Survey of Ancient Semi-natural Woodland in England: The archaeological survey in the Northamptonshire Forest District

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Introduction

As part of its on-going Ancient Woodland Project, the Northants Forest District of Forest Enterprise commissioned archaeological surveys of its ancient woodland holding between 1996 and 2001 (Fig 1). The aim was to identify and evaluate the archaeological evidence within the woods (about 75 in total), in order to inform the preparation of woodland management plans. The results of the individual surveys have been drawn together, to assess the overall importance of the archaeological resource and the effectiveness of the survey methodology (1). This paper outlines the regional and historical context of the woods, describes the survey methodology and discusses its effectiveness and limitations

The study area

The Northants Forest District lies mainly in the East Midlands. From north to south, it runs from the South Kesteven district of south Lincolnshire, through Rutland, east Leicestershire and Peterborough, embracing the whole of Northamptonshire, as far as north Buckinghamshire and mid-Bedfordshire (Fig 2).

The most prominent feature of the underlying geology is the Jurassic limestone ridge, running from the south-west, curving northwards. To its south-east, there is a belt of Oxford Clay, then the Greensand ridge in mid-Bedfordshire. The area is dissected by 3 major rivers, the Great Ouse, the Nene and the Welland which all run north-eastward to the Wash. Between them are ridges of higher ground, which are mostly capped by glacial Boulder Clay.

The distribution of woodlands in the early 19th century (2) reflects the Domesday situation, with particular concentrations in the Kesteven uplands of south Lincolnshire and north Rutland, the Rockingham Forest in central and northern Northamptonshire, the Yardley/Whittlewood ridge between the Nene and the Great Ouse, and the Bedfordshire Greensand ridge.

The main historical influence on woodland survival and character is the presence of extensive royal forests, at their greatest extent embracing most of Northamptonshire and Rutland (Fig 3). There are a few inconclusive references to afforestation in Kesteven, but these woods, and most of the Bedfordshire ones, were mainly attached to secular or ecclesiastical manors. The Forest Enterprise holding in the District amounts to about 7,500 hectares, at the core of which is about 5,000 hectares of historically mapped ancient woodland.

Archaeological survey methodology

The survey methodology was developed by David Hall, with input from staff of Northamptonshire Heritage. Hall surveyed the Northamptonshire and Peterborough woodlands, Bedfordshire was covered by the author, and Lincolnshire by Archaeological Project Services. Some work has been done by Fred Hartley on the Leicestershire and Rutland woods, but only partial results are as yet available. The methodology was as follows:

Documentary study

Printed sources and readily accessible relevant documentary sources were checked, with historic maps (where available) being the most valuable source of topographical detail. The volume of documentary coverage varies across the region. The Northamptonshire forest areas are covered by a number of early maps and surveys, recording coppice boundaries; extensive collections in the Public Record Office were beyond the scope of the project, and will repay detailed study in future. Outside the forest, map coverage is less complete. All the Bedfordshire woods are depicted on estate or enclosure maps, ranging from the 17th to the 19th century. The Lincolnshire data seems the least comprehensive, with many of the woods not mapped until the early 19th century draft Ordnance Survey 2":1 mile maps.

Fieldwork

Field recording was at 1:10,000 scale, using older 1:10560 maps for reference. Coverage was achieved by walking as far as possible in transects 50m apart in order to allow a visual inspection of all the accessible ground surface. This technique was most effective in compartments with regular planting lines and little ground vegetation; semi-natural woodland cover, particularly areas of regenerating coppice, offered more of a challenge. Earthworks and other features were sketched plotted, with existing ridings and known linear earthworks followed and checked.

Features were recorded to an estimated accuracy of plus or minus 5m, using a variety of techniques according to individual field-workers, including hand-held GPS, compass bearings and pacing. The character of the woods in the region, often with regularly spaced straight rides, helps in locating features with reasonable accuracy. Selected measured survey of individual significant sites is likely to be undertaken in the future; it will then be possible to assess the locational accuracy of the different methods and field-workers.

A qualitative record of vegetation cover was made of each section walked. Visibility was assessed as 'good', 'fair' or 'poor', depending on the level of ground cover; 'fair' and 'poor' was used for (to quote Hall) "natural ground cover sufficient to obscure features of low relief." Areas too dense to be accessible were also noted, to identify where further will be needed once ground conditions improve.

Botanical details were not recorded except for occasional anecdotal references, such as to the presence of coppicing or pollarding.

Results showing the effectiveness of the survey methodology
Two woodlands of different historic development and character can be used to illustrate the effectiveness of the survey.

Salcey Forest, Northamptonshire
Historic map evidence of 1825 (Fig 4) shows a layout of coppices and lawns which may have originated at the height of the forest period in the Middle Ages. There are 5 lodge yards, and a large central lawn which housed the royal hunting lodge.

The modern woodland area has unfortunately truncated the historic perimeter, but within the surviving area the coppice system is almost intact (Fig 5). Earlier earthwork features have also been identified. A network of broad low banks, clearly pre-dating the coppice boundaries, is thought by David Hall to be an earlier woodbank system. Fragments of similar earthworks have been noted throughout the region, and none has yet been dated. The smaller earthwork enclosures are typical of about a dozen others so far found in the region. 'Egg Rings', the oval at the south end, was already known before the latest survey, and has been identified as an Iron Age defended enclosure (3). Most of the rest are undated, but their morphology is clearly the same as the large numbers of similar enclosures recorded as cropmarks in the surrounding countryside. Survival of late prehistoric or Roman settlements as earthworks is extremely rare in this part of the country, and a very important resource. As well as the Iron Age or Roman enclosures, 2 or 3 Bronze Age cairns have been found in north Northamptonshire. Again, these are very rare survivals.

