

Archaeological Survey to inform woodland grant and forestry schemes in the Herefordshire woodlands of the Malvern Hills AONB

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Summary

The following paper is a summary of Herefordshire Archaeology Report No. 101 produced in September 2003 which reported on the archaeological survey of the Herefordshire woodlands of the Malvern Hills AONB undertaken between 1999 and 2003.

The survey was undertaken during the winter months using a hand-held Global Positioning System (GPS) using satellites to locate the position of individual sites. Features recorded related to woodland management features, field systems, quarrying, settlement and early land division.

Eighteen woods or areas of woodland were surveyed. These extend from Halesend and Norrest Wood to the north of Storridge and Cradley, to Coneygree Wood which lies to the south of Ledbury.

These surveys have provided a huge amount of information concerning the development of woodlands in eastern Herefordshire. It is now clear that Herefordshire woodlands have expanded and contracted throughout history, sometimes being clear-felled and divided into fields and at other times being intensively coppiced for the production of charcoal.

Sites recorded include a likely Bronze Age Barrow, a possible Romano-British furnace site, post-Roman land divisions and early settlement sites. A considerable amount of ridge and furrow, and many areas of strip lyncheting and numerous field banks were recorded preserved under later woodland management features.

Features relating to the layout and utilisation of woodlands were recorded indicating the intensive, (sometimes almost industrial in scale), management practices in place during the late and post-Medieval periods.

Introduction

The Malvern Hills Area of Outstanding Natural Beauty (AONB) covers 105 sq. km and lies within Worcestershire, Herefordshire and Gloucestershire. The area is dominated by its dramatic high ridge of pre-Cambrian rocks, but its topographical and scenic diversity is provided by the complex pattern of younger rocks including shales, limestones, and sandstones that surround this core.

Project scope and aims

The AONB takes in much of this encircling complex, and its land use, both today and historically, reflects the environmental diversity. This has given rise to a complex and subtle archaeology that is paradoxically, little explored. The topography of the area of the Malvern Hills AONB within Herefordshire is characterised by a series of roughly north/south orientated limestone ridges with a woodland zone between 100m and 225m above sea level. The ridges are predominantly more gently sloping on their western side

Changes in the nature and intensity of land-use and increasing visitor numbers on the more prominent areas is bringing this archaeological resource under pressure, in some places for the first time. To improve management of the archaeology of the area, it is essential to know more about it. This is the immediate motivation for both extensive and intensive archaeological survey, as a means to define and understand something of the disposition of remains, at least as visible at ground surface or from the air.

Fieldwork was undertaken as part of a Malvern Hills AONB collaborative archaeological survey which comprised four principal elements:

1. Detailed earthwork survey, (by the Archaeological Survey Division of English Heritage), of the six Scheduled Ancient Monuments within the AONB.
2. Aerial reconnaissance survey and mapping, (by the Aerial Survey Division of English Heritage). This was designed to identify and to clarify soilmark, grassmark and cropmark sites visible only from the air in areas under contemporary farmed grassland or arable. Sites identified were subsequently mapped to modern standards of photographic transcription, and selectively ground checked.
3. The ground checking of aerial survey results by the English Heritage Archaeological Survey Division, including new surveys of notable monuments.
4. Ground reconnaissance and mapping of woodlands by staff of the three county archaeological services. In Herefordshire, woodland areas were surveyed systematically (but not necessarily intensively) to augment the aerial work in areas necessarily unproductive from the air.

The purpose of the woodland survey was to locate features within woodland that are not recordable by aerial photography. With the exception of large

quarries and lime kilns very few sites of archaeological significance in woodland have been recorded in the area to the east of the Malvern Hills, on the Sites and Monuments Record for the county. This is principally due to the rough terrain, dense ground cover and general inaccessibility.

The survey involved a rapid walkover of areas of woodland recording earthworks or other upstanding features of archaeological significance. A number of these features recorded continued outside the area currently under woodland either as earthworks or crop/soil marks, tying sites together and providing considerable additional detail concerning the extent of previously recorded sites.

The Archaeology of Herefordshire Malverns Woodlands: An overview.

This section of the report provides information concerning the significance of archaeological features when looked at in landscape terms together with the general state of preservation within a woodland environment and the potential for more detailed survey of particular features/areas in the future.

The woodland within the Herefordshire Malverns woodlands comprise, in the main, mixed deciduous woodland with relatively small areas of dense conifer. They cover the steeply sloping eastern and western flanks of the north/south aligned limestone ridges which characterise this part of the county.

