THE ARCHAEOLOGY OF WOODLAND LANDSCAPES: ISSUES FOR MANAGERS BASED ON THE CASE-STUDY OF SHEFFIELD, ENGLAND AND FOUR THOUSAND YEARS OF HUMAN IMPACT

Ian D. Rotherham and Paul A. Ardron*

Abstract

In Britain today not only is there a massive interest in wildlife and the natural world, but in history too. If anything the engagement of local people with history on their doorstep exceeds even that with wild nature. Coverage in the media such as Time Team and Spring Watch for example, reflects these trends. Indeed since Rackham’s seminal works in 1980 and 1986, both research and public interest in landscape history have been growing. In which case you might expect that the emerging realisation that many ancient woods hold amazingly rich resources of archaeology and local history, along with their rich wildlife, would be welcomed by all. Surprisingly, many professional archaeologists have shown little interest in wooded landscapes, and in a number of cases were very dismissive of initial claims that these were rich and interesting historic landscapes. Clearly much archaeology is focused on specific fields and the built environment and built structures are for obvious reasons hugely important to them. This observation flags up a deeper problem though. A lack of effective research and recognition of archaeology in woods may mean that the resource is accidentally damaged by management when this could otherwise be avoided. Furthermore, the implications of a lack of understanding of fundamental drivers of woodland environments can result in misinformed management with serious consequences for future conservation. Of direct relevance to arboriculturists is the lack of recognition of the importance of ‘working’ and especially veteran ‘working’ trees. There is a strong case that many of these should be recognised in archaeological and heritage terms as ‘monuments’.

So whilst ancient woodlands have been extensively researched and in many cases thoroughly documented (Rackham, 1980; Hart, 1993; Jones, 2003), and despite the enormous public and academic interest,

*Tourism and Environmental Change Research Unit, Sheffield Hallam University
there is a surprising lack of awareness of key issues. Some of these are fundamental influences in the contemporary landscape. Furthermore, the archaeological evidence for these factors and activities often remains enigmatic and under-appreciated. There is a dearth of collaborative research that considers both the ecology and archaeology of such sites.

This paper addresses two major problems. The first relates to the fact that most woodland managers, foresters, arboriculturists and ecologists have little experience or training in the recognition or interpretation of archaeological features. Furthermore many (though not all) archaeologists are actively defensive and discourage ecologists from crossing the disciplinary divide.

The second problem relates to the critically important issue of 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. The history of human activity is deeply etched in these sites and their ecologies. 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 they are simply untrained to recognise or value these subtle landscape features.

Trained archaeologists tend to recognise archaeology ‘in’ the woods, but not the archaeology ‘of’ the 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. This applies to both surveying and evaluating the archaeology of their woodland resource. One of the few workers to address these issues in detail is Nicola Bannister with her pioneering studies in the south–east of England (Bannister, 1996). Her work has included detailed site surveys and has provided conservation guidance for site managers.

Research is presented from case-studies in South Yorkshire and North Derbyshire in England; with arguments supported by preliminary observations around Europe. Our main case-study sites are ancient woodlands; in some cases now in the heart of major urban areas, but even here holding landscape evidence 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 the serious need for cross-disciplinary collaboration with 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.
Introduction

Ancient woodlands in the UK are valuable and irreplaceable conservation resources (Bownes et al., 1991). 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 (Baines, 1993; Crossley, 1993; Rotherham, 1996a and 1996b; Rotherham and Jones, 2000b). Perhaps the special importance of an ancient wood 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 (Ardron and Rotherham, 1996 and 1998; Rotherham and Avison, 1998a and b; Rotherham and Jones, 2000; Jones, 1993).
This brings us to the main thesis of this paper. The unique histories of many ancient woodland landscapes have preserved evidence of complex environmental and human from gross disruption. These landscapes often hold the evidence of two main human influences: (a) those related to the woodland and its utilisation and (b) those of non-wooded periods in the timeline of the site. The present-day woodland was formed and influenced by both, though not always in equal measure. Furthermore each wood is to some extent a unique and living catalogue of its own landscape history (Jones, 1996; Jones and Walker, 1997; Jones, 1997; Jones, 1998).

Some of the evidence for this is in the ecology of the woodland; in for example botanical ‘indicators’ of either antiquity or of disturbance. Other evidence is in the form of ‘archaeological features or finds’, and in the field evidence of tree-forms (working trees) and earthworks. Understanding this complexity is important if a woodland site 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 is 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 suggests that they are often wary of crossing boundaries and are even suspicious of those that do. However, for academics the approach required falls well within the remit of the environmental historian or of the historical geographer. Effective communication with the practical foresters and arboriculturists is also vital if approaches are to be effective in the field. Initial descriptions of some features were provided by Ardron and Rotherham (1999).

Figure 2. Charcoal burning hearth
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.

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; supported by 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 (Rotherham and Ardron, 2001). Surveys at the other sites were mapped manually (e.g. Rotherham and Nicholls, 2001). The site maps were then
used to begin the process of interrogation of the substantial datasets produced. Ecclesall Woods also had distribution maps of key botanical indicator species produced to further inform the process of interrogation. Specialist archaeological support was commissioned to considered 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 for Ecclesall Woods 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 (ANON., 1998) and the current thesaurus associated with this. Comments are made on the system.

