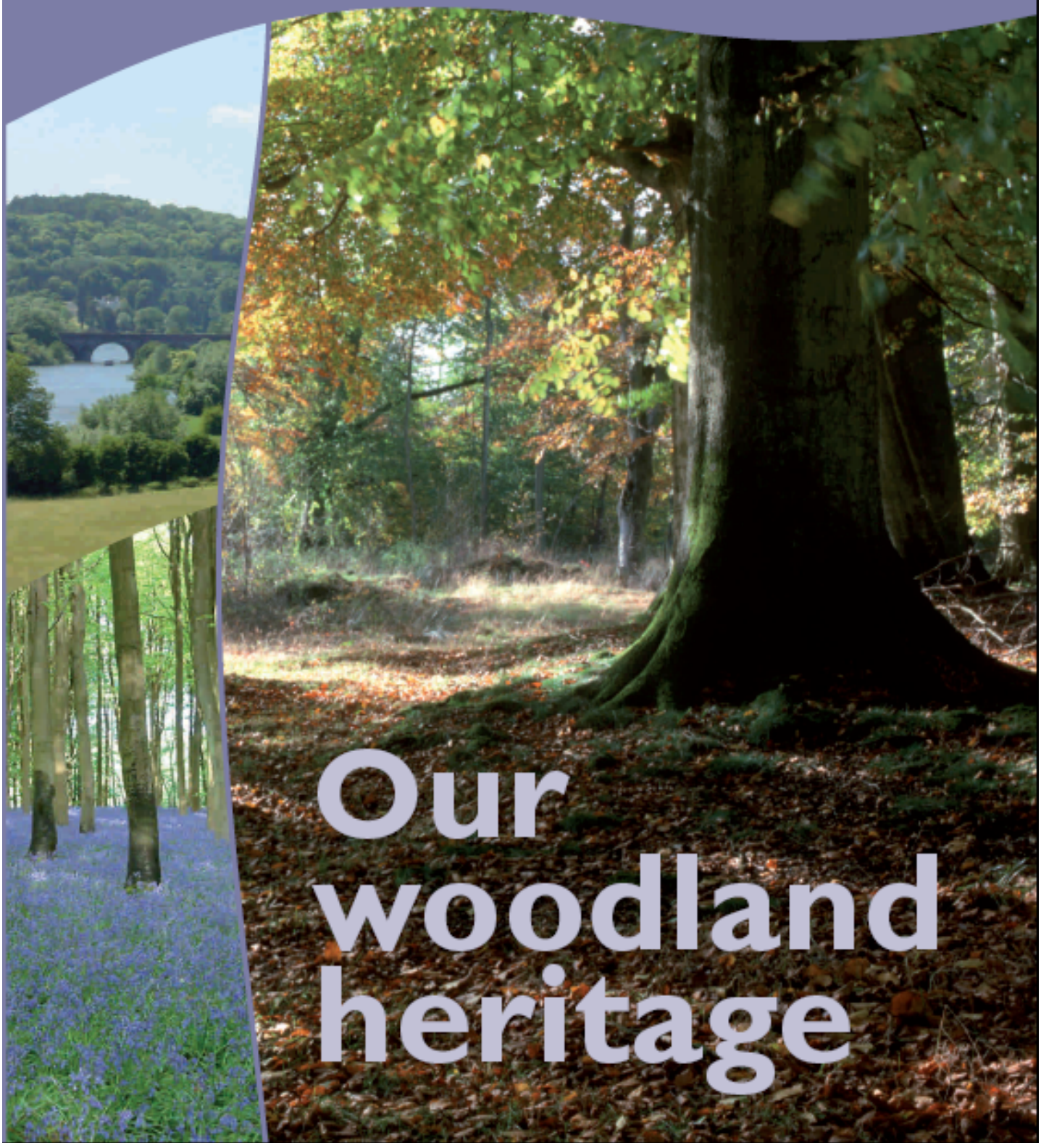
Woodland Archaeology

in the North Wessex Downs
Area of Outstanding Natural Beauty



Our woodland heritage

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ABBREVIATIONS

AONB	Area of Outstanding Natural Beauty
ASNW	Ancient Semi-Natural Woodlands
HER	Historic Environment Record
LA	Local Authority
NWD	North Wessex Downs
SAM	Scheduled Ancient Monument
SMR	Sites & Monuments Record

This Woodland Archaeology Handbook is available to download from the North Wessex Downs AONB website at www.northwessexdowns.org.uk

If you are interested in participating in the project, contact the North Wessex Downs office for details of the next available training session. Training places are provided free of charge, but are offered at the discretion of the Project Officer. In order to ensure that we are able to provide the right support to our volunteers and surveys are carried out safely and with woodland owner's permission, registration as a surveyor on the project is only allowed after completion of the training.

Those who may use the handbook to undertake independent surveys, or other associated work, without registering with the project do so at their own risk.

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WELCOME TO THE WOODLAND ARCHAEOLOGY PROJECT

Figure 1. Fyfield Down. © Countryside Agency.

Those familiar with the North Wessex Downs (NWD) Area of Outstanding Natural Beauty (AONB) may recognise it as being an expansive, open, rolling landscape – full of world class archaeology. The barrows, henges and ancient trails of the open downland are highly visible and characteristic landmarks. However, what is less associated with our landscape is the quality and richness of our woodlands.

Although smaller in scale, the landscape mosaic of woodlands and fields is particularly characteristic of the eastern half of the area. These woodlands play a vital contribution to the natural and cultural heritage of the NWD and include nationally important examples of wood pasture, historic parkland, ancient and semi-natural woodland as well as more recent plantations and shelter-belts.

Figure 2. View across River Thames towards Streatley. © Countryside Agency.

Perhaps surprisingly, very little is known about the archaeology within these woodlands. Because of the tree canopy, even large features are hidden from air photographic surveys, while a general lack of access also plays a part. As a result, important archaeological features in woodlands have never been mapped or recorded. However, woodlands that have been surveyed prove that historically important features have survived where similar features have been destroyed or degraded elsewhere by ploughing or other activities. Any increase in our knowledge can contribute greatly to our understanding of past land use and land use change. This information can increase our enjoyment and appreciation of these features and encourage future generations in the continued care and sensitive management of these woodlands.

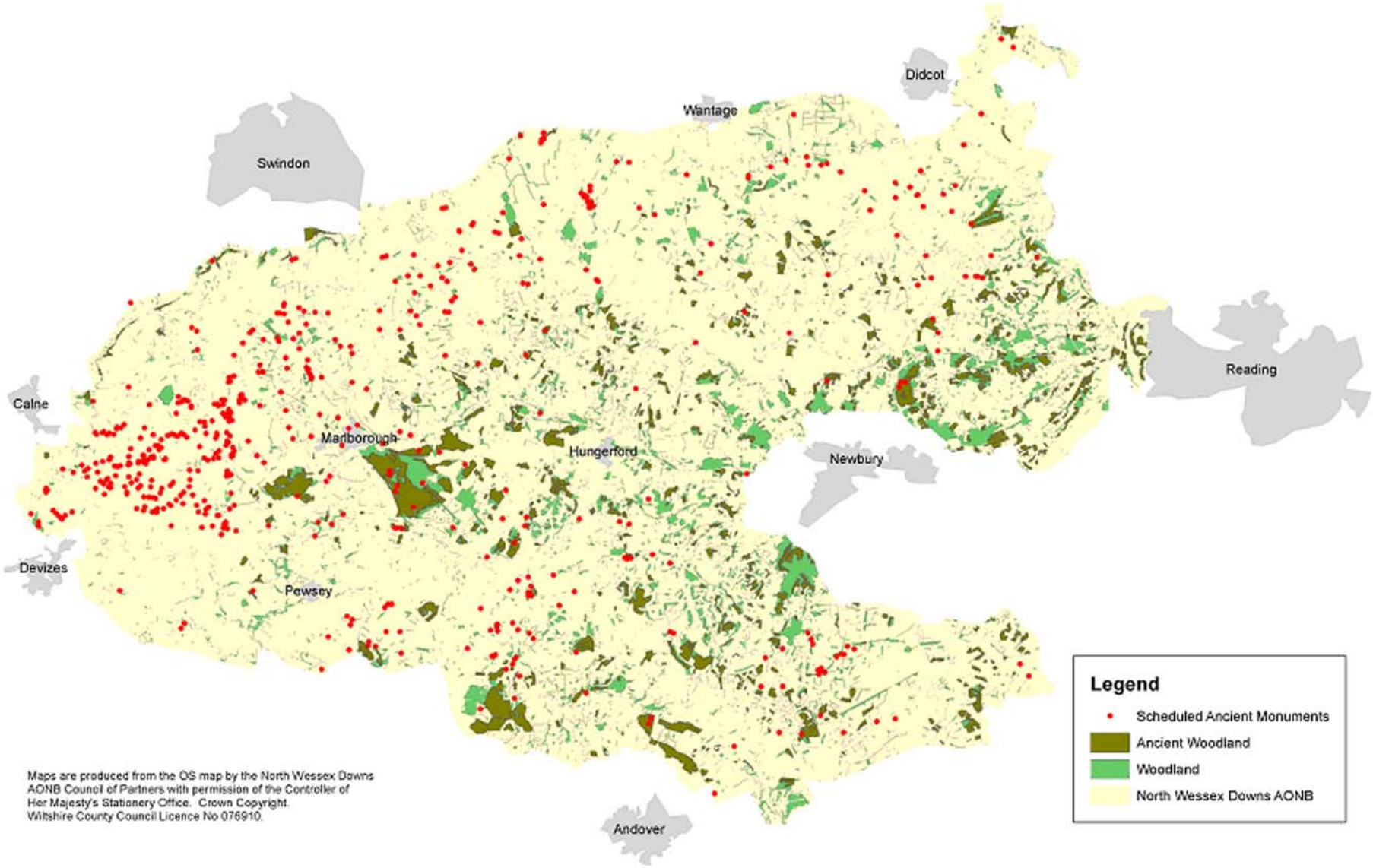


Figure 3. The North Wessex Downs showing woodland cover and scheduled Ancients Monuments.

WHAT IS WOODLAND ARCHAEOLOGY?

Woodland Archaeology is a relatively new area in archaeological research. Methods of fieldwork are still developing, and it is expected that this project will develop and change over time as a result of volunteer feedback.

Generally, woodland archaeologists seek to investigate archaeological features *in* woods and archaeological features *of* woods.

Figure 4. Roundbarrow. © DG.

Archaeology ***in*** woodland includes features that survive from the landscape before it became wooded. Examples include, strip lynchets; a relic of medieval ploughing, and prehistoric barrows (pictured left) as monuments to burials. Identification of these features can help our understanding of the evolution of the landscape as it changed from open land to woodland and subsequent changes through time.

Archaeology ***of*** woodland includes features that provide evidence of past woodland management, such as woodland boundary banks (pictured right), saw pits or charcoal hearths. These features help tell the story of the woods as working aspects of the landscape. The character of a wood can also reveal information: veteran trees, pollards and coppice stands can all help to inform how a wood was previously managed.

Figure 5. Holloway, Fence Lane. © DG.

Research by ecologists has shown that the presence of certain woodland plant species can be indicative of very old woodland. So called 'Ancient Woodlands' are areas considered to have been under tree cover since AD 1600, indeed most ancient woodlands are older than this date.

Figure 6. Ancient Bluebell woodland with more recent coppice. © HW.

Therefore, this project will also focus on compiling a record of plant species that may help us to determine which of our woodland are of ancient origin.

Local knowledge is also vital in gaining clues that may help shed light on unidentified humps and bumps! Today, we are still able to gain first hand accounts of traditional woodland management activities, such as charcoal burning, from a few of our most senior citizens. These accounts add invaluable richness to our knowledge. Given a few years, this generation of pre-war rural workers will have passed on and the opportunity to capture their accounts will have been lost. More recent local knowledge is also very useful. The existing owner or manager may be able to identify any areas subject to significant earth excavations.

Historical maps, especially the older hand drawn estate and enclosure maps can be valuable primary evidence of woodland change or continuity. These maps often show woodland names and some of the hand drawn estate maps depict the type of trees within them. Maps and estate papers can usually be found at the relevant County Record Office.

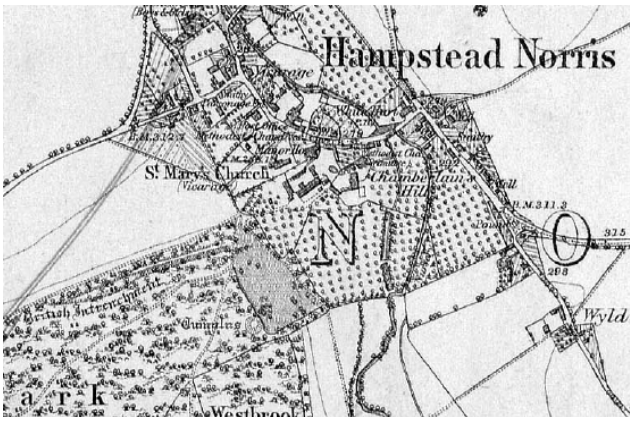


Figure 7. First edition OS map.

AIM OF THE WOODLAND ARCHAEOLOGY PROJECT

The aim of the project is to broaden the level of knowledge and understanding of our woodlands, including their social and economic history. It is hoped that this will better inform those who are making woodland management decisions that may affect archaeological sites, ancient woodland flora or veteran trees. In addition, it may provide a basis for improved woodland education or enhanced recreational potential.

The NWD partnership is working with the Forestry Commission and the Local Authority Archaeological Officers from West Berkshire, Hampshire, Wiltshire and Oxfordshire to develop a network of trained volunteers who can undertake a range of activities aimed at shedding light on the history of our woodlands.

Figure 8. Potash pit, Park Wood. © DG.

For volunteers, this is an opportunity to develop new skills, meet new people and discover unfamiliar aspects of their locality, while generating information that can be of real and lasting value.

The information gleaned about each woodland will be fed back into each Local Authority's Sites & Monuments Record (SMR), soon to be known as the Historic Environment Record (HER), building on existing knowledge and filling gaps where little or no information has been available.

Most importantly, the woodland owner will be provided with a copy of the final report, and it is hoped that this will be used to gain additional grant support from the Forestry Commission for good conservation management of archaeological features found within their woods.

SCOPE OF THE WOODLAND ARCHAEOLOGY PROJECT

This project aims to develop a broader role for volunteers than simply undertaking woodland surveys.

We hope that the project will appeal to a wide range of people interested in undertaking a variety of activities, such as, research, oral history interviews, ecological surveys and archaeological audit surveys. We need to draw on a range of skills including: historical document research, technical drawing, report writing, plant identification, archaeological field work and surveying skills. We also need team leaders experienced in organisation and communication.

You may be drawn to only one aspect of the project, or you may wish to learn a variety of new skills by becoming involved in several activities. Whatever you prefer, you will be making a valuable contribution to the project. The project scope is also challenging from a geographical perspective. The NWD AONB stretches over 1,730 sq km, encompassing 173 parishes. We aim to cover as many woods as possible. Our medium-term target is to have at least one woodland survey undertaken in each parish.

Figure 9. Map of parishes within North Wessex Downs.
Maps are produced from the OS map by the North Wessex Downs AONB Council of Partners with permission of the Controller of Her Majesty's Stationery Office. Crown Copyright. Wiltshire County Council Licence No 076910.