Kinds of feature identified during the survey:

The identification of features under woodland is often problematical due to variable visibility, erosion and the multitude site types as well as the often subtle variations between them. The past uses of some features recorded during this type of survey are impossible to deduce without further, more detailed investigation. Phasing is also problematical unless relationships between certain features can be established. Therefore the periods allocated to most features recorded are very approximate. For example, all charcoal burning platforms have been recorded as Post-Medieval. While this may be the case for 80% or more of such features, an earlier origin for some of them cannot be ruled out.

Platforms

During the course of the survey a number of platforms were identified. These included circular charcoal burning platforms, triangular and rectangular building platforms, and other rectangular platforms of unknown use. Where a platform can be directly related to a water source, (spring or stream) or is enclosed by a boundary, or is adjacent to a field system, it has been recorded as a building platform. Many platforms, particularly on the steeper slopes, were probably used to stack or store wood/charcoal, prior to or after processing.

Linear boundaries

These include a wide range of features from woodland boundary banks and compartment boundaries to land divisions and field banks. Where woodland boundary banks do not enclose areas of ridge and furrow, lynchets or other types of field system they have been recorded as originating in the Medieval

period. The scale of earthwork has also been used as a possible clue as to date. Therefore, in general, the wider the bank, (and ditch(es)), the earlier the period designated.

Field systems

These take the form of areas of ridge and furrow, strip lynchets, or field banks/lynchets. They range in size from very localised areas of cultivation/enclosure to complex, wider landscape scale systems. For the purposes of this report all areas of broad ridge and furrow and series of lynchets have been recorded as being of Medieval origin. However the likelihood needs to be recognised that some of the terracing and lynchet systems may instead be prehistoric in origin.

Settlement

Evidence for settlement varies widely from extant brick and masonry remains to very subtle earthworks. Groups of platforms in sheltered locations and/or close to water sources have been recorded as settlement. These are predominantly rectangular or triangular in shape and vary in size considerably. The majority of settlement or building platforms recorded during this survey have been given a Post-Medieval date unless other factors suggest alternative dating.

Woodland management features

These include woodland boundary banks, compartment boundaries, charcoal burning platforms and saw pits. With the exception of some woodland boundary banks the majority of woodland management features have been ascribed a Post-Medieval date.

Industrial features

These include quarries and lime-kilns and have been given a Post-Medieval date range.

Communication routes

These are principally holloways or embanked trackways. These have either been given Medieval or Post-Medieval dates depending on their relationships with other features within the woodland.

The condition of archaeological features

With the exception of localised areas, (for instance, where the construction of access tracks and turning areas has caused localised destruction of features), the state of preservation of earthwork remains under woodland within the study area was found to be good. There appears to have been little 'industrial' scale forestry work with only three woods (Mallins Wood, Oaken Coppice and Rough Hill Wood), containing evidence of modern disturbance over relatively large areas. The disturbance in these areas takes the form of stump pulling and levelling by machine.

The survey has recorded the complexities of woodland organisation, compartment boundaries, communication routes and other woodland management features. It has also illustrated the degree of contraction and

expansion apparent in most woodland areas resulting in either boundary and feature loss as arable encroaches or boundary and field system preservation as woodlands expand and 'fossilise' previous land management features.

The number of areas of ridge and furrow, lynchet systems and other field systems preserved within areas of woodland suggest a time during the Medieval period of woodland shrinkage followed by a period of rapid expansion. This in turn suggests that there was a period of increased arable production possibly only for a short period of time. Some of these systems cover large areas and a further, more detailed survey may record the more subtle complexities of layout and extent.

Features relating to past woodland management were, unsurprisingly, the most common sites encountered. This is partly due to the sheer number of compartment banks, ditches, woodland boundary banks, charcoal burning platforms, and so on that are present within intensively worked woodland areas.

Method

Selection of survey areas.

The primary concern was to survey as many areas of woodland as practicable, and especially to obtain a good average of wooded areas away from the main slopes. The wooded slopes of the main Malverns ridge were not surveyed. This was in part because of the steepness of these slopes and the prevalence of quarries. Elsewhere, all of the main areas of woodland except where (on the Eastnor Estate) it was not possible to arrange access across the three years of the survey (2000-2003). Several smaller areas of woodland were omitted. With the exception of the Eastnor Estate and the steep wooded areas on the main ridge, all other large woods or areas of woodland are included within this report. The surveyed area represents approximately 60% of the wooded area.

Sites were surveyed as and when access became available. Whilst in survey terms December to April are the optimum months for woodland survey, access is often made difficult due to fieldsports. The woodlands included within this survey were therefore surveyed as and when access was made available and were not surveyed in any particular order. To date, at no time has Herefordshire Archaeology been denied access to any woodland within the Malvern Hills AONB. However it has not yet been possible to survey any woodland on the Eastnor Estate, to the south and east of Ledbury.