Survival of early earthworks offers particular potential in the palaeoenvironmental evidence that may be preserved in waterlogged ditches and buried soils. As most of the environmental work done in the region has been in valley deposits, analysis of deposits within ancient woodland areas are likely to have much to contribute to debates about the nature and chronology of woodland clearance, management and regeneration.

Maulden Wood, Bedfordshire
Maulden Wood was not situated within a royal forest area but was in monastic ownership in the Middle Ages. The present Forest Enterprise holding includes an ancient woodland core on boulder clay, and an area of 19th century planting on adjacent heathland. Historic map evidence from 1797 (Fig 6) shows a typical Bedfordshire landscape: the woodland near the parish boundary, clearly affected by assarting; irregular small fields, almost certainly enclosed by the later Middle Ages; and small areas of common heath. The woodland itself is on a plateau, the land to the south dissecting by steep gullies separated by long greensand spurs.

The survey results are noticeably more complex than the map evidence indicated (Fig 7). Earlier woodbanks, associated with ridge and furrow, show at least two phases of assarting which have been re-afforested. In what was the corner of the wood at its smallest extent is a rectangular enclosure, almost certainly a lodge site. This latter reflects a pattern throughout the region, that woods in monastic ownership often contained lodge sites, occasionally moated, even outside forest areas or known deer parks; they were probably lodges for the keepers who managed the woodland for the monastic owners or their tenants.

A small group of enclosures to the south would almost certainly be identified as settlement earthworks if preserved in pasture; it is probably the remains a failed assart settlement. Outside the ancient woodland area, field banks and hollow ways still preserve the layout of the old enclosures. Substantial banks enclose the tops of some of the Greensand spurs in an area which was common heathland until the early 19th century. They pre-date quarries which appear in turn to pre-date the 19th century planting, and it will be important at some stage to establish their date and function.

The results from Maulden demonstrate the value of detailed historic map transcriptions of the wider landscape, both in planning field survey and to assist in interpreting the results. While it is important to plot the mapped extent of the ancient woodlands themselves, understanding the development of the wider landscape in which the woodland is situated is also a necessary part of the picture.

Results showing the limitations of the survey methodology

The survey results show the effectiveness of the methodology in identifying visible earthworks wherever the woodland is physically accessible (Table 1). Whether slight features have been missed in areas of poor visibility will only be determined when areas are revisited in better conditions. Two categories of evidence are of interest in assessing whether the recorded results are likely to represent the total archaeological resource.

Iron Age/Roman sites

The density of recorded late prehistoric or Roman settlement falls short of what should be expected, given the numbers of known sites in the surrounding landscape. For example, West Wood, Knotting (north Bedfordshire) is set in a landscape which has a dense scatter of late prehistoric or Roman sites identified as cropmarks and/or from field-walking (Fig 8). They occur about every 500m, usually coinciding with boulder clay ridges. A south-west/north-east ridge runs through the wood; the pattern of sites either side suggests that there are likely to be at least two in the wood that have not been identified. The poor visibility within West Wood may have obscured low earthworks; if there are no surviving earthworks, a walk-over survey will only pick up such evidence if tree-throw holes or animal disturbance happens to coincide with a survey transect.

Table 1: Northants Forest District Archaeology Statistics and *known* populations

Forest Enterprise holding centred on ancient woods	c.7500 ha
Ancient woodland	At least 5000 ha
Boundary features (wood banks, ditches, historic field boundaries)	288.2 km
Ridge & furrow	462 ha
Hunting or keeper's lodges	c.13
Pounds or deer enclosures	6
Medieval fisheries	2
Medieval moated or manorial sites	7
Bronze Age burial cairns	3
Iron Age hillfort	1
?Iron Age/Roman earthwork enclosures	12
Areas of possible Iron Age/Roman occupation	c.20
Major Roman roads (Ermine Street, King Street) along wood boundaries	2
Industrial sites (iron or charcoal)	22
Woods included in or influenced by designed landscapes	9
Woods with military remains	13
Airfields	7
Bombing range	1
Munitions stores	2
Machinery store	1
Aircraft crash site	1
Pill box	1
Palaeoenvironmental areas of natural origin (swallow-holes, peat, glacial erosion hollows	46
Ponds	83
Quarries	91

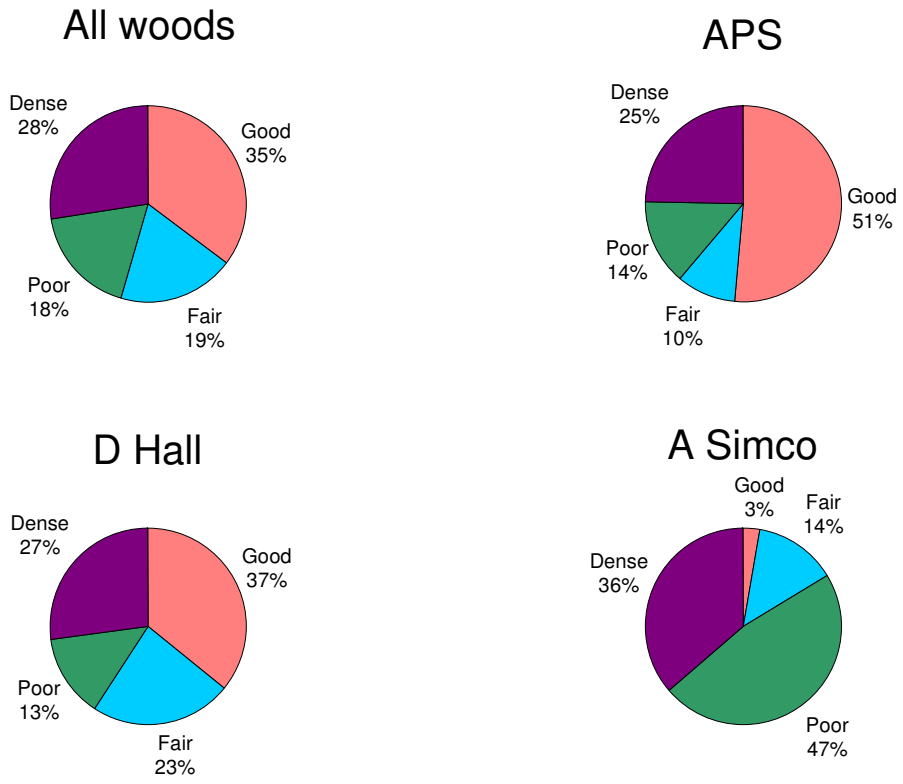
Industrial sites
The east Midlands iron-smelting industry (with associated charcoal production) lasted from the Iron Age to about the 15th century, and appears to have been very significant in the Saxon period. Field-walking and aerial photography have identified a dense concentration of slag and charcoal scatters, particularly in the Rockingham Forest area (4). Rarely however does the slag form upstanding heaps, and the charcoal seems to have been produced from surface hearths on level ground, rather than in the hill-side pits or platforms widely recorded in other regions. As a result, the distribution of recorded iron-working and charcoal production sites in the woodlands is likely to fall far short of the actual population. Comparison of the distributions of iron production sites and charcoal hearths, outside and inside woodland areas, demonstrates the problem (Fig 9).