ABOUT THE HANDBOOK

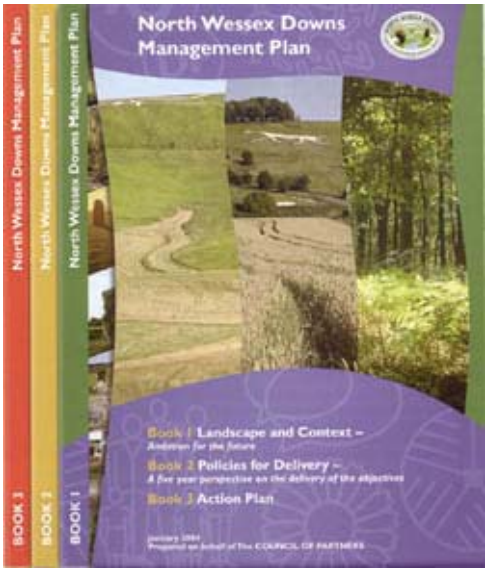


Figure 10. North Wessex Downs Management Plan.

This project has its origins in the NWD AONB Management Plan, published in 2004, which seeks to conserve and enhance the natural beauty of the area. One essential element of that natural beauty is woodland and the Plan sets out a number of actions for its conservation and enhancement. The Plan recognised that the history and archaeology of most woods is poorly understood. There can be little doubt that many more archaeological sites exist within the NWD woodlands than appear on archaeological records, and experience shows that some of these undiscovered gems will be in a remarkable state of preservation.

One of the actions in the Plan was to set in motion a programme of woodland archaeological surveys. To achieve this aim, the NWD team working with the Forestry Commission, Countryside Agency, the Local Authority Archaeologists and others have given their support to the production of this handbook which, in conjunction with a training programme, will enable volunteers and archaeological groups to carry out rapid audit surveys to a consistent standard. As part of the project, the NWD team will help to coordinate the work of volunteer groups and engage those woodland owners who are keen to have their woods surveyed.

The approach and methods adopted in this handbook have their origin in a review of the practices employed by various organisations and fieldworkers. It is intended that the recommended methods should reflect the best practices currently employed, and that the handbook should provide clear guidance throughout the various stages of the project.

While the handbook aims to establish the framework within which the woodland project is implemented, it is not intended to be overly prescriptive. On the contrary, the principal objective is to promote interest in archaeological woodland survey and provide support for voluntary groups.

The handbook has been produced in a loose leaf format so that individual sections may be photocopied for reference purposes. As the project develops further pages may be added to expand subjects or to cover more advanced survey techniques. Samples of the forms mentioned in the text, a Further Reading section and a list of Contacts are provided at the back of the handbook.

WHO CAN VOLUNTEER

Figure 11. Enjoying a wood. © CA.

It is a reflection of the long-term decline of traditional woodmanship that few people now have an intimate knowledge of their local woods. Nonetheless, most of us enjoy visiting woods and, whether we have a professional or recreational interest, this project offers the opportunity to further our knowledge of woodlands by learning more about their archaeology and history.

This is an inclusive project. It is hoped that it will appeal to a wide range of individuals with different interests and skills. You may be a woodland owner and want to discover more about your own woodland. It may be that you are interested in researching the woodlands in your local area. You may already be a member of a local archaeological or natural history society, or you may have no prior knowledge but want to come on the training courses to find out more. The only restriction is that anyone under 16 should be accompanied by an adult.

At first sight, the information contained in the handbook may seem daunting, but don't be put-off. Archaeological survey in woodland can involve different levels of complexity and while you are encouraged to follow the recommended methods, it is anticipated that some groups will feel more comfortable with a less detailed approach. Learning the survey techniques is intended to be informal and fun, and with training a great deal of satisfaction can be gained from acquiring new skills and insights.

Volunteers may be interested in making a long-term commitment to the project, or may only be interested in limited involvement by researching a single local wood. Whatever the level of commitment you wish to make, enjoy the project; your confidence will increase with practice and so too will your knowledge of woodland and its largely hidden history.

There are many ways volunteers can contribute towards this project by:

- undertaking research into historical documents available at the relevant County Record Office and the National Monuments Record (English Heritage) in Swindon,
- studying aerial photographs,
- recording local people's reminiscences,
- becoming a volunteer team leader,
- becoming a volunteer surveyor,
- recording the flora and woodland characteristics.

SCOPE OF THE WOODLAND SURVEYS

By its very nature an audit survey is not intended to produce a complete inventory of the archaeological remains in any single wood. The purpose is to determine whether or not visible features are present and to provide a reliable indication of their distribution. Bear in mind that many of these woods are unlikely to have been visited by an archaeologist. They are in many respects uncharted territory, and for that reason we can expect that an audit survey will make a significant contribution to our existing knowledge.

Archaeological remains are not the only source of evidence for the historical management of woods. The character of the trees themselves, and more generally, the woodland ground flora, has much to tell us about the age and structural development of the wood. For example, the presence of old coppice, pollards, stubs and old boundary hedges complement the archaeological evidence and contribute significantly towards a more detailed understanding of the wood's history.

The survey methods are designed to enable voluntary groups to carry out rapid audit surveys of archaeological features, which will produce sufficient information to allow the archaeological potential of individual woods to be described. The aim of the woodland survey work is to record, at a basic level, any archaeological features, along with the character of the wood and if possible at the time of survey, the ground flora.

Important Considerations

Timing

The practical woodland survey work will be mostly undertaken between the months of November and the end of April. This is when the undergrowth is low, allowing features to be seen with greater ease. The optimum time of year for the botanical study of ground flora is late March to May.

Finding Artefacts

The Access Permission Form excludes the removal of artefacts and the project brief does not extend to collecting material from woods or ploughed fields adjoining woods, nor does it include the use of metal detectors. Any artefacts that are seen on the ground should be left in place, not removed. You may wish to take a photograph of the artefact to refer to the team leader and if considered significant, for inclusion in the final report. A digital camera is especially useful in this regard. That said, a note of the location of any surface finds should be made

on the Archaeological Feature Record Form and the team leader consulted regarding the relevance of the finds.

Scheduled Ancient Monuments

Some of the archaeological features found in woodlands may be the subject of statutory protection under the Ancient Monuments and Archaeological Areas Act 1979. The Act is designed to protect the archaeological heritage of the United Kingdom and damage to any such monument is a criminal offence. The County Archaeological Service will be able to give advice as to whether or not any of the features in the proposed survey wood are Scheduled Monuments.

Figure 12. Grim's Ditch, Streatley. © HW.

PLANNING THE PROJECT

Deciding on a Wood and Getting Permission for Access

Virtually all woods are in private ownership, others are owned by bodies such as Local Authorities, the Woodland Trust or the Forestry Commission. It should not be assumed that public rights of way through private woods provide approval for wider access, nor is open access to Forestry Commission woods a guarantee that consent will be granted without the imposition of conditions.

There should always be overt and formal evidence of permission from the owner, or the agent authorised to act on the owner's behalf: for example, the estate manager or tenant. As a first step, it is important to check with the NWD AONB whether the woodland has been previously registered and the landowner contacted with regard to a survey. If this is not the case, then it will be necessary to initiate the process by making contact with the local woodland owner. Whether the woodland has been previously registered or not, an Access Permission Form must be completed (a copy is provided with this handbook). The form should be copied, filled-in with the project details and given to the landowner to sign. Survey work must not begin until the form has been completed and signed. This document will form part of the final site record documentation and should also be brought to the site during the survey as proof of the landowner's permission, should groups be challenged.

During the preliminary visit, in which the landowner or agent should be given the opportunity to be present, any safety hazards, areas of restricted access and known features can be identified and recorded on the Risk Assessment and Access Permission forms as well as on a copy of the site map. Gaining the knowledge of the woodland owner or agent is important at this stage as they may be able to tell you the origin of some features, for example, they may have dug certain pits themselves, for whatever reason. If the information is based on anecdotal reports it should still be recorded, but noted as such.

Both the completed Access and Risk Assessment forms must be filed with the NWD office. It is also important to refer to the relevant Local Authority Archaeological Service to acquire the base maps and HER information prior to undertaking the survey.

A day before the audit it is good practice to call the owner or agent to remind them that your group is going to be there.

HEALTH & SAFETY

While Health and Safety can seem overly bureaucratic, it is an essential aspect of any practical project, and should be taken seriously. Woodlands can present certain hazards, but, with common sense and good planning, surveying them will go all the more smoothly.

The Health & Safety process begins with a risk assessment, which identifies the hazards associated with a particular activity and specifies the actions necessary to reduce the risks for those engaged in the activity. The following list of generic hazards is not comprehensive and should be used only as a guide for a specific risk assessment.

Risk Assessment

Each time you undertake fieldwork a specific review should be carried out, based on a local assessment of the hazards and risks associated with survey in a particular wood. Generic risks will apply, but there are likely to be local issues some of which may be unforeseen. In this regard, early contact with the wood owner is essential. The owner will be able to offer advice on seasonal hazards, such as, game shooting, deer culling or forestry operations, as well as any dangerous conditions created by unsafe trees, mires, fencing, partly in-filled military trenches and quarries. As a general rule, if there are concerns about safe working practices the fieldwork should be postponed until the safety issues have been resolved.

A specific risk assessment form is provided at the back of the handbook. A copy of this form should be completed by the team leader during the project planning stage. The completed assessment forms should be read and signed by the surveyors, preferably on site at the start of the work. Each group should provide a first aid kit and if possible, should include one member who has undergone formal first aid training.

It should be emphasised that the sample forms included in this handbook do not provide an exhaustive list of potential hazards. It is the responsibility of each group to take appropriate measures to ensure the safety of those taking part in the survey. The forms included with this handbook have been adapted from those published by The British Trust for Conservation Volunteers. Publications by the BTCV providing advice on Health & Safety issues are included in the Further Reading section of this handbook.

Lone Working

On occasion, there may be circumstances in which lone working presents a low risk, perhaps in the smaller, less isolated woods or copses with extensive public access. However, as a general rule, working alone should be avoided.

If lone working is undertaken it is important to ensure that the time and location of the work is known by a nominated individual who also knows the contact telephone number of the landowner or agent and your family contact. It is also strongly recommended that you carry a fully charged mobile phone. It is important to remember to 'check in' and 'check out' with this person so as not to raise an alarm.

Potential Hazards

- Any restrictions imposed by the wood owner, agent or tenant should be scrupulously observed.
- The condition of the wood and the weather should be considered when arranging the survey.
- Whenever possible avoid working in woods during high winds: even in well-maintained woods there is a risk of injury from tree throw or from falling branches.
- You know your own limits and don't try to exceed them!

Most of the common hazards listed below can be avoided by wearing suitable layered clothing (including a hat in cold weather), waterproofs and strong, well 'broken in' foot wear, carrying adequate water and snacks and by being attentive to the actions of other team members.

As with all health & safety issues, good preparation and planning, as well as common sense and a responsible attitude, play an important part in reducing risk as well as resolving any incidents that may occur. The key principle that we would impress upon all team leaders and volunteers is:

If in doubt, don't do it!

Cuts and Abrasions

These are among the most common injuries resulting from contact with brambles, sharp twigs and branches. It is easy to be cut or poked in the eye when pacing if your attention is focused in the middle distance.

Tripping and Falling

Leaf litter on the wood floor may conceal animal burrows and other obstacles, which can cause painful falls. Old wells are also dangerous as their entrances are often covered by leaves. Areas of brash may need to be crossed, but take special care to avoid tripping. Avoid marshy areas and take care when mapping old pits or quarries, especially those that have been in-filled with rubbish.

Tetanus

Volunteers should ensure that their tetanus immunisation is up-to-date.

Weil's Disease

This is a bacterial infection carried in rat's urine, which can contaminate water. It can enter the body through the mouth and nasal membranes and eyes, or through cuts and abrasions. If you develop flu-like symptoms after working near wet areas, it is important to seek medical advice.

Ticks and Lyme's Disease

Ticks are at their worst during the summer. They can transmit Lyme's disease (only carried by a very small percentage) as they detach from the bite (they regurgitate some of their stomach contents as they retract their mouth parts). One method of tick removal is simply to hold the tick firmly with a pair of needlepoint tweezers as close to the skin as possible (about the ticks mouth/head) and pull. It is better to leave mouth parts in the skin rather than let the tick detach itself and potentially spread infection. Alternatively, layer the tick in Vaseline – as the tick requires oxygen it will resurface on its own – then wipe off carefully. Apply antiseptic cream to the bite area and monitor it. If the bite area becomes significantly worse, beyond your normal reaction to an insect bite, a doctor should be consulted. Common symptoms can include the formation of a 'ring' around the bite or fever-like symptoms.

In general, wear long trousers, tucked into socks if possible, and long-sleeved shirts. Light coloured clothes will help you spot ticks and brush them off. Inspect yourself for ticks thoroughly at the end of each day.

Bites and Stings

It is vital that team leaders are notified if any member of the group suffers from an allergic reaction to stings. While these rarely present a major hazard, it is important to be aware of the risk of anaphylactic shock.

PRELIMINARY HISTORICAL WORK

Historical Maps and Documents

Some historical background work before the fieldwork begins is not essential, but it is advantageous insofar as it can provide some understanding of how the extent and shape of the present wood has evolved. Whether this takes place before the survey, or after the fieldwork has been completed, it is important that the project report should set the wood within its historical context. This might be limited to reproducing relevant historical maps, or it could include more detailed information from documents or local sources.

Domesday

Modern county volumes of the Domesday survey, commissioned by William the Conqueror in 1086, are available in most libraries. Reading the entry for the relevant estate or manor (some of which do not correspond with parish boundaries) can give an insight into the nature of woodland and other land use in early Norman Times.

Victoria County Histories

These are invaluable in providing a reasonably concise history of hundreds, manors, parishes and individual properties: they also supply information regarding older documentation which may be held elsewhere than County Record Offices, e.g., the archives of the Bishopric of Winchester. Not all parishes are covered but volumes are normally available in the reference sections of local libraries, local history libraries or the County Record Office.

Historical Maps

County Record Offices and local studies libraries have collections of historical maps and other materials available for consultation. A list of principal sources and contact details is provided at the back of this handbook. Online collections of historical maps are also available and it is worth consulting local community web sites for additional information. This may include references to rural crafts and occupations utilising local woodland resources, or even to military use: some large depressions mapped as pits are locally known to be World War II bomb craters.

Historical Ordnance Survey maps are probably the most useful and most detailed, often depicting wood boundaries and compartment divisions that can be relocated during the survey. Tithe maps, tithe awards, enclosure maps and apportionments and estate archives are also a valuable source of information about land

boundaries, buildings, ownership, tenancies and land-use for the post-medieval period. Less useful are antiquarian county maps, which are often drawn at a small scale, but if they are used with caution it is possible to gain some insight into the evolution of the wood.