Survey procedures

The survey comprised a rapid reconnaissance walk over of eighteen areas of woodland within the Malvern Hills AONB, in order to locate and identify archaeological features, comment on their preservation and assess their significance. Features were mapped using a hand-held 'Garmin 12 XL' or a 'SILVA Multi-Navigator' Global Positioning by Satellite instrument, enabling a ten figure grid reference to be recorded for each feature. This system is accurate to within approximately 5-10m even under dense tree canopy. The

mapping of features by this method has been checked for accuracy against boundaries and other features marked on Ordnance Survey maps, and (despite continuing scepticism on the part of some professional surveyors) has time and again been shown to be accurate.

Each area of woodland was surveyed in one day or less depending on its size and accessibility. The same staff member was used to survey each area of woodland to ensure consistency of results and terminology.

It is necessary for this type of survey to be undertaken in the winter months when foliage is light, usually after December and through to April. Ideally, it should be carried out during or soon after a cold spell as this helps flatten long grass and old bracken, making the identification of earthwork features easier.

The survey areas were walked in transects approximately 50m to 100m apart. If a large feature was encountered and no other features of archaeological significance could be seen, then this feature was followed and features 50m either side of it recorded. All areas of a wood were entered if only to record difficulties of visibility due to ground cover and so on. Field observations and grid references were recorded on a dictaphone and transcribed at a later date. The transcriptions were used as a basis for the database and synthesis in this report. Grid references were transcribed into Herefordshire Council's Geographical Information System, (MapInfo).

The following survey should not be taken as exhaustive or its results as entirely definitive. The level of survey carried out is intended to record the character of features present, their state of preservation and their broad relationship to other features within the survey area. More detailed survey would produce more precise documentation, and, no doubt, further features. However it is anticipated that the majority of principal earthwork and other features present have been recorded. As such, it is believed that the survey results will provide a useful basis for future management of the historic environment.

Discussion of results

Statistical summary:

Feature totals by type.

Charcoal burning platforms	138
Quarries	64
Building platforms	29
Areas of ridge & furrow	25
Field lynchets	88
Holloways	31
Compartment boundaries	110
Woodland boundary bank	44
Other linear features	4
Possible barrow sites	1
Possible furnace sites	2
Saw pits	6
Unidentified earthworks	6
Total number of sites	548

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Feature totals by woodland:

Halesend Wood	106
Bears Wood Coppice	10
Norest Wood	13
Limekiln Coppice	17
Mallins Wood	21
Oaken Coppice	25
Whitmans Hill, Stocking Coppice & Ten Acre Coppice	56
Rough Hill Wood	5
High Grove Wood	72
Lumbridge Hill	16
Rowburrow Wood	34
Long Grove Wood and Stocktons Coppice	3
Coother Wood	16
Bank Wood and Six Acre Wood	15
Oyster Hill	14
Frith Wood	76
Dog Wood	8
Coneygree Wood	41
Total number of sites	548

Key distributions of feature types.

Woodland Area	Building platforms	Ridge & furrow	Field lynchets
Halesend Wood	8	11	17
Bears Wood Coppice	1		2
Norrest Wood			
Limekiln Coppice	3		
Mallins Wood		3	
Oaken Coppice			8
Whitmans Hill, Stocking Coppice & Ten Acre Coppice		3	10
Rough Hill Wood			1
High Grove Wood	6		8
Lumbridge Hill			3
Rowburrow Wood	2	1	3
Long Grove Wood and Stocktons Coppice			
Cother Wood			1
Bank Wood and Six Acre Wood		3	3
Oyster Hill	1	4	4
Frith Wood	8		18
Dog Wood	2		
Coneygree Wood	2		10

Distribution overview:

Feature type

Charcoal burning platforms are the most numerous type of feature recorded within this survey. This is not surprising given their scale, temporary nature and the prevalence of this activity. The large quantity of compartment boundaries recorded indicate the intensive and complex nature of woodland management apparent in the majority of the woodlands surveyed particularly the extent of coppicing.

Field lynchets were also abundant and illustrate the degree of change that these now wooded areas have undergone. It can be seen from the location and distribution of this class of feature, particularly when combined with the areas of ridge and furrow, that the extent of woodland cover and the location of woodland has changed much through time. This also emphasises what an important 'reservoir' of early settlement and farming evidence these areas of woodland collectively represent.