The walkover technique is clearly inadequate for this type of site, and more intensive techniques, such as test-pitting and geophysical prospection, are needed to give the true picture.

Visibility recording
Finally, it is worth commenting on the statistical pattern shown by the records of visibility (Chart 1). The areas covered by the recorded visibility categories reveals an apparent anomaly which, if real, should be addressed in future survey work. Areas recorded as good visibility vary from over 50% in Lincolnshire (APS), through about 35% in Northamptonshire (D Hall) to less than 3% in Bedfordshire (A Simco). Conversely, the poor/dense categories combined amounted to 38%, 41% and nearly 84% respectively. It remains to be tested whether these are significant differences due to genuine variations in the character of the woodland in the different areas, or to inconsistent application of the visibility criteria among the surveyors. It does, however, suggest that tighter and more objective definitions of visibility criteria would be worth considering.

Conclusion
The surveys have greatly expanded our knowledge and understanding of the archaeology both of, and in, the ancient woodlands of the Northants Forest District. They have also highlighted how much more there probably remains to be identified. There is no doubt that the woodland areas are a major archaeological resource, which will repay further more detailed investigation.

Chart 1: Visibility records



NOTES

1) Angela Simco, June 2003, *Ancient Woodland Project: Archaeology – A Review of Archaeological Surveys in the Northants Forest District, 1996-2001*, unpublished report for the Forestry Commission

2) The map of woodland c.1825 was prepared by David Hall for *Turning the Plough: The Open Fields Report*, 2001, English Heritage/Northamptonshire County Council, © Northamptonshire County Council and English Heritage

3) Woodfield, C T P, 1980, 'The Egg Rings: a defended enclosure in Salcey Forest', *Northamptonshire Archaeology* 15, 156-8

4) The distribution of charcoal hearths is derived from National Mapping Programme maps produced for Northamptonshire, © Northamptonshire County Council and English Heritage