Air Photographs

Aerial and other archived photographs can also show where recent land use changes have taken place but which are not obvious on the ground due to

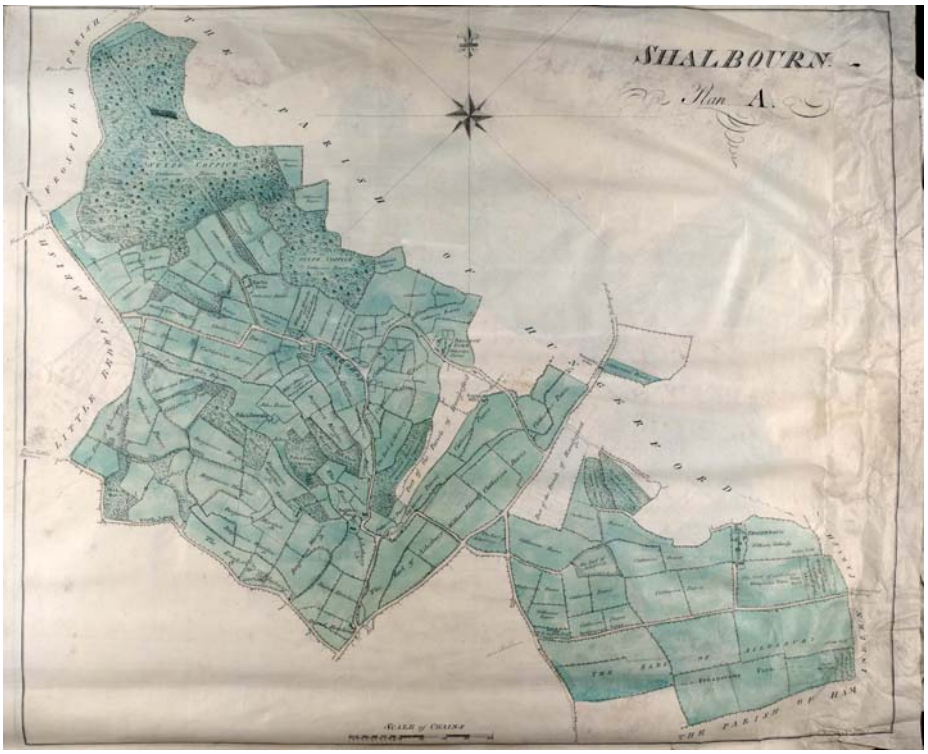


Figure 13. Enclosure map of the parish of Shalbourne. © Berkshire Record Office.

development and alterations in land management. Aerial photograph collections are held by Local Authorities, the National Monuments Record (English Heritage) Swindon and Cambridge University (the latter collection includes material relevant to the NWD AONB not replicated elsewhere).

Sites & Monuments Records and Historic Environment Records (Local Authority)

The information acquired from the SMR or HER may provide indications of the distribution of archaeological remains in the environs of the wood. This can be a useful guide to what may be expected to survive in the interior. Available records may include references to previously identified earthworks inside the wood, or there may be aerial photographic transcriptions of crop and soil mark features in the adjacent open farmland that can be traced as earthworks within the wood.

Tips for using County Record Offices

To use a County Record Office you will need to register. Registration is free, but it does require two forms of identification, one of which must include your address.

You are strongly advised to telephone or consult Record Office web sites in advance to check opening times, any special rules and requirements and to book a place in the search room. Contact details are provided at the back of this handbook.

If you are unfamiliar with the working of County Record Offices, do not hesitate to ask the search room assistant for an introduction.

Tips for Working with Historical Maps and Documents

You will need a modern map, preferably the appropriate Ordnance Survey 1:25000 Sheet (Explorer Series) and the parish name.

It is less confusing to begin with the most recent historical map and work backwards in time to earlier sources. This makes it easier to recognise the wood as its character changes through time.

Make sure you consult the tithe and enclosure map apportionments. These can provide information about the historical landownership, tenancies and field and wood names.

The early series Ordnance Survey maps can usually be photocopied, but the tithe, enclosure and estate maps may need to be traced. As an alternative to tracing, most Record Offices will allow the use of a digital camera. In West Berkshire the enclosure maps have been digitised and are available on the web at www.berkshirenclosure.org.uk.

Check with Record Office staff to ensure that there are no copyright issues restricting the reproduction of maps and documents.

HISTORICAL WOODLAND MANAGEMENT AND ARCHAEOLOGICAL FEATURES

Some woods have been planted within living memory, but many woods have a long and diverse history. Given the reliance on timber in prehistoric times, woodland management may have had a priority over early agricultural concerns. Under current classification 'Ancient Woods' are those which are believed to have been in existence since at least AD 1600. Before that date, records of planting are uncommon, so a wood present in AD 1600 may have developed naturally. These are referred to as ancient semi-natural woodlands (ASNWs) and are likely to have persisted in the landscape since the Middle Ages.

During the Middle Ages, woods were managed intensively to produce timber and underwood. Many were privately owned, though some had common rights. These wooded commons were especially important to rural communities since they provided wood-pasture for cattle and sheep and pannage for pigs, as well as coppiced underwood for building, fencing, fuel and charcoal. Underwood was traditionally distinguished from timber both in practice and in law, by which it was precisely defined. It consisted of the poles from coppicing and pollarding, as well as small suckers and the branches from felled trees.

Common rights were strictly regulated, and more often than not the lord of the manor retained ownership of the valuable timber. By the thirteenth century, wood-pasture appears to have been in general decline, either through the conversion of woods for other uses, as a consequence of over-grazing, or through simple neglect. Some wood-pasture was converted to agricultural use, while in other places the pastures were appropriated by the lord of the manor to become parks or coppices.

Larger timber had been important for building from the earliest times, but increasingly during the post-Medieval period the fate of woodland became inextricably linked to the industrial economic cycle. Oak woodlands in particular were susceptible to these fluctuations, and cycles of 'boom and bust' in industries such as shipbuilding and tanning had a major impact on their character.

Traces of past woodmanship can be found throughout old woodland. Trackways, earth banks, field boundaries, stands where charcoal used to be made, the presence or absence of certain plants and invertebrates, the soil profile and structure, the variety of tree species and their age, even the particular shape of individual trees are all clues to the antiquity and past management of woods.

With the demise of traditional woodmanship, many woods have fallen into neglect as their primary economic importance has lessened. In recent times these woods have offered some economic return through the growth in sporting interest. The

evidence for this can be seen in the game release pens and the areas cleared for game crops and shooting rides.

Recognising Trees Modified by Traditional Practices

Pollards

These are easily recognised by their thickened trunks and crown of multiple branches. The shape is created by the repeated harvesting of the crown to ensure that re-growth takes place above the level of browsing stock or deer. Pollards were typically associated with wood pasture, commons or parks, and were sometimes used to mark parish boundaries.

Figure 14. Pollards. © RE.

Stubbed Trees

Wood boundary earthworks are often surmounted by trees which have been cut-back close to the ground to produce a short, thickened trunk. These are known as stubs and can be found on external and internal boundary banks.

Figure 15. Stubbed Trees on a wood bank. © RE.

Coppice

This ancient practice involved the cyclical re-cutting of underwood at intervals which depended on the species and the size of poles required. Hazel coppice for hurdle poles was cut every seven to ten years, or on a longer rotation for larger poles. Old coppice can be recognised by the presence of short stumps called stools and multi-stemmed re-growth. Many of the internal woodland banks and ditches enclose areas of old coppice, now mostly neglected and overgrown.

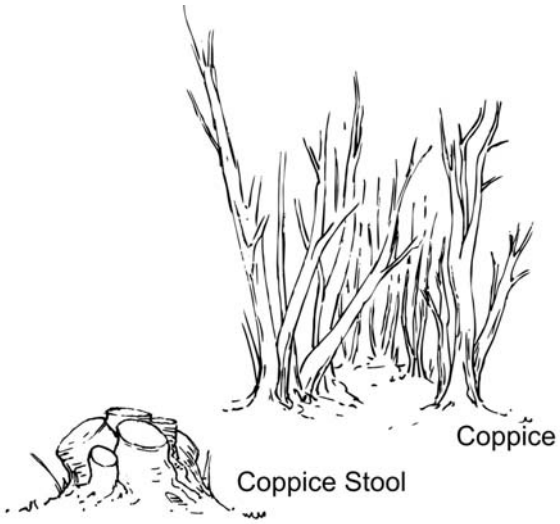


Figure 16. Coppice. © RE.

Outgrown Hedges

While these are not part of the woodland itself, they are often found along the boundaries of ancient holloways (sunken tracks) and green lanes giving access to woods, and in that sense they are part of the associated land-use. Outgrown hedges are characterised by gnarled upright stems with old branches, laid more or less horizontal. The more recent growth springs upright from the old laid branches.

Figure 17. Outgrown Layered Hedge. © RE.

Archaeological Features in Woodland

Ponds

Ponds are easily distinguished from pits or small quarries by having shallow, shelving profiles, and usually a regular shape. Other ponds have been formed by building an earthen dam across a valley, although these are less common. Some ponds may have been more recently dug to supply water to livestock, but others may be much older. The earlier ponds are sometimes found in close association with lynchets marking the edges of fields that were in use before the wood was established.

Saw Pits

Saw pits were constructed to process felled timber as close to the point of felling as possible. When the pit had to be dug on a slope the spoil was piled on the down-slope side to create a level platform which supported the framework that held the timber in place. Not all of these pits were filled-in after use, and some still survive as shallow, slightly oval hollows measuring 3 to 4 metres in length and 1 to 2 metres in width.

Quarries and Other Pits

These are the most numerous archaeological features to be found in woods. They vary from substantial hill-slope excavations that may be up to 50 metres or more across and many metres deep, to rather shallow depressions with an accompanying spoil heap. The larger quarries may have been used to extract raw materials for a variety of uses. These include, chalk for sweetening adjacent acid soils, or for lime burning, and sand or clay for brick making. These larger workings invariably have deeply worn extraction routes leading away from the quarry. Pits alongside roads may have been used for road building materials in the period when parishes were responsible for maintaining their own roads.

Bomb Craters

Among the smaller pits are a group characterised by their symmetrical, near circular outline and the presence of a rim of spoil around their edges. Where these features lack any sign of access or associated workings they are likely to be World War II bomb craters, and it is sometimes possible to map the roughly linear pattern left by the bomb ‘stick’.

Charcoal Hearths

The traditional method of charcoal burning involved the construction of a kiln over a levelled platform or shallow hollow. These subtle features are difficult to identify on the ground, although in some cases there may be traces of ash or scattered charcoal fragments among the leaf litter.

Mounds

The various mounds found in woodland are similarly difficult to identify with confidence, but prehistoric burial mounds occasionally survive, where they have escaped destruction by ploughing. Neolithic burial mounds, or long barrows, are elongated or wedge shaped and can be easily confused with medieval pillow mounds, which were artificially built rabbit warrens.

However, the most likely form of burial mound to be found is the Bronze Age round barrow, which as the name suggests is a near circular mound, sometimes with traces of a surrounding ditch. These vary in size from 5 metres to 15 or 20 metres in diameter. The two most common types are bell and bowl barrows.

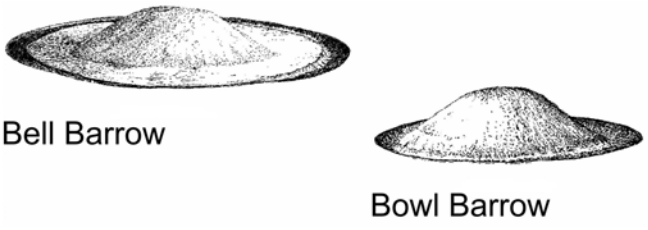


Figure 18. Typical Bronze Age burial mounds. © RE.

A third type, the disc barrow, is characterised by a circular ditch and external bank surrounding a flat area with a small central mound. These are less common than the bell and bowl barrows and may be 30 metres or more in diameter. Where the mound has been damaged or levelled they can be confused with the circular earthworks built around searchlight batteries during the Second World War.

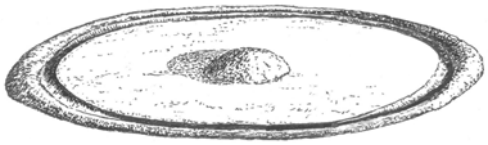


Figure 19. Disc barrow. © RE.

Wood Boundary Earthworks

The external boundaries and internal compartments of most old woods are marked by banks and ditches, which may also define major access routes and drove ways. The scale and arrangement of these earthworks, many of which appear on old maps, can help to reconstruct the history of alterations to the wood.

In some of the more ancient woods there are surviving remnants of medieval boundary earthworks. These are more massive than the later ditches and banks and, where they can be traced for any distance, they tend to follow a more sinuous course, indicating that the boundary had been laid out in a wood that was already established.

Throughout the post-medieval period and into the nineteenth century, wood banks become progressively smaller and straighter. The later forms are usually characterised by sharp profiles, being typically about two metres across and less than a metre high. Those around the periphery of the wood have a ditch on the outer side, in other words on the side opposite the wood.

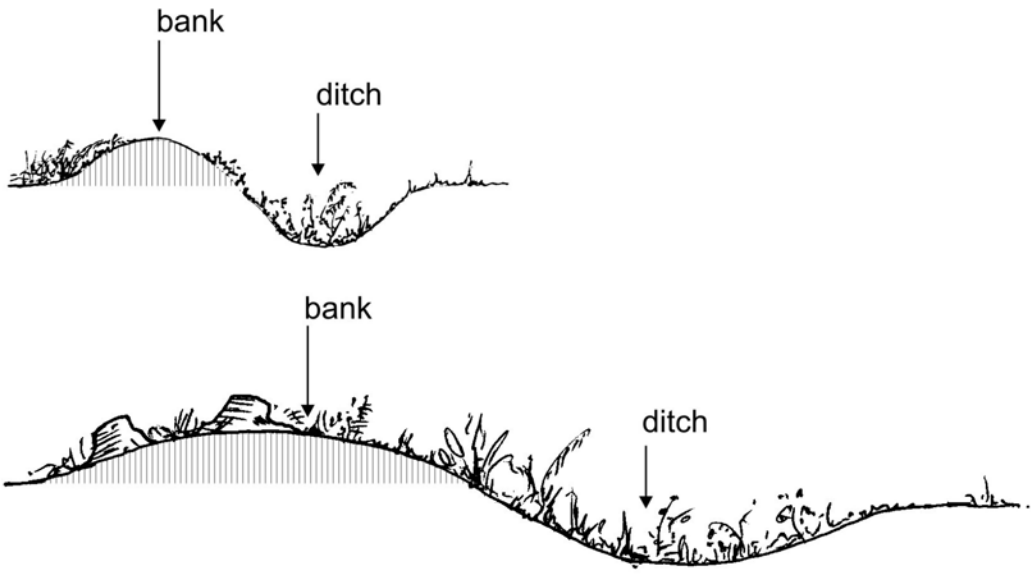


Figure 20. Forms of boundary earthwork. © RE.

Parish Boundary Earthworks

Parish boundaries commonly follow the edge of woods, where they are visible as substantial banks accompanied by a single ditch, or occasionally by a ditch on both sides. Many parish boundary banks were planted with long-lived tree species, such as Yew or Scots Pine. Although the living trees rarely survive, it is not unusual to find the decayed remains of massive stumps or felled trunks on these earthworks. Most of the massive stumps are the remains of elms felled in the 1970s during the Dutch Elm Disease pandemic.

Park Pales

From the medieval period onwards, substantial banks and ditches called pales were built around parks to prevent deer from escaping. Typically, the earthen bank has the ditch on the inside, or occasionally on both sides, but single external ditches can occur when woods with existing boundary earthworks were incorporated into the park. In its original form, the pale bank would have been surmounted by a fence of staves driven into the ground and strengthened by a rail. Old deer parks often contain pillow mounds and 'stands' from which driven deer were shot. The 'stands' are low mounds which are usually rectangular with level tops.

Pre-Woodland Earthworks

Not all of the earthworks found in woodland are connected with the historical management of the wood. Some are much earlier and provide evidence of different patterns of land-use and organisation stretching back to the prehistoric period.

Boundary earthworks and holloways are characteristic of landscape organisation from the Bronze Age onwards. Many prehistoric and later earthworks no longer survive in arable farmland, but remnants can be preserved in old woods. Features of this kind are not easy to distinguish from wood banks and ditches, although it is sometimes possible to relate those surviving within the wood to the archaeological distribution recorded in the surrounding fields.