Quarries were also found to be very numerous. Again this is not surprising given the limestone geology covering the majority of the survey area. It does however show the intensive nature of this type of industry covering not only extraction for building purposes but also for the production of quicklime used in agricultural improvement. Conversely, there appear to be very few lime-kilns within the wooded areas surveyed, for example no trace could be found of one within the present boundaries of Limekiln Coppice, despite a significant amount of quarrying within the wood. This paucity may be for a number of reasons. Certainly in some woodlands there is compelling evidence for relatively modern quarrying, possibly suggesting a more centralised, large

scale, production system. Some of these large areas of quarrying may well have destroyed, or buried under spoil, evidence for lime-kilns. There is also increasing evidence from woodlands outside the Malvern Hills AONB survey area that some lime-kilns were more temporary than others and perhaps took the form of little more than clamps or bonfires rather than the stone kiln structure usually associated with this industry, (Herefordshire Archaeology Report 78, Nupend Wood, Fownhope: An archaeological survey).

A total of 44 woodland boundary banks were noted, whilst due to the rapid nature of the surveys undertaken it is likely that a small percentage of this total have been recorded twice, (as is the problem with long, often intermittent boundaries), this number emphasises the degree of boundary shift in some woodland areas and fossilisation in others. In general terms the woodlands within the Malvern Hills AONB have either expanded or stayed the same, resulting in little woodland boundary bank loss.

A relatively high number of holloways were recorded. These appear to represent three main categories:

- 1). Those which can be directly related to quarrying and other industry/woodland management. For example in Halesend Wood and Whitmans Hill Wood.
- 2). Established routes of communication which can be traced outside the woodland. These are usually recorded cutting through the ridge top and running diagonally across the hill-slope. For example in Halesend Wood, Cother Wood and Bank Wood.
- 3). Holloways directly associated with settlement and/or field systems. For example in Coneygree Wood, Frith Wood and High Grove Wood.

Building platforms were widespread throughout the woodlands surveyed. Many were clearly directly associated with other feature types, particularly clusters of charcoal burning platforms, as in High Grove Wood. Others tended to be more isolated and appear to represent small cottage sites occasionally with garden plot, for example those present in Rowburrow Wood and Coneygree Wood. The farmstead complex within Frith Wood, to the east of Bradlow Knoll, is directly associated with a series of five field lynchets and a holloway suggesting that this site has its origins at-least in the early Post-Medieval period if not earlier. The settlement site below the ridge top of Frith Wood on the western slope is of particular interest. The triangular form of the platforms and their clear association with a clean water source and small scale field system, has not been identified elsewhere during the survey. This appears to be a small settlement site possibly of medieval or earlier date. Its location and associated field system suggests that the local environs was, at the very least, less wooded if not completely cleared of woodland.

It is this type of feature that is a key area for further study. What do these settlements represent and in what period were they in use? How do they relate to other features surviving under woodland?

The areas of ridge and furrow recorded were exclusively on the western and southern slopes. This may partially be due to steepness of hill-slope. However, if this were the only reason evidence for a greater frequency of lynchets systems might be expected on the eastern slopes. It is interesting to note that the ridge and furrow is not always associated with field or strip lynchets. The areas of ridge and furrow recorded are often extensive and can be traced for many hundreds of metres on some occasions, particularly in Halesend Wood where preservation is so good that even relatively subtle changes in orientation could be recorded. Many of the smaller areas of ridge and furrow recorded represent the edges of common field systems which covered the valley bases and have since been eroded by agricultural improvement and intensification, for example the area of ridge and furrow within Mallins Wood.

The paucity of saw pits was surprising when compared to other woodland surveys conducted within the county. The rarity of this type of feature suggests that either the majority of the woodlands surveyed have been managed predominantly as coppice for a considerable period or time, or, that the few saw pits recorded represent a cottage industry over which a far more centralised and regulated lumber industry was implemented which necessitated the transportation of lumber to production centres outside the woodlands.

Linear boundaries are often particularly difficult to assess within a woodland environment. Particularly so when located on or close to ridge tops where these features are particularly prone to erosion and are difficult to follow.

The discovery of two possible kiln or furnace sites on Oyster Hill is quite remarkable and it is fortuitous that they were outside the present wood otherwise they would almost certainly not been recorded due to their scale and subtle nature.

Feature preservation

Feature preservation within woodland was variable. Woods such as Halesend Wood, Frith Wood and High Grove Wood contain a high density of often very well preserved features. These woods appear to have been managed in a stable way with only localised areas of re-working or modern disturbance. Woodlands with comparatively low totals either contain areas of recent plantation, affording severely limited access and visibility, or areas which have been subjected to forestry operations using heavy machinery as in Mallins Wood and Oaken Coppice. One exception to this is Norrest Wood where topographic conditions do not allow for intensive woodland management. The final factor which has some bearing on site density is intensive quarrying. Large areas of the northern and southern slopes Halesend Wood, the northern slope of Whitmans Hill, the southern and eastern slopes of Limekiln Coppice, Cother Wood and the northern slopes of Coneygree Wood have all been subjected to large scale, intensive quarrying which has undoubtedly removed traces of earlier woodland management and land use.