Illustrations

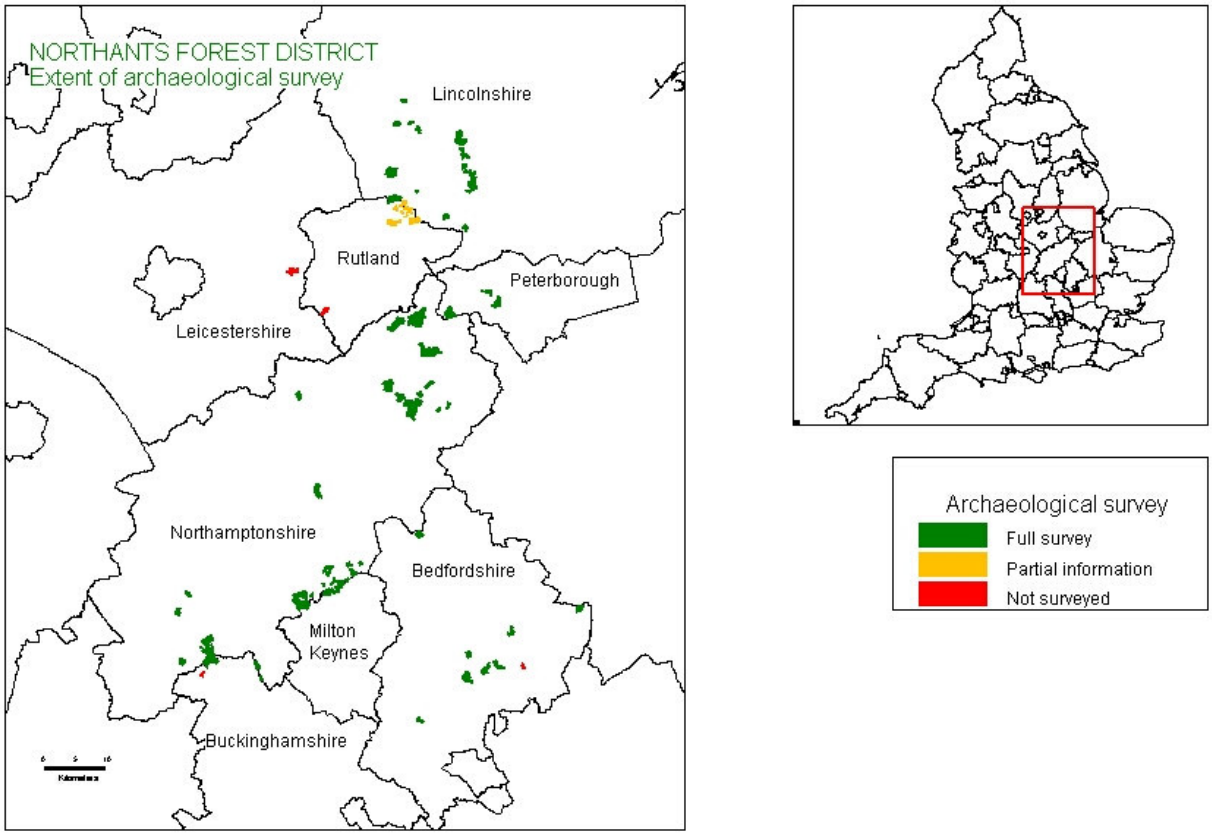


Fig 1. Northants Forest District: extent of archaeological survey

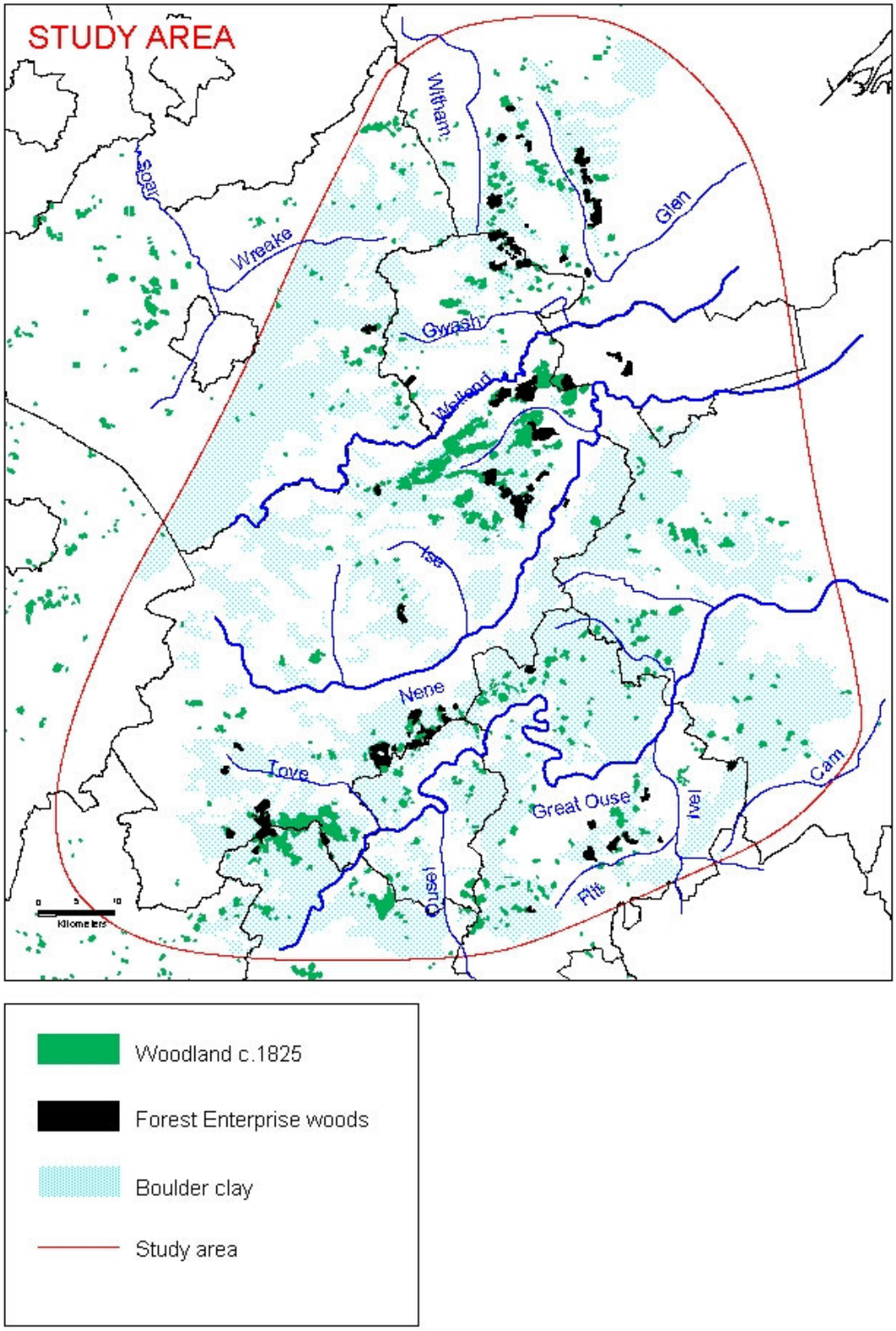