Lynchets

These are among the most common pre-woodland features and can date to various periods, from late prehistory to more recent times. They are created by cultivation on sloping ground, which causes the unstable plough soil to move down-slope towards the lower field boundary, where it accumulates as a positive lynchet. If cultivation takes place in the next field below, the same process gradually thins the soil at the top of the field allowing the plough to cut deeper into the subsoil. This results in the formation of a negative lynchet. Lynchets vary in size depending on the steepness of the slope and the duration or intensity of the cultivation. On very steep slopes they can develop to heights well in excess of 2 metres.

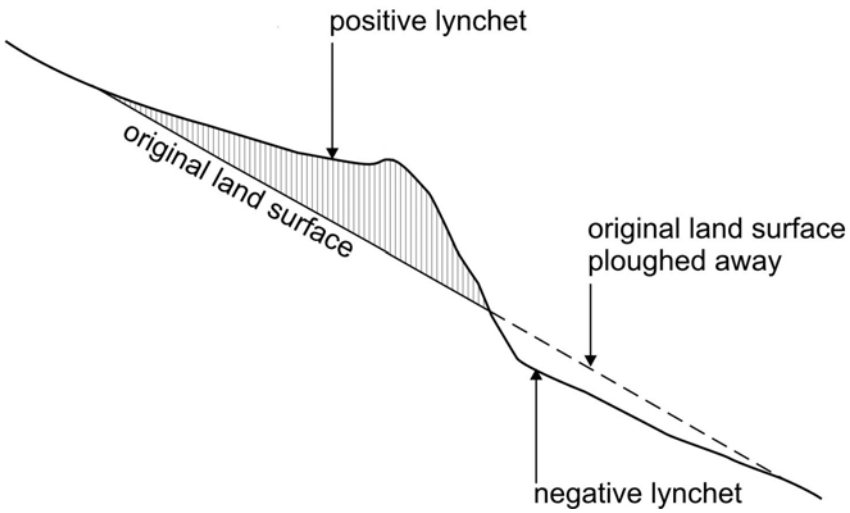


Figure 21. Lynchet formation. © RE.

Holloways or Sunken Tracks

Holloways are common features, particularly on steeply rising ground where the passage of farm carts and animals along a well-used route has created prominent linear hollows. Some are likely to be timber extraction routes, while others may be closely associated with groups of lynchets and mark access to the individual strips or fields. These are often described as lynchet ways and reflect earlier pre-woodland land use.

Land Drains

These are a feature of woods on poorly drained soils, and may consist of a simple arrangement of ditches out-flowing into a natural stream. More elaborate schemes are evident in some woods, where they comprise a herringbone network of subsidiary drainage ditches feeding into a main drain leading out of the wood. Older drainage ditches were dug and maintained by hand, with the spoil from cleaning-out piled alongside the ditch to form a continuous bank. Where the drains have ceased to function and become partly filled with leaf litter, this can cause confusion with boundary earthworks.

Military, Industrial and Settlement Sites

Military sites are very diverse and may vary from concrete hut bases, hard standings and roads to other installations and trenches. The latter can range from the complex practice trench systems of the First World War era to the individual, but often multiple, slit trenches for air raid protection and camp defence which were associated with temporary camps hidden in woods during World War II. There are many military remains which might be encountered (see CBA 1995).

Figure 22. World War II pill box. © RE.

In woods which have been established since World War II, circular features consisting of a ditch with an inner bank may mark the location of a searchlight battery. The same form of circular ditch and bank is also characteristic of a disc barrow, a fairly uncommon type of Bronze Age burial mound.

Industrial and settlement sites may be of relatively recent origin and can be characterised by earthworks, demolished built structures and scatters of building debris. They might include the site of permanent structures, such as brickworks, lime kilns, farmsteads or a keeper's cottage, or the more subtle traces of platforms and terraces associated with transient occupations, such as charcoal burning, woodworking, sarsen and flint extraction.

Traces of pre-woodland settlement can also be found in woods and may take the form of discrete terraces or platforms, sometimes associated with lynchets.

Very occasionally, substantial earthworks are found which can indicate the site of a late prehistoric enclosed settlement. Typically, the earthworks consist of a bank with an outer ditch, usually enclosing a rectangular area. But such sites are rare and all too easily confused with the various old pounds that were used for penning animals in woodland.

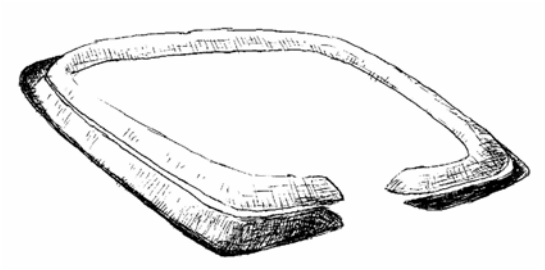


Figure 23. Earthworks of an Iron Age enclosed settlement. © RE.

THE BASIC TECHNIQUES

The aim of woodland survey fieldwork is to produce a reasonably accurate sketch plan of the archaeological features within each of the compartments making up the wood. This is best achieved by a systematic walk-through along near parallel runs spaced at measured intervals, recording the features by paced measurement and compass bearing. Bearing in mind the difficulties of surveying in woodland, the best time of year to carry out the fieldwork is in late autumn or winter, when the undergrowth has died back.

Most woods are divided into compartments, defined by tracks, rides or other boundaries and these make convenient units for organising the survey. The survey group should aim to complete each compartment before moving on to the next.

Using Ordnance Survey Maps

The field method is based on compass bearings and the use of an Ordnance Survey 1 to 2500 map. This map scale provides a good level of detail, typically showing the principal tracks and rides as well as some archaeological features, such as old pits and boundary earthworks. The survey team can obtain copies of the map from the relevant County Archaeological Service at the start of the project. An example map can be found in Appendix X.

The map has a series of vertical and horizontal lines set four centimetres apart, which at a scale of 1 to 2500 corresponds to real world intervals of 100 metres. Hence each of the squares formed by the grid intersections represents an area of one hectare on the ground (or 10 000 m^2).

The grid lines are numbered with the values increasing as you move across the map from west to east, and up the map from south to north. The vertical lines are known as eastings and the horizontal lines as northings. The 100 metre grid reference for a point within a hectare square is found by reading off the easting number first and then the northing. A good way of remembering the order in which the reference is found is “to walk along the corridor and up the stairs”. In other words read the numbers along the bottom of the map first and then those up the side.

Referring to Figure 24, the hundred metre grid reference for the disused pit close to the right hand side of the map will be 541 429. By using a scale rule this can be corrected to the nearest metre, although the use of pacing means that in practice a more realistic estimate will be to the nearest 10 metres. This will produce an eight figure grid reference for the disused pit of 5416 4291.

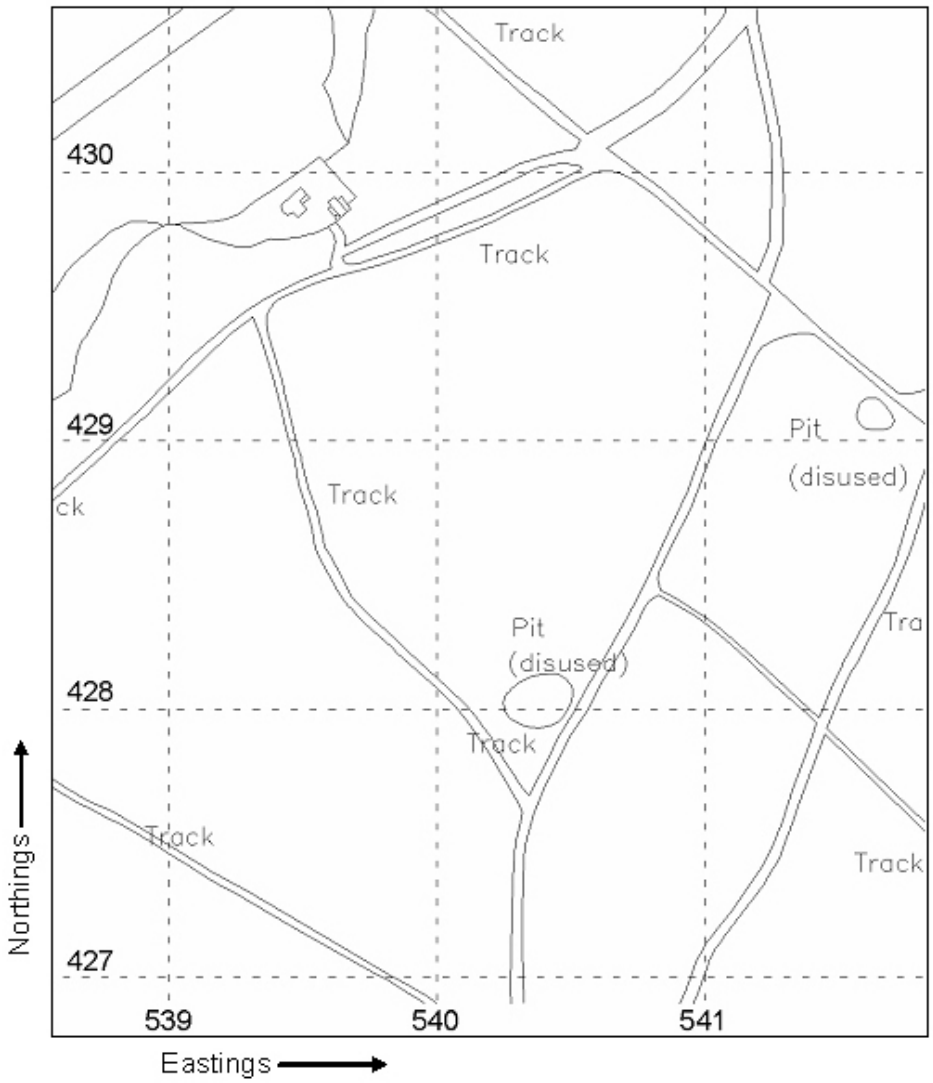


Figure 24. Grid references on a 1:2500 Ordnance Survey Map. © RE.
Maps are produced from the OS map by the North Wessex Downs AONB Council of Partners with permission of the Controller of Her Majesty's Stationery Office. Crown Copyright. Wiltshire County Council Licence No 076910.

Using the Compass for taking Bearings

The simplest navigation compasses consist of a rotating transparent case housing the compass needle which is mounted on a transparent base plate. The needle housing is marked around the rim with the 360 degrees of a full circle as well as the cardinal points. The edges of the base plate are marked with map scales, but for the

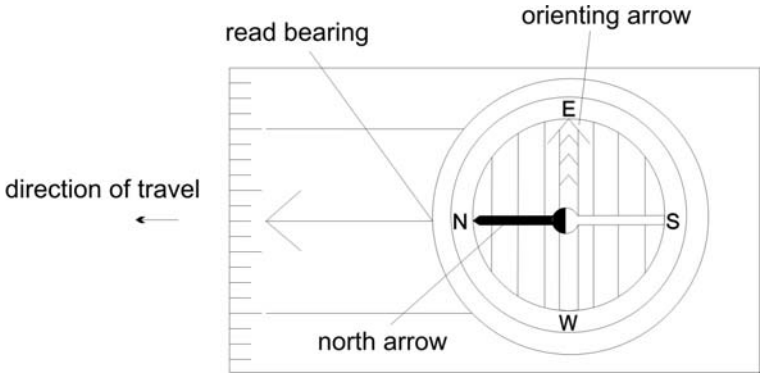


Figure 25. Example of a bearing compass. © RE.

purposes of the survey the most important feature is the direction of travel arrow set between two parallel lines. The north point of the compass needle is coloured red and floats above a series of parallel lines with an orienting arrow at their centre. Both the arrow and the parallel lines rotate with the compass housing.

Using a map and compass together usually involves making a correction for the deviation between grid north shown on the map and magnetic north displayed by the compass. This deviation, known as declination, is recorded on the Ordnance Survey Explorer Series maps, and may be used to compensate for the declination when taking bearings over long distances. However, this is unlikely to be necessary for the relatively short pacing distances used in the survey.

To orient the map so that grid north is aligned with magnetic north on the compass, hold the map and compass together and rotate the map until the grid lines are parallel with the compass needle. The map and compass are now aligned.

The general direction of the run across the wood should be planned using the map. They should be orientated to give the shortest length and should avoid going up and down steep slopes. It is better to work along steep slopes even if this means having longer runs. Sketch the lines in pencil on the map and measure their grid bearing in each direction using a protractor. This will only provide a general guide; the line will almost certainly need to be adjusted on site to allow for obstructions within the wood. When making the preliminary visit the team leader should check whether the wood has been planted in lines. If this is the case, it will be easier to work along the lines rather than through them even if this does not provide the optimum line pattern.

To follow the run bearing hold the compass horizontally and ensure that the north pointer is in line with the orienting arrow at the base of the compass housing. Sight along the direction of travel arrow and select an object such as a tree or bush as far away as possible on that alignment. Pace in that direction keeping the compass needle and orienting arrow aligned.

Paced Measurements

Although the simple technique of pacing is quite capable of producing reliable results, it does have certain drawbacks. Pacing at a consistent interval presents few difficulties across flat, open ground, but in woodland it is very much harder to maintain an even stride. The interval of the pace will also vary between individuals, making it difficult to compare the measurements recorded by different walkers.

To minimise these problems it is important that each walker knows the length of their pace before the fieldwork begins. The best way of doing this is to lay a 30

metre tape on the ground and walk along its length at a comfortable stride, taking note of the number of paces which correspond to the 30m and deriving a paces-to-metres ratio. This can be plotted on the Pace Conversion Chart in Appendix VI which allows the rapid conversion of paces to metres with sufficient accuracy for an Audit Survey. The individual's pace length can be entered on the recording form (see Appendix VII) and subsequently converted into metres. If for example the individual's pace measures 80 centimetres (or 0.8 metres), a measurement of 10 paces will equivalent to 8 metres (10 x 0.8).

STARTING THE FIELDWORK

Risk Assessment

The risk assessment should be carried out during the initial site visit, when any specific hazards can be identified and appropriate precautions put in place. A brief safety induction may be advisable before the fieldwork begins, but at the very least the volunteers will need to sign the completed risk assessment form.

Basic Equipment

The basic kit for the audit survey should include the following items:

- A photocopy of the Access Permission Form signed by the owner.
- Completed risk assessment form.
- Copies of the Ordnance Survey 1 to 2500 map (one photocopy for each member of the auditing team).
- First aid kit.
- At least one fully charged mobile phone.
- A digital camera (very useful if you have one available).
- One 15 metre fibreglass tape (AONB Office can loan).
- One 5 metre hand tape (AONB Office can loan).
- A scale rule (1:2500) per pair (AONB Office can loan).
- A protractor per pair (AONB Office can loan).
- One compass per pair (AONB Office can loan).
- Builder's level per pair (AONB Office can loan).
- One or two canes per person with carrier bags or with coloured tape attached (Available from garden centres).
- Field recording forms (see Appendix VII).
- A clip board with cover - for each pair.
- Pencils and biros.

Setting up the Runs

The term 'run' is technically known in surveying terms as a 'traverse', however for ease of the written description of the survey process they will be referred to as a run or runs.

By preference, the baseline should be set up along a mapped track or ride bordering the longest boundary of the compartment, which will help to minimise the length of the runs and improve accuracy. The run interval can be set to suit the size of the wood and the visibility, varying between 20 metres, where visibility is restricted, to as much as 50 metres in open woodland. The interval for the walk-through may be decided during the initial visit by the team leader when the conditions can be assessed. The figure below shows an imaginary wood.