Locational trends

The locational 'trend' for features is of considerable significance. As discussed above the location of field/strip lynchets and ridge and furrow is almost exclusive to the western and southern slopes. It is interesting to note that ridge and furrow is more commonly encountered in the northern part of the survey area than in the south but the distribution of lynchets appears to be far more constant. It should however be noted that due to problems with access in the south of the survey area, fewer woods were surveyed than in the north and this may be biasing the survey data making it more difficult to characterise the southern area accurately.

Period summary:

Early settlement sites

To designate sites as 'early settlement sites' is difficult to judge using only surface evidence. However occasionally evidence can be inferred from the character, location and relationships to other features may suggest an early date. This may be particularly valid for the settlement site within Frith Wood. This is associated with a spring and is located between a pair of later compartment boundaries. It is also associated with a small series of lynchets suggesting some form of small-scale arable farming may have been practised on a supplementary basis. Domestic structures at this height on the ridge would more reasonably have a primary association with seasonal stock keeping. The location of a possible barrow site at Bradlow Knoll together with field systems of unknown date, and wide scale boundary organisation may suggest, at least tentatively, prehistoric, Romano-British or other pre-Medieval land management here. There is evidence for potentially early field systems and settlement on Oyster Hill. Here there is a building platform associated with a holloway and small quarry siting within a series of field lynchets which appear to pre-date the deer park pale.

Major territorial boundaries

A number of large scale linear boundaries were recorded that appear to be unrelated to woodland management features or field systems. These usually ran along the ridge tops and comprise a bank between 3 and 5m wide with a ditch on one or as in the case of the boundary in High Grove Wood, both sides. At the end of a ridge these either wrap around the end or divide to run down the steepest part of the slope. These are apparent in High Grove Wood and Frith Wood and may possibly be present in Coneygree Wood and Halesend Wood.

The territorial boundary which runs through High Grove Wood may be of particular significance. This boundary, which is still the parish boundary is an unusually large earthwork and is conspicuously positioned equidistantly between Mathon parish church and Cradley parish church, both of which are known to be of early dedication.

The ridge top banks within Coneygree Wood, Frith Wood, Whitmans Hill Wood and Halesend Wood appear to pre-date all other linear and woodland management features surveyed within these woods. Whilst not as prominent

as the boundary feature within High Grove Wood these banks are equally impressive in original extent and scale. It is possible, particularly in light of the bank in Frith Wood seemingly respecting a possible barrow on Bradlow Knoll, that some or all of these features are pre-Medieval in origin.

Field systems and related settlement

Of particular significance is the amount of field system remains recorded during the survey. These comprise areas of strip lynchets and field lynchet as well as areas of ridge and furrow. The field systems are predominantly located on the western side of the ridges. This appears to be linked directly to topography, in that the eastern faces are usually too steep for this type of land use. Ridge and furrow has been recorded in Halesend Wood, Mallins Wood, Whitmans Hill, Rowburrow Wood, Cother Wood, and Oyster Hill. The ridge and furrow is predominantly aligned with the contour, (i.e. north/south) or running slightly on the diagonal to the contour.

Lynchets are apparent in all large areas of woodland from Coneygree Wood in the south to Halesend Wood in the north of the survey area. Some are directly associated with ridge and furrow others appear to represent field divisions where no ridge and furrow is present or where it has not been preserved. When these areas of ridge and furrow and lyncheting are looked at together it is clear that very substantial areas of quite marginal land were under arable cultivation at one or more times. Within Frith Wood and possibly Coneygree and Halesend Woods there may be slightly different type of field system which comprises a series of low banks dividing, at quite regular intervals, the western slopes.

Settlement associated with these field systems either take the form of towns, villages or townships, (e.g. Ledbury, Cradley, Mathon and Storridge), in close proximity to these recorded features, or more isolated farmsteads. Several such farmstead still survive within the 'built' environment but occasionally survive as earthworks as at Frith Wood and Oyster Hill.

This has a significant effect on our understanding of food production and population size in the Medieval period in Herefordshire. Why were these areas being intensively cultivated? Why were sometimes huge amounts of labour being allocated to the construction of strip lynchet systems when the valley bottoms provide a more fertile and more accessible arable resource? On the ridge-top of Oyster Hill, the ridge and furrow has changed orientation by 180 degrees and yet has not eradicated the remains of the earlier ridge and furrow. What can be deduced from this?