Fig 2. Northants Forest District: study area

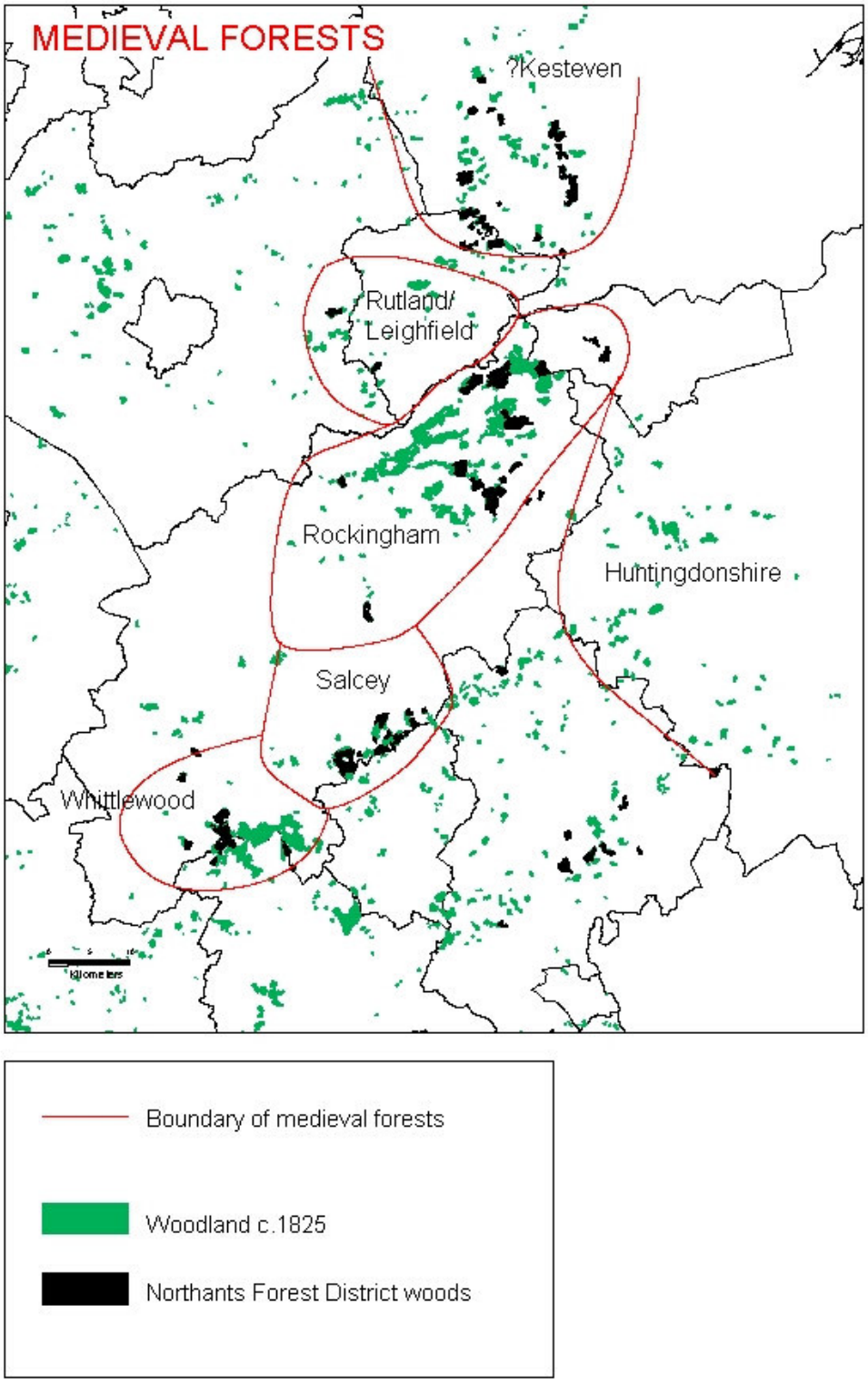


Fig 3. Northants Forest District: medieval forests

Fig 4. Salcey Forest, Northamptonshire, 1825