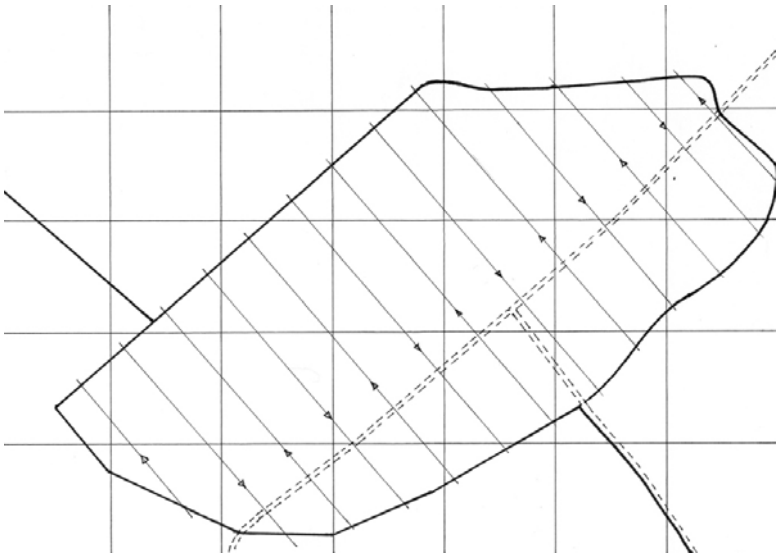


Figure 26. Pattern of planned runs through an imaginary wood. © DG.

The point of origin for the base line can be established by pacing along the compartment edge, starting from a fixed point depicted on the Ordnance Survey map. Ride intersections, mapped boundary earthworks, gates or fence corners are ideal control points. Using the map and compass establish a bearing for the runs which takes the walkers through the wood on an angle from the baseline offering the best coverage. Although there is no need for each run to be aligned on exactly the same bearing, care should be taken to ensure that the runs do not converge excessively.

The control point, start bearing and distance from the control point for each run should be sketched on a copy of the map, making sure that the distances are recorded as metres, not paces. The runs should be identified by a unique letter, which can be cross-referenced with the recording form.

If too few walkers are available to survey the entire compartment from the first set of runs, remember to mark the start of the last run so that the next set of runs can be set-out from that point.

The Recording Forms

Each walker should be provided with several copies of the Field Recording Sheet and the Archaeological Feature Record. These may be filled-in at the start of the run with the basic information, such as Surveyor, Run ID, Wood Name, Parish, Survey Dates, Compartment ID and Pace Length. It is good practice for each volunteer to carry a copy of the map. The distances and compass bearings can be transferred from the record sheets to the map when the survey is being drawn-up.

Many wood owners have numbering systems for the woods on their estates and these should be used wherever possible. In the absence of any existing scheme, the compartments can be identified by a unique letter or number.

Before starting the run be sure to sketch the base line on the recording form, noting the distance of the run from the baseline origin as well as the compass bearing from the baseline.

Taking the Bearings from the Run

When starting the run select something to sight on that lies on the bearing and walk towards it keeping the compass needle and orienting arrow aligned. Of course if the sighting point is a single tree or bush you will need to work around it to continue the run. This can easily be done by pacing a short distance to one side at a right angle from the run, then pacing forwards on the original bearing, finally returning by a right angle to the re-establish the run. Each leg of the detour should be recorded on the Field Recording Sheet.

Unless you are very lucky, it will be impossible to walk through the wood without deviating from the run to avoid dense undergrowth. In these circumstances, it will be necessary to pace away from the planned line on a suitable bearing, using further bearings and paced measurements to move around the obstacle and set a new bearing for the remainder of the run (see figure below). Extensive areas that are not included in the survey should be roughly sketched on the record form.

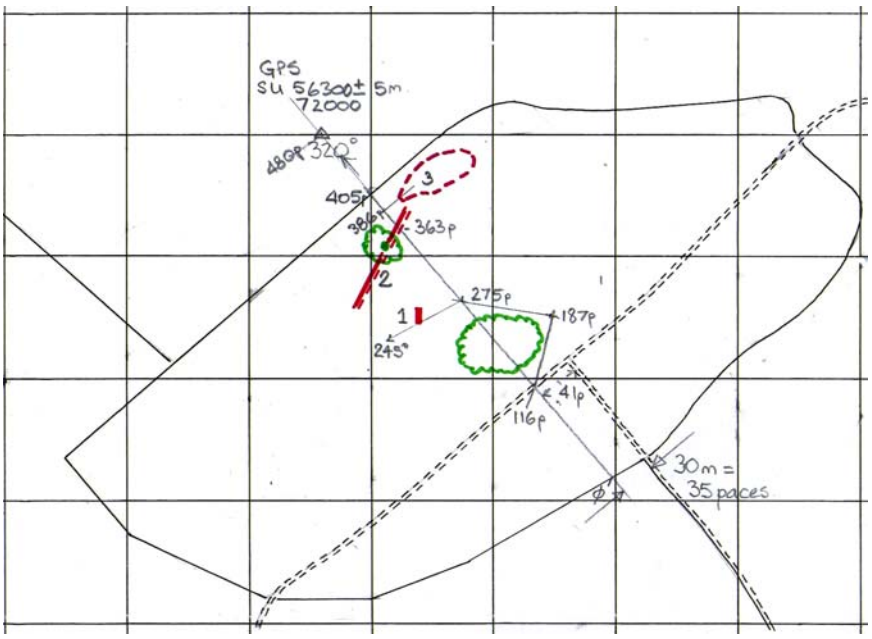


Figure 27. An actual run encountering obstacles and recording features. © DG.

Locating and Recording Archaeological Features

The field records will form the basis of the project archive and for that reason care should be taken to ensure that they are filled in correctly and legibly.

In a small compartment with few features, recording might take place after the entire area has been walked although care should be taken to ensure that details are not forgotten. In larger compartments, or where fewer walkers are involved, it is more convenient to fill in the recording forms after completing the first set of runs. At this stage, members of the group can come together to take measurements or photographs and check the areas between runs for further features. Banks or ditches identified along individual runs should be walked to determine if they are separate features, or parts of a single continuous feature.

The easiest features to record are those that conveniently cross the run. The position of these can be established by simply plotting the distance from the start of the run. But if the feature is situated between runs it will also be necessary to record the bearing and distance from a fixed point along the run. Mark the point on the run with a cane and bag and note its paced distance in the second panel of the Field Recording Sheet. Take a compass bearing to the feature and measure the distance to it from the run point by pacing. Note the bearing and distance on the form. Make a sketch of the feature with bearings and paced dimensions. This can be made on the Field Recording Sheet if the feature was small, for example, a saw pit. The Archaeological Feature Sheet should be used for large features, for example, a quarry.

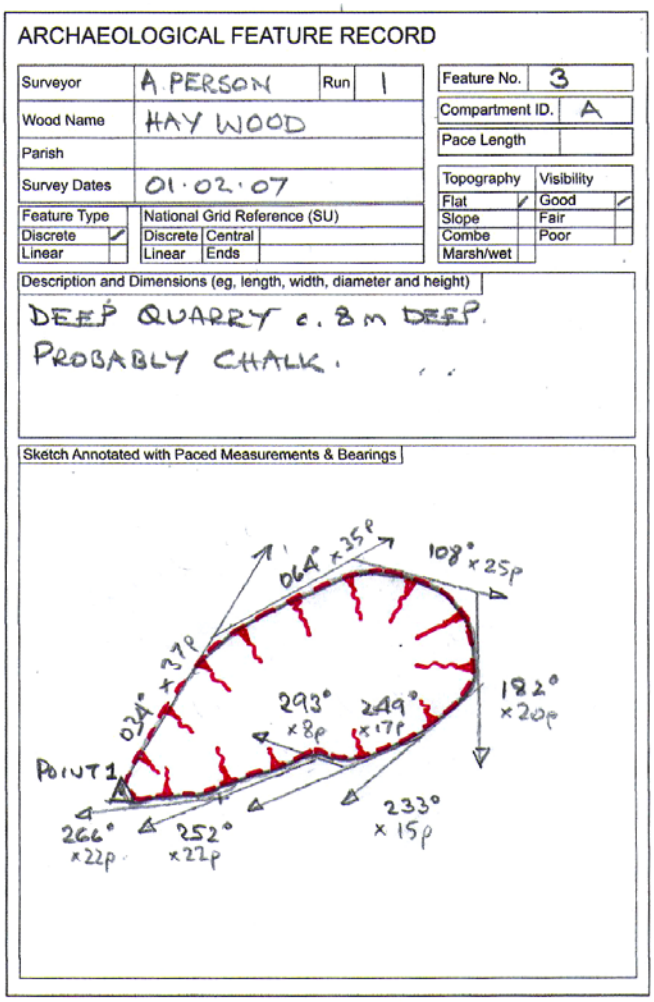


Figure 28. An Archaeological Feature Record completed for a major feature. © DG.

Take any photographs that you think are desirable and note them on the sheet. Assign a feature number and record this on the form. Then return to your marker cane and continue the run. A completed Field Recording Sheet is shown below in Figure 30 and the resulting plotted run is shown above in Figure 28.

You should carry a bamboo cane or pole with bright tape or a carrier bag attached to mark a known point along the run when you wish to do some local investigations or measurements. Without the tape or carrier bag you are unlikely to find the pole or cane again!

A GPS unit may prove to be useful to supplement measurement by pacing and compass bearings, but the results are sometimes unreliable in woodland. If a unit is available, the accuracy should be checked beforehand by taking readings on features with known grid references.

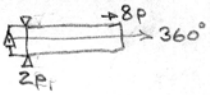
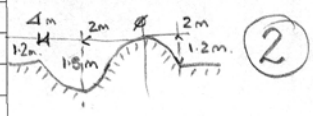
A combination of paced and taped measurements can be made for the length and width of linear features. Heights of ditches or pits can be measured by attaching the 15m tape to the top of the highest bank and stretching it horizontally across the pit or ditch. The builder's level can be attached to the tape to ensure that it is

horizontal. The hand tape can then be used to take measurements downwards at recorded intervals, across the feature. The process is illustrated below.

Wood Name	HAY WOOD	Compt	A	Centroid Grid Ref	SU 123 456
Soils	CLAYEY GRAVEL	Date of Survey	01.02.07	Surveyor	A. PERSON

NAVIGATION

Line No. 1	Start Point 30m SW ALONG SOUTH EDGE FROM TRACK				Base Course 320		Paces:Metres 117 : 100		Deviation 3° W
From (paces)	Metres	To (paces)	Metres	Course (compass)	From (paces)	Metres	To (paces)	Metres	Course (compass)
0		116		323					
116		187		018					
187		275		282					
275		405		323					

From (Paces)	M	Bearing	Paces	M	Feature type	Dimensions / sketch
275		245	47		SAWPIT (1)	116p TRACK ℄ @ 41p SW OF JUNCTION. 
363		〃	〃		DITCH RUNS	030°/210°c } NB: FOLLOW
368		〃	〃		BANK 〃	THIS BANK
368		210	22		YEW 6.5 GIRTH @ 1.4m. PHOTO 1	
386		053	17		(3) QUARRY POINT 1 ON	RECORD SHEET.
						End point 405p. WIRE FENCE - NO BANK/DITCH. 247p NE OF FENCE JUNCTION

(OR: CONTINUE TO 480p FOR A GOOD GPS SIGNAL - THEN :- 480p = SU 5630072000 +/- 5m

Figure 29. Completed Field Recording Sheet for the imaginary run. © DG.

Figure 30. Arrangement for measuring bank and ditch profiles. © DG.

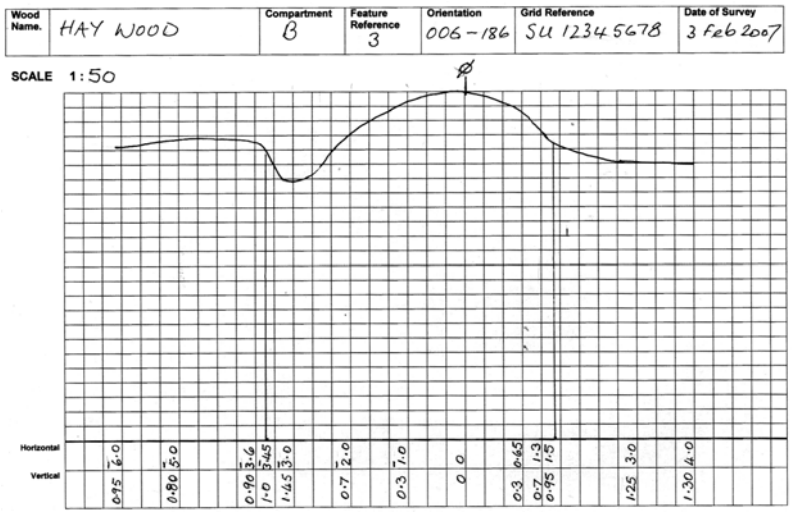


Figure 31. An example of the resulting plotted profile. © DG.

Once the compartment has been walked and the recording of the interior completed, external boundary earthworks can be recorded. Some of these may appear on the Ordnance Survey map, in which case they can provide a useful check to establish the alignment of linear features passing through the compartment.

Entering grid references on the record sheet is not essential at the field recording stage. This can be done at a later time using the measurements and bearings recorded on the annotated field sketches.

The Compartment Ecological Record

The recording of tree species can be combined with the ecological survey carried out later in the year. This will repeat the archaeological runs recording trees and ground flora instead of archaeological features. An example of a completed Field Recording Sheet for Ecology is included in Appendix X. The relationship of archaeological features to managed trees should be noted, and estimates made of the age of large trees standing on earthworks. A special course will be held to train surveyors in ecological recording and additional handbook pages will be made available to all surveyors at that time.

THE SURVEY PLAN AND REPORT

The reporting guidelines are intended to ensure that the reports are well-presented and produced to a consistent standard. It is crucial that the results of the fieldwork are accurately reported and presented in a form which is both concise and accessible to a wide readership. The final report will be deposited with the SMR/HER and so will be publicly available.

It is important to draw up the survey and complete the report before moving on to the next wood. It is all too easy to overlook crucial details if a backlog of incomplete surveys is allowed to build-up. For security purposes it is probably advisable to have photocopies made soon after the fieldwork is completed.

Drawing-up the Survey Plan

Two levels of drawing methodology are provided below, depending upon your level of skill or preference.

A. Drawing-up on to the OS Site Map

This can be confusing because the OS use a solid line for a ditch and do not map the associated bank. The English Heritage standard symbols use a pecked line for a ditch and a solid line for a bank. Amending the OS plan can get rather messy. It is often easier to make a copy of the OS map on tracing paper including the OS grid and the wood outline together with any paths or rides and then to add the archaeological features. On completion, the tracing paper plot can be photocopied onto stouter paper.

You will need the following items:

- A drawing board.
- The clean master copy of the OS 1:2500 map.
- Masking tape.
- A set of permanent ink pens, or similar make (Fine 0.1 or 0.3, medium 0.5 or 0.7 mm tips – available in sets from good stationers).
- A scale ruler (with a 1:2500 scale) – a short 6” rule should be adequate.
- A protractor.
- A sharp pencil and clean eraser.
- A copy of the symbology key.

Begin by securing the map to your drawing board using the masking tape. First plot the run using the data recorded in the Navigation panel on the Field Recording Sheet. Confirm that the plotted end point corresponds with the end point measured in from mapped features. It is unlikely to coincide exactly and the Team Leader will have to make a value judgement as to whether the discrepancy

is acceptable. It should be remembered that we are carrying out an Audit Survey at a scale of 1:2500 and that a discrepancy of as much as 10 to 20m will not affect the survey's validity. However, very large discrepancies should be investigated. They are likely to be the result of an incorrect compass bearing or confused pacing and can be readily corrected. Only very rarely will it be necessary to repeat the run. Every opportunity should be taken to record a check point along the run. For example, a check point can be the point at which the run crosses a path combined with the paced distance from a corner. Crossing a mapped feature also provides a check point.