What reasons can there be for this huge investment in effort, for presumably often very limited returns? One possibility is that the population of the region was such that food was in short supply and more marginal areas had to be put under the plough. Another possibility is that changes in climatic conditions made the cultivation of heavy silts and clays in more low lying areas increasingly difficult. It is both of these factors that that may have come into play, and that many of these features relate to the first half of the 14th century, prior to the plague and subsequent population crash but including a climatic

trough with increased rainfall and often severe flooding. Indeed, pottery of 14th century date has been recovered from a series of lynchets within Frith Wood. More detailed recording of the full extent of these systems would almost certainly provide additional information concerning orientation, drainage and layout.

Woodland management traces

Our understanding of the intensive nature of woodland management has also been greatly increased as a result of these surveys. From even this rapid field exercise in excess of 130 charcoal burning platforms have been noted, accounting for over one fifth of the total number of features recorded. It is assumed that, given their to these charcoal burning sites, several of the other platforms recorded relate to the storage of either raw materials or end product, and to the charcoal-burner's living areas, whether seasonal or more permanent. Add to this the number of quarries recorded and it is clear that many of these woods must have been intensively managed for considerable periods of time.

The distribution of charcoal burning platforms is potentially of significance. Whilst there appears to be a background of relatively isolated charcoal burning platforms, suggesting a widespread but small scale industry, there are, a number of charcoal burning platform 'clusters', particularly on the northern and western slopes. Some of these are very large with in excess of a dozen charcoal burning platforms associated with a number of building and storage platforms indicating that in many areas there was a highly complex and intensive charcoal burning industry possibly covering a long period of time.

The location of charcoal burning platforms and saw pits is also of some significance. It is possible, if it is accepted that both types of feature are broadly contemporary, to begin to understand some of the historical ecology of some areas of wood. Where charcoal burning platforms and saw-pits are found in close proximity to one another it can be inferred that these areas of wood were being managed as a coppiced under-storey with standards. In contrast, the exclusive presence of charcoal burning platforms would suggest intensive coppicing. Within the Malvern Hills AONB there appear to be considerably less saw-pits than are apparent in most other woodland areas (surveyed to date) in Herefordshire. This may be due to the topography and thin soils making the construction of this type of feature problematical rather than a representation of woodland management trends. However this is unlikely as saw pits have been recorded cut into bedrock in other parts of the county. The location of charcoal burning platforms is also of significance. The majority recorded during this survey were positioned on the western and northern sides of the ridge or on the sides of small valleys. Where charcoal burning platforms are apparent on the eastern side of the ridges these tend to be close to the base of slope, often cut into the woodland boundary bank.

Industrial activity/'Recent settlement'

The nature of the geology, particularly of the ridges to the west of the main Malvern ridge has dictated some forms of industrial activity, particularly the extent of quarrying. The limestone ridges are easily accessible for quarrying for either the production of building stone or lime. Many of the older quarries and even holloways have been subjected to Post-Medieval and later quarrying. Many of the quarry sites identified during the course of this survey are extensive areas of quarrying rather than small scoops or delves. A large number of building and/or storage platforms have been identified during this survey. Many of these were located in close proximity to quarries and /or charcoal burning platforms, suggesting that the needs of both these industries were served in part by the provision of levelled areas close by. It is interesting to note that the extent of many quarries appears to be dictated by woodland compartment boundaries, in that many working faces are cut back to a compartment boundary but do not cut through it. Even very late quarrying as at Whitmans Hill and Halesend Wood respect compartment boundaries.

Only two brick built buildings were recorded actually within the wooded areas during the survey. One in Frith Wood and one in Coneygree Wood. The building in Frith Wood represents the final phase, prior to abandonment of a Medieval or early Post-Medieval farmstead. The building within Coneygree Wood appears to date from the Victorian or Edwardian period and comprises a small cottage and separate W.C. This is in contrast to the large number of 19th and 20th century buildings immediately adjacent to woodlands that are now occupied as homes for people working in Malvern, Ledbury and the surrounding area.

Woodland history from archaeology

The survey of the Malvern Hills AONB woodlands has illustrated the complexity, not only of the past woodland management, but also of the landscape as a whole. The number of compartment boundaries and woodland boundary banks recorded together their typological differences suggest very complex and long lived woodland management systems were in place for many of the woodlands surveyed.

It is clear from the results of this survey that many of the woodlands within the Malvern Hills AONB have changed significantly through time. It appears that there was significantly less woodland within this area during the early Medieval period or possibly earlier. Subsequently woodlands have expanded or have been newly established over a predominantly arable landscape, 'fossilising' features such as ridge and furrow, field lynchets and early settlement. During the Post-Medieval period the intensification of woodland management can be seen in large number of charcoal burning platforms and the intricate nature of the compartment boundaries. This intensive woodland management continued into the 19th and 20th centuries and included industrial scale quarrying for both building materials and the production of lime.