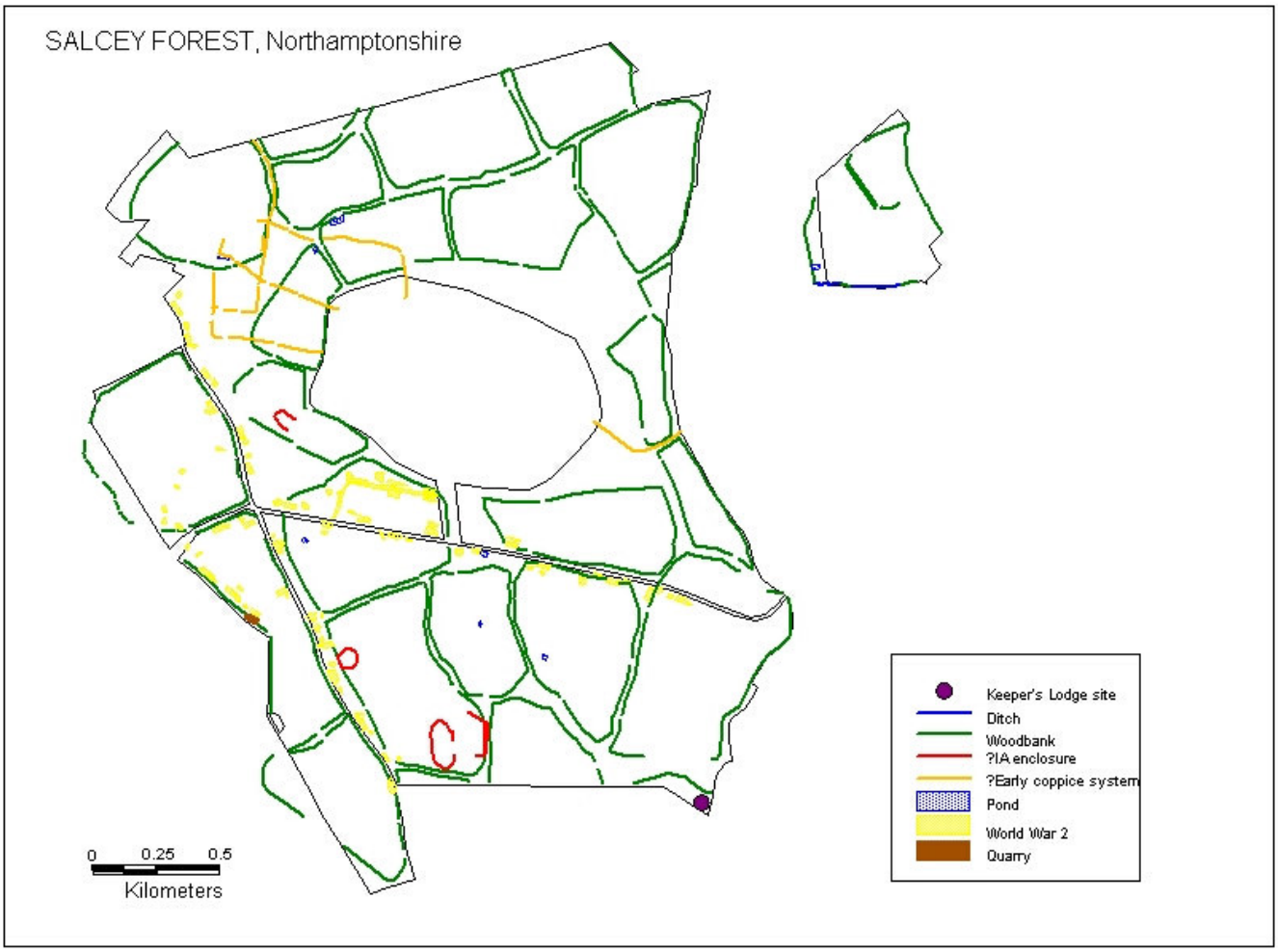


Fig 5. Salcey Forest, Northamptonshire: archaeology

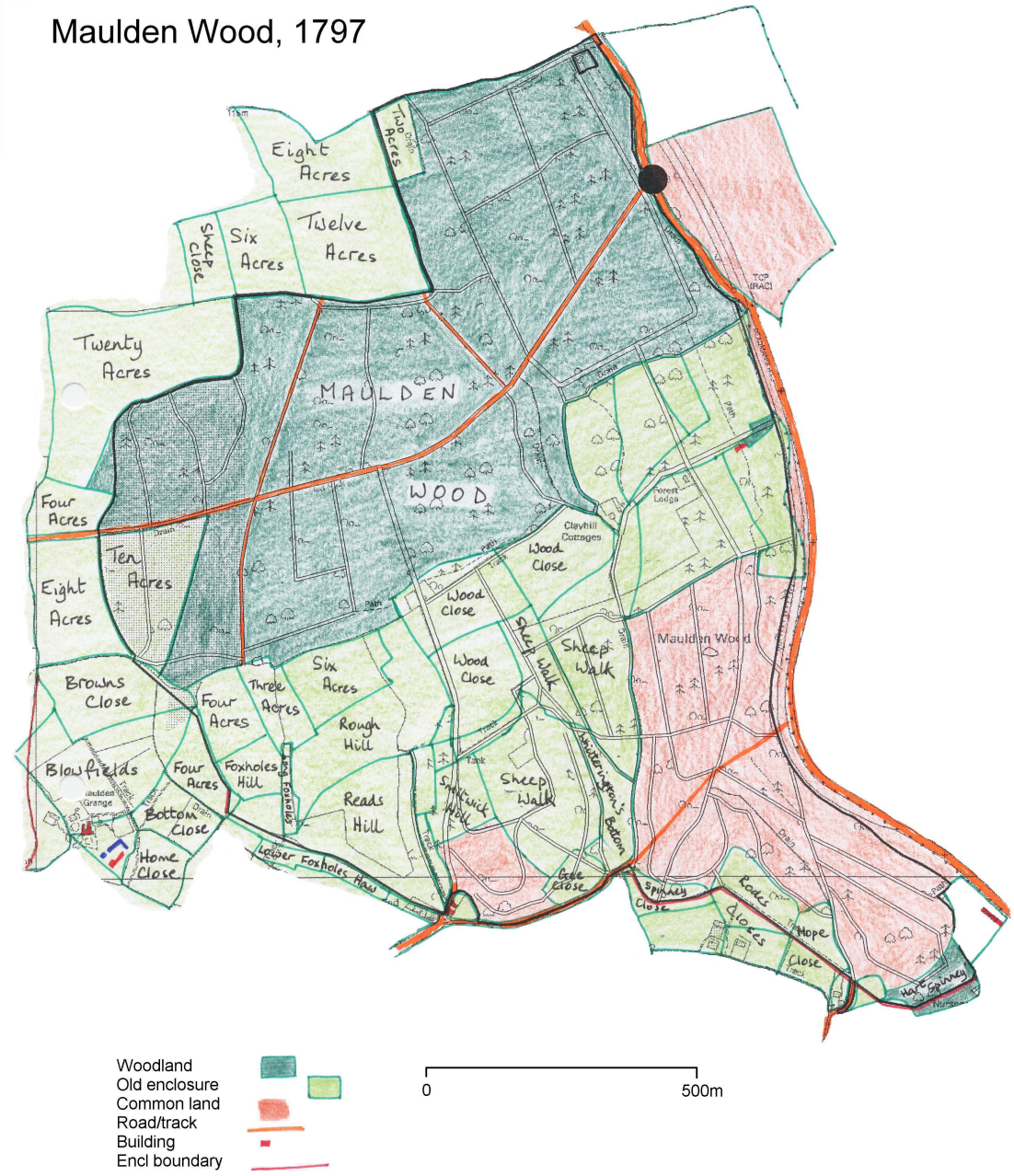
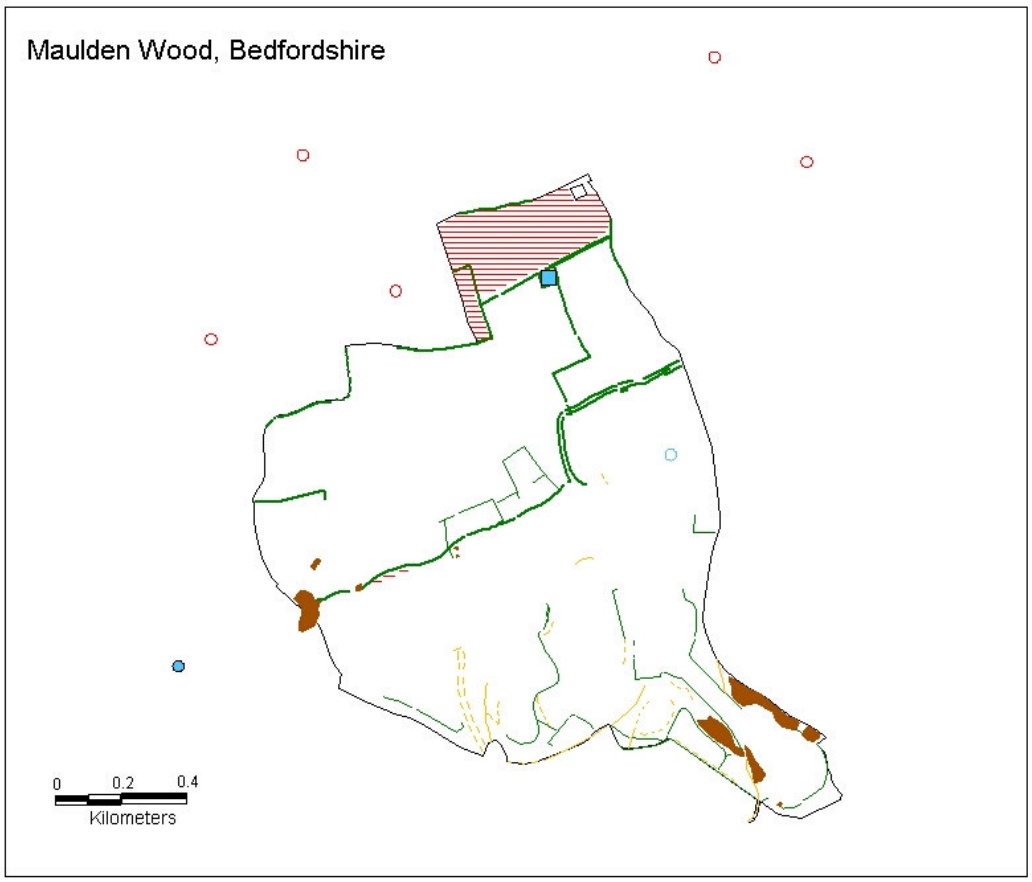