The plotted run lines should be traced onto a separate Control Plot. This demonstrates the degree to which the wood has been explored and allows the plotted run lines to be erased from the final map. This results in a clearer and less cluttered map.

Survey features are added to the map using the scale ruler and protractor to transfer the distances and angles from the recording sheets. The survey data are probably best drawn schematically in pencil and then inked-in once any corrections have been made. Use a 0.5 mm or 0.7 mm pen to trace the pencil drawing. Any overgrown areas that were not surveyed should be marked on the map. Once the ink has dried any remaining construction lines or pencil corrections can be erased. At this final stage, the plan will need to be annotated (0.1 or 0.3 mm pen) with the feature numbers, compartment IDs and any other text that aids the interpretation of the plan. Follow the conventions shown in the Drawing Convention diagram (see Appendices). Lastly, add the drawing scale, north point, title and figure number to the bottom of the map.

The completed plan should be included in the report. The original site maps and record sheets must be retained for deposition with the project archive held by the relevant county SMR.

B. Drawing-up using Drafting Film

You will need the following items:

- A drawing board.
- A sheet of drafting film.
- The clean master copy of the OS 1:2500 map.
- Masking tape.
- A set of permanent ink technical drawing pens (0.3, 0.5 and 0.7 mm nibs).
- A scale ruler (with a 1 to 2500 scale).
- A protractor.
- Pencils.

Firstly, decide on the paper size needed for the finished drawing. The final version included in the report will be a photocopy, so you will need to choose A3

or A4 depending on the size of the wood. Begin by securing the map to a drawing board using the masking tape and then mount the drafting film over the map. Before starting the drawing, add registration marks in pencil at three or four of the grid intersections and write the grid references next to each. By doing this you will be able to remount the drawing correctly if for some reason it has been removed before completion.

The wood boundary, compartment boundaries, tracks and any other cartographic detail can be drawn directly onto the drafting film overlay in ink using a pen with a 0.5 mm nib. Survey features are added to the map using the scale ruler and protractor as described in Section A above.

Once the cartographic and archaeological detail has been added to the plan, mark the grid intersections with a series of crosses and add the grid references with a 0.3 mm pen. Any overgrown areas that were not surveyed should be marked on the plan. At this final stage the plan will need to be annotated (0.3 mm pen) with the feature numbers, compartment IDs and any other text that aids the interpretation of the plan. Lastly, add the drawing scale, north point, title and figure number to the bottom of the plan.

The completed plan should be photocopied at full size for inclusion in the report. The original site map, tracing and record sheets must be retained for deposition with the project archive held by the relevant county SMR.

The Project Report

The final report should be prepared as a Word document. 'Arial' font at a size of '11 point' is a common standard. Hard copies should be printed on A4 paper, with any A3 sheets folded to A4. If at all possible the report should be protected by a transparent plastic cover and the whole secured by a plastic slide binder.

The following elements will need to be included in the report:

- Cover with project title.
- Front sheet: to include project name, survey dates, central grid reference for the site, surveyors and report author. May also include a report abstract.
- Contents and list of figures.
- Introduction to include aims and objectives. A template is available in the Appendices.
- Summary of historical or archaeological background research (if undertaken).

- Description of the fieldwork findings citing any factors (such as weather conditions, ground cover etc.,) that are likely to have affected the reliability of the results.
- Discussion: to integrate the results of any background research and include an assessment of the reliability of the survey. This section may need to be undertaken by someone more familiar with archaeological reports – perhaps the team leader.
- Archive: note archive location and include a brief summary of the contents at the end of the report.
- Appendices: to include a gazetteer of features cross referenced to the plan, along with a brief description and grid reference. Again, if you have very little archaeological knowledge or experience we would prefer not to have interpretations. It is more important in this audit stage that we have an accurate survey of the forms of features, e.g., a bank and ditch, a round mound.

The Project Archive

The archive will form the primary project record and may serve as the basis for future research by other groups or individuals. For that reason the information should be properly catalogued and presented in such a way as to be easily accessible and retrievable. It should include a copy of the final report, all of the project field records, the original survey plan, and photocopies of all source material. Digital photographs should be supplied on disk, while colour slides and black & white negatives will need to be supplied in plastic wallet sheets. The photographic archive must be properly indexed.

The project archive will be deposited with the relevant County SMR (Sites and Monuments Record). The SMR Officer should be contacted in advance for guidance on any specific requirements (addresses are listed in the Contacts section at the back of the handbook).

Dissemination of the Project Results

The final project report will be of interest to a number of individuals and organisations. Initially, the original document should be sent to the relevant Local Authority HER Officer, who will read through the report and suggest amendments and corrections. These should be incorporated and the final report submitted to the relevant HER and a copy sent to the woodland owner.

ECOLOGICAL SURVEYING

PLANT SPECIES CHECK LIST

This part of the survey is intended to provide additional information that may contribute to a better understanding of the age structure of the wood. It is based on a rapid walk-through of the individual compartments, along the same runs as carried out for the archaeological survey, taking note of plant species and in particular recording the presence of Ancient Woodland Indicator Species. There are up to a hundred or so species that together can be used to estimate whether a wood is technically Ancient.

Unlike the archaeological audit work, which is an autumn or winter project, the ecological survey is best carried out in spring. If it is at all possible, help from an experienced botanist would be beneficial, at least during the early training sessions. There are several well-illustrated field handbooks available to aid in the identification of key species and examples are given in the Further Reading section. But remember, wild flowers are protected by law and should not be picked. Use a digital camera if you need to record details for future reference.

The ground flora of long established woods is richer than the equivalent in more recent woods and will include some of the Ancient Woodland Indicator Species. There are, however, many factors such as the acidity or alkalinity of local soils, microclimate and soil moisture which will markedly affect the range of plants found on the wood floor. Nettles, for example, are a species which thrives in phosphate rich soil, and are often an indicator of organic debris left by human activity. But it is not always obvious whether this is the result of ancient activity or more recent ground disturbance. As a general rule the evidence of indicator species should be used with caution, and is best interpreted by reference to the flora from known ancient woods with a comparable local setting.

WHERE DO OUR WOODS COME FROM?
A SHORT HISTORY OF WOODLAND IN THE NORTH WESSEX DOWNS AONB

Definition of a wood

What is a wood? It seems a simple question until you think about it. Is it simply an area covered with trees? In which case an orchard qualifies. Are the tree species critical? I suggest that a wood is *a community of trees, shrubs, ground flora and fungi* interacting and co-existing, and that any particular wood can be defined by a description of its contents. Thus we have *hazel coppice with oak standards,* etc. But why are they there and where did they come from?

Wiping the slate clean

Over the last two million years or so there have been a number of Ice Ages which have covered Britain, to greater or lesser extents, with a thick layer of ice and which have frozen its soils. These have killed and scraped away any vegetation that may have existed either before the Ice Ages started, or which developed during the inter-glacials which interspersed the periods of ice. We are currently living in such an inter-glacial which started about 12,000 years ago. Although the main glaciers did not reach the North Wessex Downs AONB, there were many local ice areas from which out-wash spread soils and gravels. It is thought that vegetation and other living creatures survived in refugia further south in warmer sheltered areas from which they spread north again as the ice retreated. These are where our woods originated.

Return of the trees

The warming happened over a considerable period of time. For hundreds of years sub-arctic conditions prevailed similar to those in northern Canada and Siberia today. The first trees were thus birch, sallows, pines and other hardy, pioneering plants. As warming continued they were followed by oak, ash, lime and other more tender plants until the rising sea level cut off the land bridges across the southern North Sea and any further immigration either had to be in a boat or on the feet or in the gut of a bird. As well as trees, we should remember that most of the plants we associate with woodland came back in this manner. The bluebells, the wood anemones, the wood sorrel and the grasses and understory plants all travelled back along with the mammals, insects and invertebrates.

Figure 32. Birch woodland, willow clump, Scots pine, hazel. © DG.

Stability

The first two millennia after the retreat of the ice was thus a period of continuous change. Thereafter, there seems to have been a period of relative stability – not that any living community can ever be considered stable! The Atlantic Period lasted from about 6800BC to about 3800BC. The climate became wetter and with a narrower range of temperature. Man had yet to have more impact than any other mammal and the Wildwood flourished. It is impossible to know exactly what this looked like. An area in Poland is claimed to be surviving wildwood, but even this has been affected by humanity in some way. Nowhere in Britain are there any surviving woods that have a direct link to the Wildwood.

There are two models which attempt to describe the Wildwood. The older model developed by AG Tansley*, described southern Britain as covered with dense oak forest. The more modern model, proposed by Francis Vera**, suggests that the landscape was much more open with groups of trees which had become established in patches of thorns where they were protected from the browsing of many large herbivores such as the aurochs, red deer, roe deer and pigs.

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* Tansley, AG (1939) *The British Isles and their Vegetation.* Cambridge University Press.
** Vera. FWM, (2000) *Grazing Ecology and Forest History,* CABI Publishing, Wallingford.

Figure 33. A young ash protected from cattle by thorns. © DG.

The ground flora would have adapted to the landscape, with the shade tolerant plants surviving under the thorns and trees while a grassland flora developed in the open areas. Although there is still considerable discussion over the merits of these two models, the Vera model seems to describe conditions best when one considers the quantity of vegetation needed to feed a very large animal like an aurochs which was larger than a modern cow.

Arrival of man

Homo sapiens arrived on the scene in the form of Palaeolithic Man along with the other mammals. The crude stone technology probably only supplied the lack of teeth and claws and it seems unlikely that he had very much effect on the Wildwood. Technology advanced and by the Atlantic Period Mesolithic Man had developed more efficient tools and weapons and had begun to make an impact. It seems likely that the small population of hunter-gatherers lived on the edges of the open areas where they could both prey on the herbivores and exploit the woodland resources. Their impact is considered to have been modest.

First signs of management

Mesolithic Man evolved into Neolithic Man as his stone technology improved and we begin to see the first advances of farming into the Wildwood around 4000BC*. Comparison with peoples at a similar stage of development witnessed in Papua New Guinea by Europeans in the 20th century**, suggests that they may have started by creating 'gardens' within the wood. Timed experiments with people in

* Personal communication. C14 dates on human bones from Wayland Smithy Neolithic long barrow.
** Personal communication Dr Paul Sillitoe.

New Guinea who had been brought up in a stone-using culture showed that a substantial hardwood tree could be felled with a polished stone axe in roughly 1.5 times as long as it took with a modern steel axe. They dealt with trees too big to fell by ring barking them and then defoliated them by lighting a large fire around the trunk to reduce their shade on the garden. Felled trees and shrubs were used to create a dead hedge around the plot. When soil fertility declined the plot was abandoned and a new one created elsewhere. This seems to fit the sparse evidence for early Neolithic clearances in England. But again, the effects are likely to have been small, the surrounding woodland species soon replacing the plants and weeds introduced by the farmer.

Other forms of management may have had a more lasting impact. Trackways preserved in peat, particularly in Somerset, were built with woven hurdles made of even aged wands and stakes suggesting the regular coppicing and the systematic cultivation of small oaks and other trees. The resulting cycles of light and shade would have resulted in a ground flora selected from the Wildwood flora and would have favoured shade tolerant plants.

The clearances

Cultivation of food plants allows a larger population to live in an area than hunting and gathering alone. As the Neolithic population grew it cleared larger and larger areas of land. It is considered that the chalky soils covering much of the North Wessex Downs AONB were among the first areas to be cleared. This was not only because the chalk soils are lighter and better drained than the clay based soils, but also because they are strongly alkaline. Cereals such as wheat and barley will not grow in acid soils. Bronze tools, and later iron tools, increased the rate of clearance until, in the Late Iron Age, Julius Caesar (55 and 54BC) could describe southern Britain as densely populated and could send his soldiers to gather standing crops of grain (where they were efficiently ambushed by the local tribesmen). Some of the Wildwood ground flora may have survived in areas where poor acid clays made clearance unattractive. This may account for small patches of bluebells, wood anemones, etc., in very isolated places among the bare Downs.

The Romano-Britons made extensive use of the woodland resource. A considerable number of potteries are known which were producing pots in considerable volume and obviously using the woodland resource for fuel. It is probable that the fuel was derived from carefully managed coppices which would guarantee a continuing supply.

Retrenchments

The human population seems to have grown and crashed several times in the last twelve millennia and there appears to have been a down-turn in the mid 5th century. It is known that a serious plague worked its way across Europe at this time and this is probably the cause rather than ravening bands of Saxon invaders. Whatever the cause, woods spread back over previously cleared land. This is shown by the presence in areas known to have been densely wooded in the medieval period of major Roman sites, such as, farmsteads and villas normally associated with open landscapes.

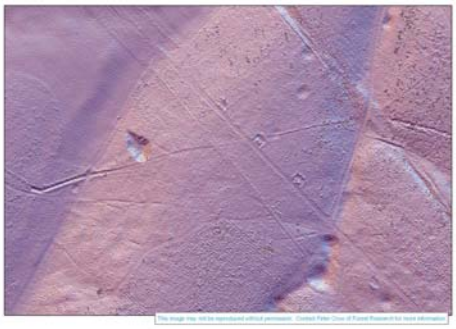


Figure 34. Celtic fields. © Forest Research.

Saxon landscape

The Saxons were a legalistic society and our first detailed descriptions of the landscape come from the charters they used to transfer land. These give detailed descriptions of site boundaries and make it clear that many of these features were already ancient. Hawkridge Wood near Frilsham in the Pang Valley was granted to Abingdon Abbey in 956AD by King Eadwig. The boundary description lists a dyke, a game enclosure, a wayside cross, flax fields amongst other landmarks. Sometimes notable trees are used as landmarks. The Domesday Book (1086) describes manors, and does not give dimensions of woods in the area of the North Wessex Downs AONB, although it does give lengths and breadths in other parts of the country. In most of the area now covered by the AONB pig rents are used, these being the estimated number of pigs that could be fed in the available wood. They make it clear that much of the area was lightly wooded. For example, Lambourn … woodland at 10 pigs. Yattendon (now quite densely wooded) … meadow 5 acres, woodland for fencing…*. (i.e., some coppices). It is difficult to square these quantities with evidence on the ground, but, considering how rapidly the survey was carried out the surveyors may be excused for not detailing something which may not have had a high priority. Nevertheless, we must forget the 'wall to wall woodland' beloved of authors of historical fiction. Most woodland,

* Morris. J, (Ed), (1979) *Domesday Book, Berkshire* Phillimore.

other than a few enclosed coppices and holts (woods dedicated to standard trees), was probably wood pasture where animals grazed the ground flora and tree seedlings and browsed the tree leaves. This probably produced the savannah landscape of groups of trees protected by thorns and surrounded by open country. (See above under 'Stability'.)

Figure 35. Wood pasture. Note the even browse-line at the maximum height the animals could reach. © Ted Green and Jill Butler.

