearths. Q-pits [1500-1600s]. Mills. Smelting sites. Pits. Quarries. Trackways / tramways. Extensive and intensive cutting and burning of turf and topsoil to cover temporary dwellings of woodland workers and especially for production of charcoal. Consequent loss of many woodland plants from the core areas of the woods. Many restricted to the boundaries and to wet areas.</p>
<p>Industrial exploitation linked to water power and to coppice wood – charcoal, white-coal, fuel wood, turf, mineral coal, ironstone. Later phases included ganister quarries for refractory materials. Stone quarries for building stone.</p>	<p>1400s-1900s</p>	

<p>Victorian re-planting as 'High Forest'. Planting with exotics during late 1800s and early 1900s</p>	<p>mid-1800s until early 1900s. Further drainage. Introduced <i>Rhododendron ponticum</i> and <i>Prunus laurocerasus</i></p>	<p>Beech, Pine, Larch, Sweet Chestnut plantings. Typical high forest bird communities. Dense and now invasive shrub beds.</p>
<p>Local authority owned 'amenity' woodland</p>	<p>Abandonment of woodland and forestry management, with move to abandonment plus phases of urban park tidying and maintenance of drains etc. Increased urban development around the Woods and domestic gardens adjacent to around half the boundaries. Major roads cut through the Woods. Sheffield's first nature reserve established as the 'Bird Sanctuary' within the Woods. All active management banned from this area. (1929) Introduction of 50-100 garden exotic plants several becoming highly invasive.</p>	<p>Changing structure of wood with dense canopy and impoverished ground flora. Changing fauna to follow this and the increased disturbance. Intensive use for recreation and for dog walking. Re-establishment of some woodland plants such as bluebell (<i>Endymion non-scriptus</i>) – spreading back in from peripheral areas.</p>

<p>Conservation woodland, SSI and Local Nature Reserve.</p>	<p>Suggestion to tidy wood and re-plant with exotic trees and shrubs leads to local outrage and advisory group set up to lobby for conservation.</p>	<p>Management activities; management plans; community consultations; continuing changes in flora and fauna.</p>
<p></p>	<p>Recognition as Site of Scientific Interest (1991) and surveys of archaeology and ecology undertaken on ongoing basis.</p> <p>Conservation and access management being undertaken together with bids for funding.</p> <p>Experimental demonstration areas of coppice management and the first charcoal and turned wood produce for 150 years!!</p> <p>Interpretational leaflet on woodland history and then on woodland archaeology produced. (Perhaps first ever on woodland archaeology??).</p> <p>Detailed surveys of field archaeology and GIS computer mapping highlight the depth of interest of the site. (1999-2001).</p>	<p></p>

<p></p>	<p>New management plan approved.</p> <p>Further research on both ecology and archaeology being undertaken.</p>	<p></p>
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What now???

There will be decisions about how to integrate and maintain the rich diversity of interests – for some of which the management may lead to serious conflicts.

There are difficult issues of interest, of priorities and of funding.

A key point from this research is the need to understand the past, to inform the present, to influence the future.