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), and by ARDRON (1997). Detailed analysis was presented by ARDRON and ROTHERHAM (1999).

So 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 soil ‘A’ horizon with a neutral or only slightly acid pH. These areas were characterised by typical ancient woodland indicators, such as Mercurialis perennis (dog’s mercury), Lamiastrum 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 in 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. Many of the landscape archaeology features were either overlooked or misunderstood.

Although it has been recognised that these ‘kilns’ were constructed on hearth surfaces (sometimes called pitsteads) descriptions of the latter are

![Charcoal burner's hut, Sheffield, early 1900s](image)

**Figure 4.** Charcoal burner’s hut, Sheffield, early 1900s
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 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 1992 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 100+ 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).

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. However, it is also worth noting that some plant species such as hairy woodrush (*Lizula pilosa*) for example, seem to be associated with small-scale, localised disturbance around the Q-pits.

**Drains and ditches**

Along with ‘coaling’ platforms and kilns, ditches and drains are major features within the case-study woodlands. Woodlands are often permeated by networks of drains, either artificial or modifications of natural streams. These may originate from the early medieval coppice phase, though later industrial times, and the Victorian high forest period. Dating these is not easy, and they vary from minor alterations to otherwise natural streams, to quite significant, constructed, stone-lined features. Some of these structures 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 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 around eight species of *Sphagnum* mosses growing in fragmentary populations and as inconspicuous small patches in degenerate mire communities (*Ardown*, 1997). Similarly, Owler 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 archaeology conservation it may be desirable to manipulate watercourses to decrease surface run-off; this has so far not been done.

Many drainage networks were either maintained or even enhanced during the twentieth century. This was in both ‘amenity’ woodland (like Ecclesall Woods) and industrial coppice woods or later commercial coniferised plantations (like Owler Car Wood). In the latter case during the 1960s there was catastrophic felling of native broadleaves and re-planting with exotic conifers. It is likely that this included drainage enhancement and perhaps ploughing to create re-planting trenches. By the late 1990s the new owner of the site (THE WOODLAND TRUST) was actively involved in removing the conifers and returning the wood to native broadleaves.

**Boundaries, trackways, and other features**

The case-study sites are extensively dissected by linear features along with the ditches and drains. These include 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, possibly earlier administrative boundaries of regional significance, and maybe even Dark Ages Kingdom markers. 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. It is clear that further research is needed to fully understand this rich heritage.

Along with the above is a dazzling array of features related to 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. Many point features and locations are linked through networks of tracks, roads, and boundaries. Some activities are ones 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.

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. Recent observations in Poland and Ukraine confirm that in their extensive forests there is a rich but unrecognised resource of woodland archaeology, with boundaries, ditches and banks, pits and platforms, and working trees. Much is partially masked by recent forestry activity. Enquiries in a Forest Park in south-east Poland for example revealed firstly that clear evidence of charcoal and perhaps potash manufacture was present but unnoticed, and that there had been charcoal production in the early 1900s.

**Separated by a common language**

Communication between researchers and practitioners is identified by this research as a serious barrier. The *Thesaurus of Monument Types* (Royal Commission on the Historical Monuments of England & English Heritage) provides an excellent working framework for the broader sweep of archaeology. However, for the study of specific and especially cross-disciplinary subjects our testing showed it to be very limited and potentially confusing. Entries for subjects such as ‘charcoal burning platform’ are limited but helpful, but suggestions such as the use of ‘copse’ for ‘coppice’ are not. Working trees such as pollards and stubs seem to omitted altogether. The idea (which is most laudable) is that it aims to help
standardise the language of technical reports. This should in theory at least ensure that the author and the reader understand what exactly is meant. The main limitation is that the thesaurus is not fully developed to address landscape issues. This is not the fault of the compilers but it indicates that much needs to be done. There is the additional suspicion that those outside the core of professional archaeologists will never even have heard of the *Thesaurus*. If it is to genuinely function as a linguistic bridge for researchers and practitioners then it must be broadened in scope, audience and in intellectual ‘ownership’.

**Conclusions**

The archaeology both of woodland, and in woodland, is 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. This archaeological resource may relate to both woodland and non-woodland phases. 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 Ecclesall Woods was validated though an independent archaeological assessment 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 (Rotherham and Ardron, 2001). This is significant since the regional archive (The South Yorkshire Sites and Monuments Record) held only five or six records at the beginning of the work, and their archaeologists dismissed the original findings as ludicrous.

The case-studies have highlighted the lack of comparative data and typologies for either field survey or for effective conservation evaluation. There is currently very limited information published and available on the identification and typing of features, and there are no accepted national guidelines for evaluating importance. The research brings into sharp focus the need for:

1. More reliable and informative documentation.
2. Urgent need for awareness-raising especially for foresters, arboriculturists, conservation managers, ecologists, and archaeologists.
3. Effective education for the public.
4. Further research to evaluate and quantify the resource.
5. Conservation guidelines for site managers.
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 now being developed by a project based at Sheffield Hallam University, Hallam Environmental Consultants, the Biodiversity and Landscape History Research Institute, and partners such as The Woodland Trust and the Forestry Commission, with finance from the Heritage Lottery Fund.

References


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