Population increase

After the end of the Danish Wars in the late 9th century the population expanded steadily. The Norman Conquest had little effect on the increase in the south of England and the slow pace of improvement in farming technology could not keep pace with the growing number of mouths to be fed. As a result more and more inroads were made into the woods and onto marginal land of many sorts including steep hillsides where ploughing formed terraces as the loosened soil moved downhill. (*See page 33*). The erosion of the woodland resource must have given the landowners grave concern. Woodland products were essential to all levels of the community. In 1235, a statute was promulgated by King Henry III which allowed landlords to take over pasture from their tenants provided the tenant could not prove that this left him insufficient to run his holding or that it prevented him getting into or out of his land.* Pasture included wood pasture, and many areas became deer parks or enclosed woods. Five years later in 1240, the Prior of Poughly Abbey at Chaddleworth claimed at an Assize in Reading that the Lord of the Manor of Bradfield had prevented him exercising his right of grazing in a wood by building a fence around it. He lost his case. Many of our woods owe their survival to this little regarded piece of legislation and the massive coppice stools on their boundary banks can give evidence of their antiquity.

* Ruffhead. O, (1785), *The Statutes at Large, Provisiones de Merton. CAP IV.* London.

Figure 36. A 700 year old ash stool on a coppice boundary bank. © DG.

Changing fashions in trees

The products of woodland were essential to the existence of the community until modern transportation methods allowed them to be replaced by imports. The trees provided timber for buildings and carts, their branches and the pollards provided fuel while the coppices provided fencing and sticks and poles for all manner of tasks. Leaves were an important source of winter fodder. Even holly branches were regularly harvested in spring, stored in a rick and fed to sheep and deer in hard winter weather. As the requirements of the community changed so the species of trees changed to respond to the demand. Oak was probably the most enduring, but ash, alder, sweet chestnut, beech all had their day. In the 20th century the demand was for quick-grown, straight pine and many woods were clear-felled and re-planted with conifers. In fact, the only stable community has been the ground flora and even this has responded to the changing conditions imposed by the various tree species, culminating with apparent total extinction under densely packed evergreen conifers. Surprisingly, some ancient ground floras have recovered from buried seed and from survivors around the edges, once the conifer cover has been removed.

Plantations

Plantations are known to have been made in the medieval period, mainly on ecclesiastical estates, but they really became common during the Age of Enlightenment in the 17th century. This is why the definition of Ancient Woodland is a wood that was in existence in 1600. If it was there in 1600 it is unlikely to be a plantation.

Both the major wars of the 20th century demanded vast amounts of timber of all kinds and a great deal of felling resulted. In addition, many woods were felled to make space for military installations and airfields and many woods had accommodation blocks and storage sites inserted into them in an attempt to conceal them from aerial reconnaissance. These features are now part of the

archaeology and are sinking into the leaf mould as nature takes them over as it took over the Roman villas and roads.

The Forestry Commission

For many years before the First World War, Britain had relied on imported timber and the German submarine campaign of 1915 caused so many sinkings of timber carrying merchant ships that the supply was in serious jeopardy. In response to this, the Forestry Commission was set up soon after the war to ensure a ready supply of home grown timber. This led to the establishment of large areas of fast growing conifers. The process accelerated after the Second World War and Oliver Rackham uses the biblical quotation 'the years that the locust has eaten' to describe the 1950's and 60's when so many ancient woods were gutted and planted with conifers for which there is now no market. Forecasting the market for a product as long in production as timber is impossible. One of Lord Nelson's last tasks on land was to check on the planting of oaks to supply the Royal Navy with ships in 1950!

The end of woodmanship

Forestry is not the same as woodmanship. Woodmanship accepted the woods as local conditions of soil, climate and rainfall provided them and then worked to extract the needful timber and woodland products without destroying their source. Most deciduous trees do not die when they are felled, the stump or the root systems send up new shoots. The woodman selected the best stem, pruned out the others and let the selected stem grow into a new tree. Trees were taken when they were the right species, size or shape for the task in hand. This left gaps to be filled by natural regeneration and created a community of trees of various species and ages. Commercial forestry requires productivity, and in many areas the forester plants quick growing conifers in rows to make operations and harvesting as efficient as possible. Although they may be thinned at intervals, the whole crop is eventually clear-felled.

Woodmanship is labour intensive and therefore could not compete in productivity with forestry. Most woodmanship operations, such as coppicing, pollarding and singling ended with the 19th century.

The future

Fashions and trends are changing again. In many parts of the country, including the AONB, plantations located on former ancient woodland sites are being replaced with appropriate native species. Continuous cover forestry is operated in some woodland whereby trees are selectively extracted thus avoiding the clear

felling element. Renewed interest in wood fuel may see many neglected woodlands brought back into active management. Small scale woodland and coppice operations have survived to hand on the techniques which the modern demand for sustainability and multipurpose forestry will foster and develop. For example, summer barbeques are increasing the demand for charcoal and horses are again being used to extract timber from difficult areas of woods. With growing demand and with modern equipment and modern techniques of approaching old problems, it will be possible to reduce the amount of desperately hard manual work involved in woodmanship and allow our woods to be returned to the rich, varied and perpetual resource they were for all but one hundred years of the last 12 millennia.

Sources

Anyone who has studied our woods, their plant communities and archaeology must acknowledge their debt to Oliver Rackham. His publications are too numerous to list, but I have found the following particularly inspiring, interesting and valuable:

Rackham O. (1976 revised 1990) Trees and Woodland in the British Landscape.

Rackham O. (1986) The History of the Countryside.

Rackham O. (1980, new edition 2003) Ancient Woodland – its history, vegetation and uses in England.

Rackham O. (2006) Woodlands (Collins New Naturalist Series).
Woodlands ably summarises the previous publications and introduces much more information.

Edlin HL. (1949) Woodland Crafts of Britain.
Edlin worked for the early Forestry Commission and this book records the last days of the woodman and is a primary source for such crafts as charcoal burning, chair bodging etc., at the end of their day.

Peterken GF (1996) Natural Woodland – ecology and conservation in northern temperate regions.

Other books are identified in the text.

ECOLOGICAL RECORDING

USING ECOLOGICAL MAPPING TO INFORM THE AUDIT SURVEY

Warning!

What follows is not a description of ecological surveying that would be recognised by a botanist. It is an adaption of the archaeological surveying system described on pages 41 to 53 to allow the main distribution of plants within a wood to be graphically illustrated. It is particularly concerned with Ancient Woodland Indicator Species and ancient trees, pollards and coppice stools. The resulting map is intended to add to the information derived from the archaeological survey and to indicate phases in the history of the wood that may not be shown by the archaeological features.

The surveying process

The surveying process is similar to the technique described on pages 41–44. Indeed, if the survey is taking place towards the end of the surveying season in early spring, the two surveys can be carried out at the same time. Otherwise, the ecological surveyor repeats the traverses carried out during the archaeological survey, starting and finishing at points which can be located on the Ordnance Survey map and measuring the traverse between them using compass bearings and paced distances.

At intervals along the traverse the surveyor should stop, mark the point with a marker cane, record the position on the Field Recording Sheet for Ecology and then explore the area around the marker. The spacing of the recording points will depend on the richness or poverty of the flora. In a species-rich wood recording points should be closer together than in a species-poor wood. It is an uneconomic use of precious field time to spend a great deal of time recording a barren conifer plantation.

The recording form is deliberately designed without a species list. The surveyor enters a plant, using either its English name or its Latin name, on the first occasion it is seen. Thereafter, repeat sightings are recorded by ticking the column.

Notable trees, pollards and coppice stools should be recorded as described on page 44 unless they have already been recorded during the archaeological survey. Girth and species should be recorded and a photograph taken.

Badger setts should also be recorded, noting whether they are small (a single burrow) or large (multiple burrows).

Plotting the results

The results are plotted on a separate copy of the same Ordnance Survey plan as used for the archaeological survey. The recording intervals are marked along the traverse lines and features lying away from the traverse are plotted in the same way as an archaeological feature (*page 44*). In the case of ancient trees, pollards or coppice stools, it is helpful to label them with an estimate of their establishment date derived from their girth using the aging curves provided (*see appendix*). Ages of pollards and coppice stools can be estimated by adding 30% to the age indicated by the girth for a maiden tree. Oliver Rackham suggests that ages of oak, ash, lime and hazel coppice stools can estimated by allowing 100 years for every foot (c.0.3m) of diameter, although sweet chestnut which grows faster should be allowed two feet for every century.* An imaginary plot is shown in Figures 37 and 38.

Interpreting the results

The technique used will depend on the richness or poverty of the flora. The techniques proposed are open to modification by surveyors with artistic talent or when a better method suggests itself. The only requirement is that the method used provides an unambiguous indication of the distribution.

- A simple distribution can be indicated by shading and stippling. The density of the symbol indicating the density of the plant (*see Figure 37*).

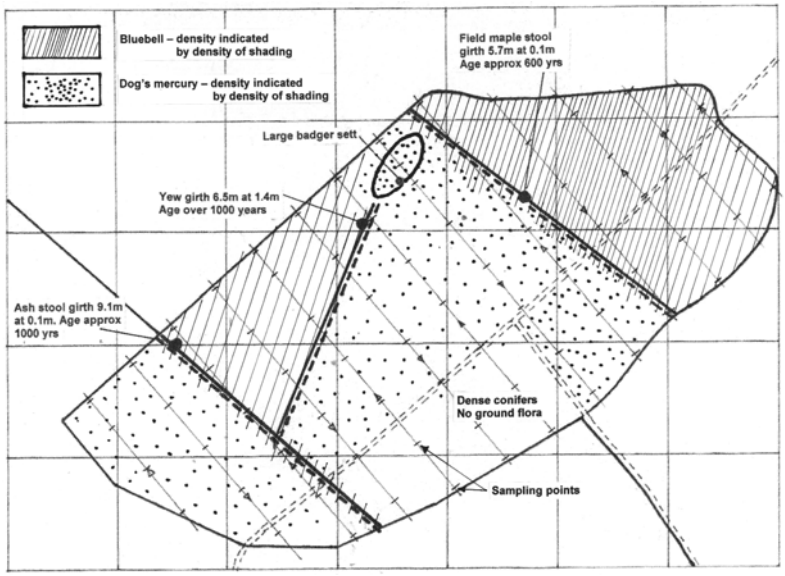


Figure 37. © DG.

* Rackham, O. (2006) *Woodlands.* Collins New Naturalist Series. Page 248.

- A more complex pattern can be analysed by plotting the number of Ancient Woodland Indicator Species (AWIS) present at a recording point and then contouring the resulting plot to emphasise relative richness (*see Figure 38*).

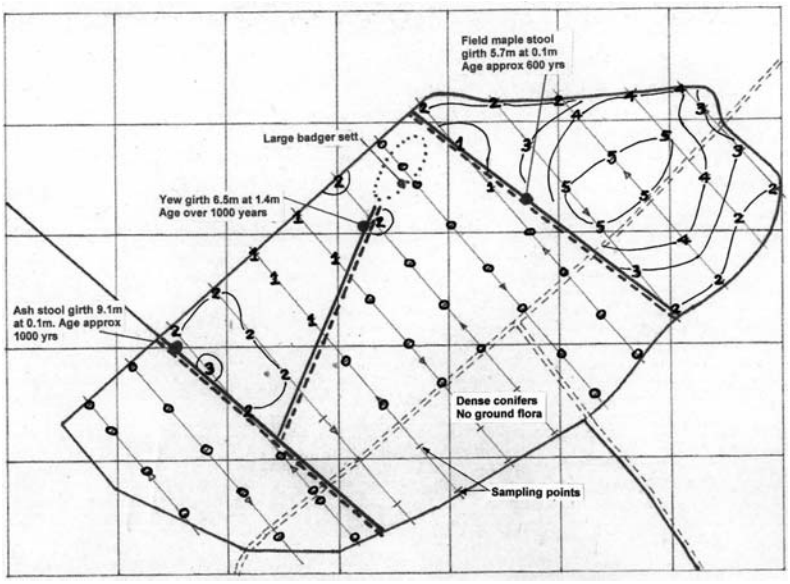


Figure 38. © DG.

Areas of especial species richness or areas with a particularly high density of a single AWIS plant are unlikely to have been disturbed for a very long time. With the caveats expressed in the next paragraph, a dense mat of dog's mercury indicates ground disturbance. Concentrations of stinging nettle indicate phosphate richness which may be due to human activity. Snowdrops are not a native plant and must have arrived by human agency. Green alkanet similarly indicates human habitation not too far away.

The importance of soils and their modification

Most of the soils of the North Wessex Downs AONB overlie chalk (strongly alkaline) at various depths. On the high downs, the chalk is close to the surface and is incorporated in the soil resulting in a calcareous soil favourable to cereal growing. Over much of the dip slopes, and in isolated areas of the high downland, the soils derive from the strata that once overlay the chalk and can be extremely acid and infertile. Therefore, the soils must be considered when evaluating the plant distribution. For example, an area of dense dog's mercury, which benefits from a high pH, in an wood with generally acid soils may indicate an area which has been cleared at some stage in the wood's history and heavily chalked to allow cereal cultivation. Dense nettles may derive their phosphate from human refuse or

from many years of pheasant droppings in a release pen which has subsequently been removed.

Veteran trees, ancient pollards and coppice stools

These ancient trees are features in their own right and are worthy of recording. They also provide minimum dates for the features they may be standing on. A six hundred year old yew standing on a bank proves that the bank is at least six hundred years old.

In addition to this, they can tell us about the use made of the wood during their long lives. A pollard shows that the area around it was regularly used for grazing animals. Young trees were cut off just above the reach of cows and horses. As a result the new growth produced branches which could be harvested to provide fuel, poles and small timber while still allowing the area to be grazed. A coppice stool was formed by cutting a tree close above the ground. Such a stool shows that the area was not continuously grazed. Although grazing may have been allowed in the periods between the harvesting of the re-growth when the stems had grown beyond the reach of animals. When the new growth was short the area would have been fenced.

Ages of trees can be estimated by using the curves in the appendix for oak and yew. Ash and beech seem to follow the same line as oak up to about 200 years.

Figure 39. © DG.

In both cases, the girth of the tree is measured at about 1.5m above the ground. The curves are entered with this value and the most relevant curve chosen. Trees growing in open parkland probably match the dating curve for the Windsor trees. Those growing in a wood may match John White's 'Poor Site' curve. The data for yew trees comes mainly from churchyard yews. These are growing in the open on fertile soil and will have grown faster than those growing in the shade of a wood. Allowance must be made for this and a value judgement made. Opportunities to

correlate ring counts and girths of felled trees in a study area should be taken and used to calibrate the general curves.

Particularly interesting or ancient trees should be submitted for inclusion in the Ancient Tree Hunt database. The spreadsheet for this can be found on www.ancienttreehunt.org.uk.

Badger setts

These do not add to the historical or land use information, but are included in the survey as useful ecological data and as a service to the woodland owner. Badger setts are protected by legislation and knowledge of their location and size helps a woodland owner to comply with the legislation when planning and carrying out forestry operations.

Presenting the results

The contour plot or shaded plot, with notable trees and badger setts added, should be included in the final report together with an interpretation of the result. A species list should be compiled for each defined woodland compartment and could also include details of badger setts. This document should be in the form of a simple Microsoft Excel spreadsheet (*see sample report in the Appendices*). Hard copies of plots and spreadsheets should be bound into the report together with photographs of notable trees. A digital copy should be provided on disc.

A digital copy of the Ecological Survey data should be presented to the relevant County Environmental Records Centre.

Presenting the archive

All field sheets, field maps and photograph negatives should be bound together as described on page 54. A full digital record should be provided on disc. The main archive will be deposited with the County Archaeologist.

ANCIENT WOODLAND INDICATOR SPECIES

Table 1

L = Longevity indicator presence suggests the woodland is particularly old.

***** = often planted, e.g. for pheasant cover, timber or ornamental.

Note: Three species listed in the Wilson and Reid 1995 English Nature SE region list are considered too widespread to be included – field maple, giant fescue and black bryony.