What is unclear is the age of many of the linear boundaries recorded during this survey. Many have been constructed on a vast scale running for many hundreds of metres. These appear to be amongst the earliest features within

the woodlands and do not relate to a wooded landscape. Recording them in detail is often problematical due to their eroded nature. Dating such features from earthwork evidence alone is, at best, tentative. However sufficient relationships between these and other features have been established within this field exercise to suggest that many of the large scale linear boundaries which run along ridge-tops or across valleys cannot have been constructed later than the early Medieval period and may represent pre-conquest estate boundaries or other major land divisions.

Boundaries which can be related to woodland management vary considerably in both form and appearance. In general the earliest of these appear to be sinuous, often following topographic features, particularly the top of scarps. They comprise either a bank with ditch to one side, or bank with a ditch on both sides. These give rise to often large but irregular woodland compartments. Later compartment boundaries appear to be far more regular in both form and distribution. These are often very straight and do not take as much account of topography. In form they comprise either a bank with a ditch to one side or just a ditch with no discernible bank. The later woodland compartments tend to be smaller but far more formally laid out, reflecting the intensification of woodland management.

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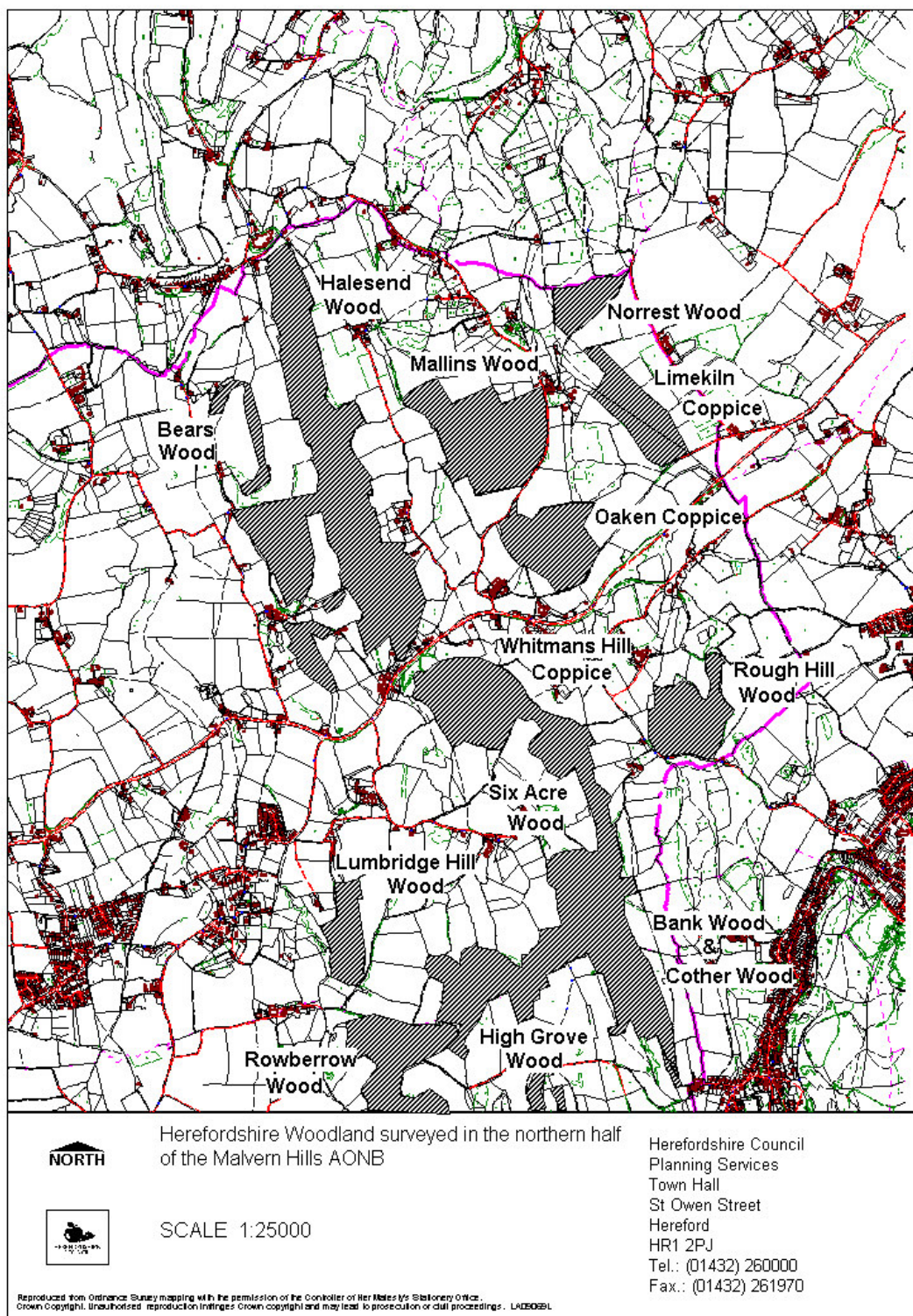
The owners and agents of all the woodlands surveyed within this report.