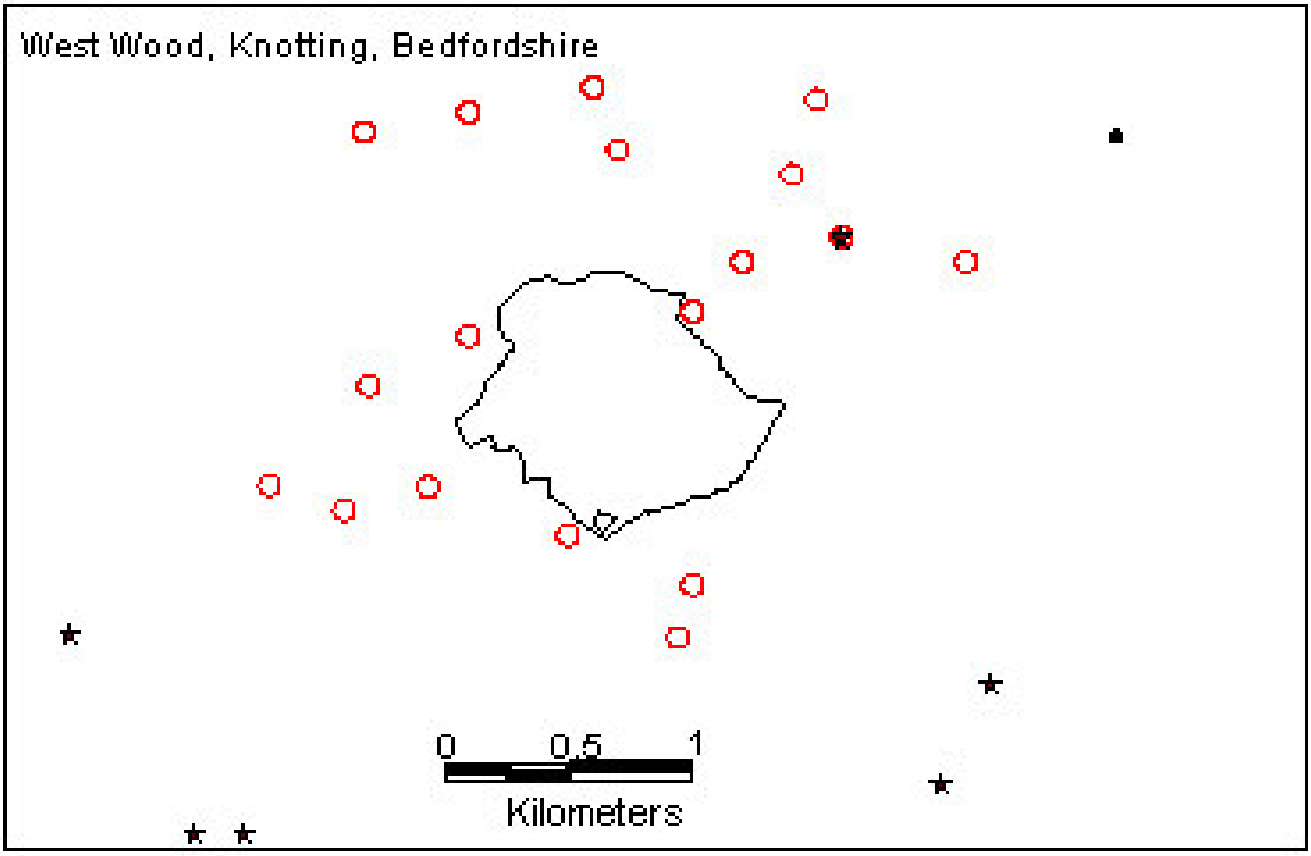
Fig 6. Maulden Wood, Bedfordshire, 1797



Legend as Fig 5, except as follows:

- Orange lines - tracks and hollow ways
- Red hatching - ridge and furrow
- Red circles - Iron Age/Roman occupation
- Blue circles - medieval occupation

Fig 7. Maulden Wood, Bedfordshire: archaeology



Legend
Red circles - Iron Age/Roman occupation
Brown stars - iron production sites

Fig 8. West Wood, Knotting, Bedfordshire

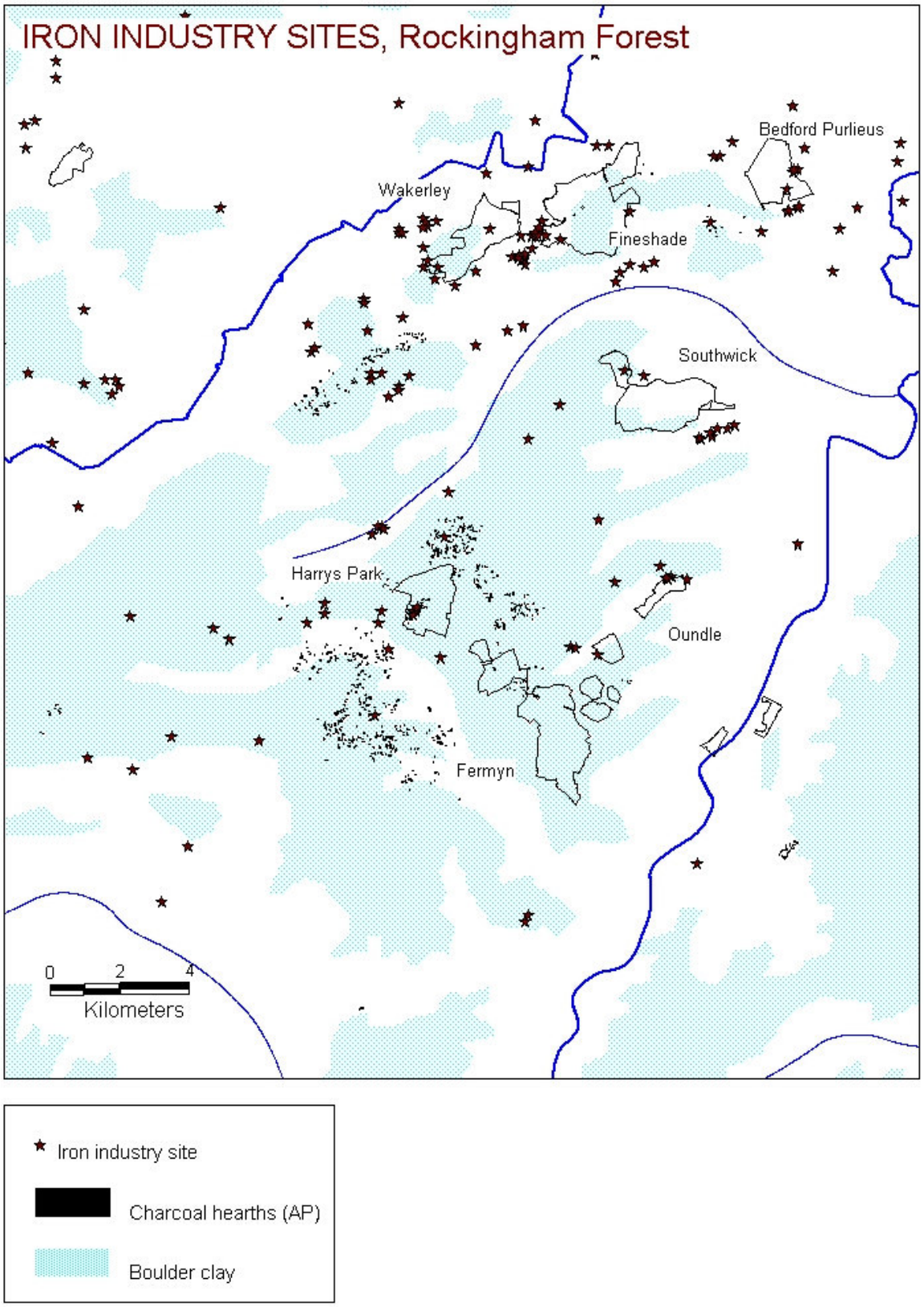


Fig 9. Iron industry, Rockingham Forest, Northamptonshire

Questions

Do you restrict your survey to a particular time of year?
Yes, to midwinter, i.e. February to early/mid April. Visibility is good from about December onwards.

Do you work in pairs?
No, both Angela and David Hall work alone.

Why aren't industrial sites such as charcoal burning platforms and saw pits being picked up by the survey?
Only one such feature was identified, and this was because charcoal had been exposed in an area of animal disturbance. The woodland in this area is very flat, so these features don't survive as earthworks, and are, consequently easily obscured by ground cover. .

You said that these surveys are best carried out in winter, but does this limit the possibility of using biodiversity as a way of identifying underlying archaeology?
Although Northamptonshire Forest District has had ecological surveys, these have been undertaken independently of archaeologists, and biodiversity was not used as a way of identifying archaeology. Despite this it is clear that there is potential benefit in ecologists and archaeologists working together.

How was ground cover recorded?
Ground cover was generally recorded by compartment , although it was clear that different survey teams interpreted the impact of ground cover on visibility differently.