Common Name	Scientific Name	Comments
Moschatel	Adoxa moschatellina	L
Ramsons	Allium ursinum	L
Wood anemone	Anemone nemorosa	L
Columbine	Aquilegia vulgaris	*
Lady fern	Athyrium filix-femina	Only in Berks
Hard fern	Blechnum spicant	L
Hairy brome	Bromopsis ramose	
Wood small-reed	Calamagrostis epigejos	
Nettle-leaved bellflower	Campanula trachelium	
Pale sedge	Carex pallescens	
Pendulous sedge	Carex pendula	*
Remote sedge	Carex remota	
Thin-spiked wood sedge	Carex strigosa	L
Wood sedge	Carex sylvatica	
Large bitter-cress	Cardamine amara	Y
Hornbeam	Carpinus betulus	*
Narrow-leaved helleborine	Cephalanthera longifolium	
Climbing corydalis	Ceratocapnos claviculata	
Alternate-leaved golden saxifrage	Chrysosplenium alternifolium	
Opposite-leaved golden saxifrage	Chrysosplenium oppositifolium	
Meadow saffon /Autumn crocus	Colchicum autumnale	
Pignut	Conopodium majus	L
Lily-of-the-valley	Convallaria majalis	*L
Midland hawthorn	Crataegus laevigata	
Spurge laurel	Daphne laureola	L
Small teasel	Dipsacus pilosus	
Scaly male-fern	Dryopteris affinis	L
Narrow buckler-fern	Dryopteris carthusiana	L
Bearded couch	Elymus caninus	
Broad-leaved helleborine	Epipactis helleborine	
Violet helleborine	Epipactis purpurata	L
Wood horsetail	Equisetum sylvaticum	
Wood spurge	Euphorbia amygdaloides	L
Alder buckthorn	Frangula alnus	
Yellow star-of-Bethlehem	Gagea lutea	
Common Name	Scientific Name	Comments
Sweet woodruff	Galium odoratum	L
Water avens	Geum rivale	
Stinking hellebore	Helleborus foetidus	
Green hellebore	Helleborus viridis	

Wood barley	Hordelymus europaeus	L
Bluebell	Hyacinthoides non-scripta	
Tutsan	Hypericum androsaemum	L*
Slender St. John's wort	Hypericum pulchrum	
Holly	Ilex aquifolium	
Stinking iris	Iris foetidissima	
Yellow archangel	Lamiastrum galeobdolon	
Toothwort	Lathraea squamaria	L
Bitter vetch	Lathyrus linifolius	
Narrow-leaved everlasting pea	Lathyrus sylvestris	
Southern wood-rush	Luzula forsteri	L
Hairy wood-rush	Luzula pilosa	
Great wood-rush	Luzula sylvatica	L
Yellow pimpernel	Lysimachia nemorum	
Crab apple	Malus sylvestris	
Common cow-wheat	Melampyrum pratense	L
Wood melick	Melica uniflora	
Wood millet	Milium effusum	
Three-veined sandwort	Moehringia trinervia	L
Wood forget-me-not	Myosotis sylvatica	
Wild daffodil	Narcissus pseudonarcissus	*
Early purple orchid	Orchis mascula	
Lemon-scented fern	Oreopteris limbosperma	
Wood sorrel	Oxalis acetosella	L
Herb Paris	Paris quadrifolia	L
Hart's tongue	Phyllitis scolopendrium	
Great butterfly orchid	Platanthera chlorantha	
Wood meadow-grass	Poa nemoralis	
Solomon's seal	Polygonatum multiflorum	L
Polypody	Polypodium vulgare	
Hard shield-fern	Polystichum aculeatum	
Soft shield-fern	Polystichum setiferum	
Aspen	Populus tremula	
Barren strawberry	Potentilla sterilis	
Primrose	Primula vulgaris	*
Sessile oak	Quercus petraea	L*
Goldilocks buttercup	Ranunculus auricomus	L
Black currant	Ribes nigra	
Red currant	Ribes rubrum	*
Field rose	Rosa arvensis	
Butcher's broom	Ruscus aculeatus	*
Sanicle	Sanicula europaea	L
Wood club-rush	Scirpus sylvestris	
Orpine	Sedum telephinum	
Common Name	Scientific Name	Comments
Wild service-tree	Sorbus torminalis	L
Wych elm	Ulmus glabra	L
Wood speedwell	Veronica monatna	L
Guelder rose	Viburnum opulus	*
Bush vetch	Vicia sepium	
Wood vetch	Vicia sylvatica	

Sweet violet	Viola odorata	
Marsh violet	Viola palustris	
Early dog-violet	Viola reichenbachiana	L

Table 2. Rare, not on above SE England list

Common Name	Scientific Name	Comments
Box	Buxus sempervirens	In Berks. However often planted.
Coral-root	Cardamine bulbifera	In Bucks.
Smooth-stalked sedge	Carex laevigata	L
White helleborine	Cephalanthera damasonium	Beech woodlands.
Red helleborine	*Cephalanthera rubra*	Only in Bucks.
Greater dodder	Cuscuta europea	Nat Scarce. Wet woodlands.
Mezereon	Daphne mezereon	In Beech woodland.
Ghost orchid	Epipogium aphyllum	Almost extinct.
Narrow-lipped helleborine	Epipactis leptochila	
Green-flowered helleborine	Epipactis phyllanthes	
Violet helleborine	*Epipactis pupurata*	
Stinking hellebore	*Helleborus foetidus*	
Green hellebore	*Helleborus viridus*	
Loddon lily	Leucojum aestivum	Nat Scarce. Speciality of Berkshire. Wet woodlands but also found along rivers.
Common wintergreen	Pyrola minor	
Yellow bird's-nest	Monotropa hypopytis	
Bird's-nest orchid	Neottia nidus-avis	Saprophytic.
Lady orchid	*Orchis purpurea*	In clearings.
Marsh fern	Thelypteris palustris	Wet woodlands.
Small-leaved lime	Tilia cordata	*
Large-leaved lime	Tilia platyphyllos	

Table 3. Negative Indicators

These are plants which when dominant are detrimental to the condition of the woodland.

Common Name	Scientific Name	Comments
Sycamore	*Acer pseudoplatanus*	old introduction
Wood small-reed	*Calamagrostis epigejos*	>20%
Creeping thistle	*Cirsium arvense*	
Japanese knotweed	*Fallopia japonica*	Invasive alien
Cleavers	*Gallium aparine*	high Nitrogen indicator
Himalayan balsam	*Impatiens glandulifera*	Invasive alien
Introduced poplars	*Populus spp.*	Planted
Rhododendron	*Rhododendron ponticum*	invasive
Elder	*Sambucus nigra*	If > 20 %
Stinging nettle	*Urtica dioica*	High phosphate indicator
Conifers	Eg Larch, fir, pine, spruce	Planted
Brambles	*Rubus fruticosus* agg. and R. *caesius*, dewberry	>30%

APPENDICES

APPENDIX I: FURTHER READING

The following is a selective list of some of the most useful publications. A search of the Internet will provide further source material, especially reports on other woodland archaeology projects and conference papers.

Health & Safety

BTCV, (nd), *Health & Safety Overview*, British Trust for Conservation Volunteers.

Stokes, A., 2003, *Risk Assessments: a learning resource pack*, British Trust for Conservation Volunteers.

Stokes, A., and Hall, N., 2004, *Generic Risk Assessments*, British Trust for Conservation Volunteers.

Guides to Survey Methods, Report Preparation and Project Archiving

Bannister, N. R., 1996, *Woodland Archaeology in Surrey*, Surrey County Council (out of print).

Bannister, N. R., and Bartlett, D. 2006, *Exploring your Woodlands History*.

Bowden, M., (ed), 1999, *Unravelling the Landscape. An Inquisitive Approach to Archaeology*, Tempus.

Brown, A., 1987, *Fieldwork for Archaeologists and Local Historians.* Batsford.

The National Trust, 2000, *Archaeology and the Historic Environment: Historic Landscape Survey Guidelines*.

Historical Woodland and Archaeology

Aston, M., 1985, *Interpreting the Landscape: Landscape Archaeology in Local Studies.* Batsford.

CBA, 1995, *20th Century Defences in Britain; an introductory guide*, Council for British Archaeology, practical handbooks in archaeology No 12.

Colebourn, P., 1983, Hampshire's Countryside Heritage, 2, Ancient Woodland, Hampshire County Council.

Gelling, M., 1984, Place-Names in the Landscape: the Geographical Roots of Britain's Place-Names. Phoenix Press.

Hooke, D. (ed)., 2000, Landscape: the richest historical record. Society for Landscape Studies: supplementary series 1.

Rackham, O., 1981, Trees and Woodland in the British Landscape, Dent.

Rackham, O., 1986, The History of the Countryside, Dent.

Rackham, O., 2003, Ancient Woodland, Castlepoint Press.

Rackham, O., 2006, Woodland, Collins New Naturalist series No. 100.

Readers Digest, 1990, The Ever-Changing Woodlands, Readers Digest, London.

Whynne-Hammond, C., 2005, English Place Names Explained. Newbury. Countryside Books.

APPENDIX II: CONTACTS

North Wessex Downs AONB Office	
Denford Manor Lower Denford Hungerford Berkshire RG17 0UN	T: 01488 685440 F: 01488 680453 W: www.northwessexdowns.org.uk

Historic Environment Records

Hampshire AHBR (Archaeology and Historic Buildings Record)	
Archaeology & Historic Buildings Environment Department Hampshire County Council The Castle Winchester Hampshire SO23 8UD	T: 01962 846 836 F: 01962 846 776 E: historic.environment@hants.gov.uk W: www.hants.gov.uk/environment/historic-environment/
West Berkshire Archaeology Service	
Avonbank House West Street Newbury Berkshire RG14 1BZ	T: 01635 519 534 F: 01635 385 35 E: heritage@westberks.gov.uk W: www.westberks.gov.uk/index/
County Archaeology Service	
Wiltshire County Council Bythesea Road Trowbridge Wiltshire BA14 8BS	T: 01225 713733 E: archaeology@wiltshire.gov.uk W: www.wiltshire.gov.uk/leisure-and-culture/archaeology-service
Oxfordshire County Council	
Oxfordshire County Archaeological Services Central Library Westgate Oxford OX1 1DJ	T: 01865 810115 or 01865 810825 F: 01865 810187 E: archaeology@oxfordshire.gov.uk

Record Offices

Berkshire Record Office	
9 Coley Avenue Reading Berkshire RG1 6AF	T: 0118 901 5132 F: 0118 901 5131 E: arch@reading.gov.uk W: www.berkshirerecordoffice.org.uk
Hampshire Record Office	
Sussex Street Winchester Hampshire SO23 8TH	T: 01962 846154 E: enquires.archives@hants.gov.uk W: www.hants.gov.uk/record-office/
Wiltshire and Swindon History Centre	
Cocklebury Road Chippenham Wiltshire SN15 3QN	T: 01225 713138 F: 01225 713515 E: wsro@wiltshire.gov.uk W: www.wiltshire.gov.uk/leisure-and-culture/
Oxfordshire Record Office	
St Luke's Road Temple Road Cowley Oxford OX4 2TH	T: 01865 398200 F: 01865 398201 E: archives@oxfordshire.gov.uk

Local Studies Centres

Local Studies Collection, Newbury Central Library	
The Wharf Newbury Berkshire RG14 5AU	T: 01635 519900 F: 01635 519906
Local Studies Library, Reading Central Library	
Abbey Square Reading Berkshire RG1 3BQ	T: 0118 901 5965 F: 0118 901 5954 E: info@readinglibraries.org.uk
Wiltshire County Council Local Studies Library, Trowbridge Ref. Library	
Bythesea Road Trowbridge Wiltshire BA14 8BS	T: 01225 713727 or 713732 F 01225 713715 E: localstudies@wiltshire.gov.uk

Local Studies Library, Winchester Reference Library	
81 North Walls Winchester SO23 8BY	T: 01962 841408 F: 01962 856615
Forestry Commission	
Alice Holt Lodge Wrecclesham Farnham Surrey GU10 4LH	W: www.forestresearch.gov.uk/heritage

Online Historic Map Resources

Access to Archives (www.a2a.org.uk)
New Landscapes Enclosure in Berkshire (www.berkshirenclosure.org.uk)
Old Hampshire Mapped (www.geog.port.ac.uk/webmap/hantsmap/hantsmap/)
British History Online (www.british-history.ac.uk/mapsheet.asp)
Old maps (www.old-maps.co.uk/)
The Domesday Book (http://www.domesdaybook.co.uk/faqs.html#1)

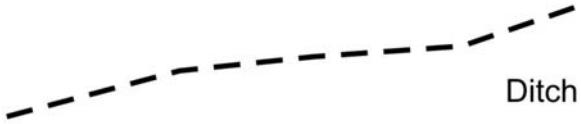
Museums

Museum of English Rural Life	
Redlands Road Reading Berkshire	T: 0118 378 8660 W: www.merl.org.uk
Vale & Downland Museum	
Church Street Wantage Oxfordshire OX12 8BL	T: 01235 771447 W: www.wantage.com/museum/
Wiltshire Heritage Museum	
41 Long Street Devizes Wiltshire SN10 1NS	T: 01380 727369 W: www.wiltshireheritage.org.uk

APPENDIX III:
DRAWING CONVENTIONS

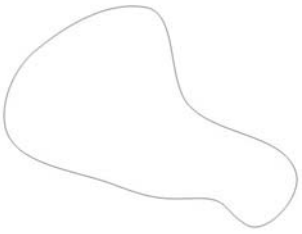
Bank

Mound

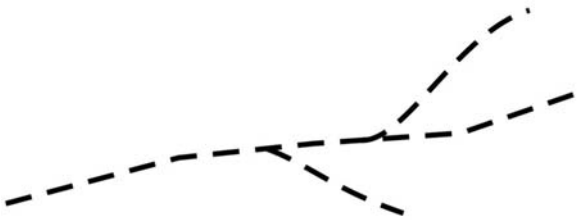


Ditch

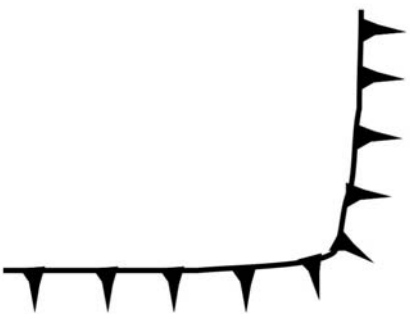
Bank and Ditch



Pit or Quarry



Drainage Ditches



Lynchet
The arrowheads point downslope

APPENDIX IV:
ACCESS PERMISSION FORM

APPENDIX V:
RISK ASSESSMENT AND SAFETY PLAN SHEET

APPENDIX VI:
PACE CONVERSION CHART

APPENDIX VII:
FIELD RECORDING SHEET

APPENDIX VIII:
ARCHAEOLOGICAL FEATURE RECORD SHEET

APPENDIX IX:
ECOLOGICAL RECORD SHEET

APPENDIX X:
QUALIFYING SIZES FOR VETERAN TREES

APPENDIX XI:
EXAMPLES

Ordnance Survey 1 to 2500 map

Completed Risk Assessment and Safety Plan

Completed Archaeological Feature Record Sheet

Completed Field Recording Sheet

Westbrook Coppice Plotted Map

Westbrook Coppice Feature Schedule

Survey Field Sheet Red Traverse

Survey Field Sheet Stripes Traverse

Completed Field Recording Sheet for Ecology

Ecology Spreadsheet (for downloading)

Oak Tree Aging Curves (graph)

Yew Tree Dating Curves (graph)

Completed Report for an Imaginary Wood