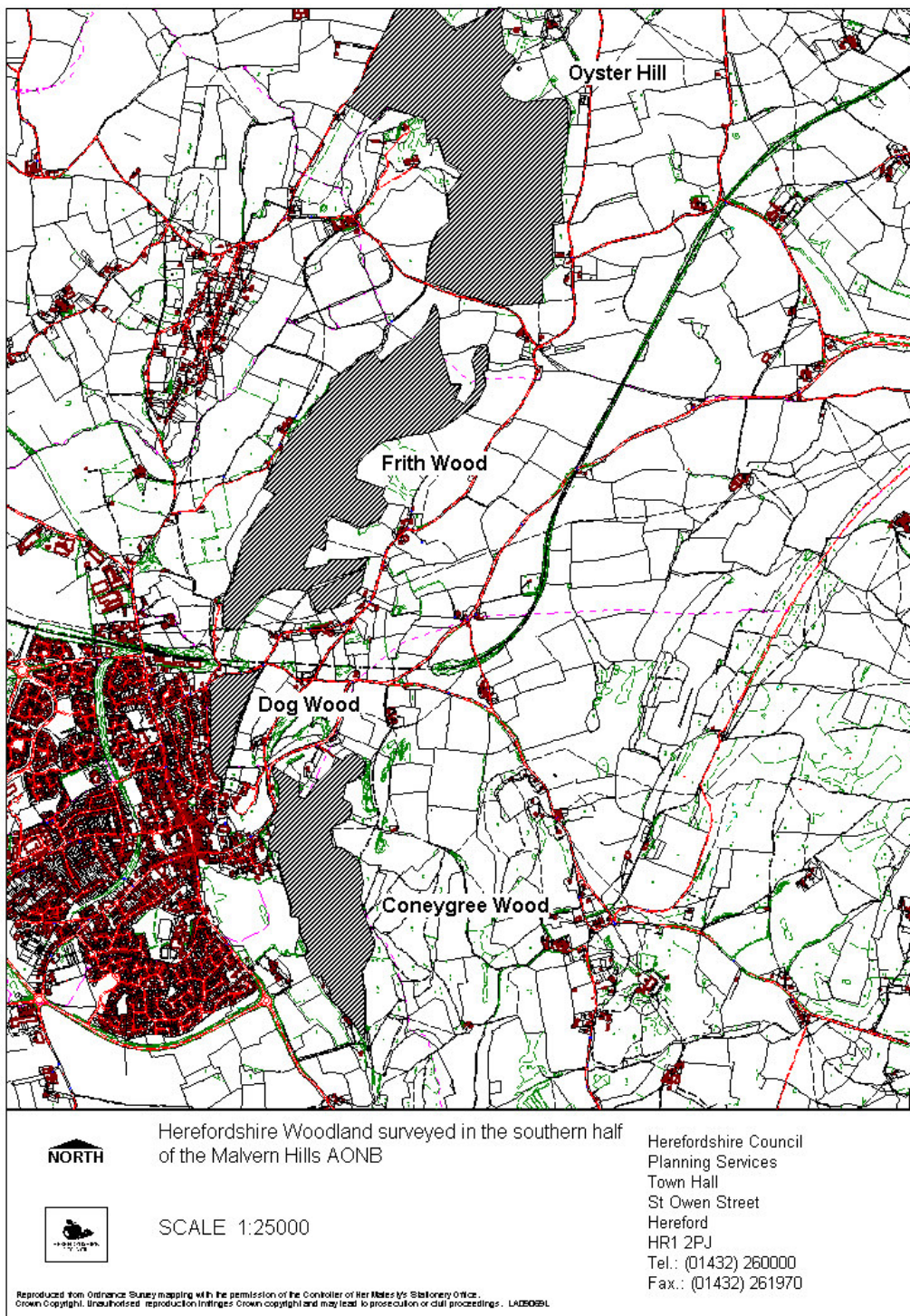
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Questions

How does black & white print film work in woodland?

This is quite hit and miss; often you can see things through the lens, which do not appear on the processed photographs.

What film do you use?

I am still experimenting, but have more or less given up taking photographs, unless the archaeology is spectacular or I am sure that they will show good detail. Digital images are good as they can be manipulated later on, particularly where the photographs have been taken in low light conditions, although the cost of the necessary equipment might be an issue.

Was the objective of your surveys to guide future management?

Yes. Recommendations for management are made in the report on the surveys.