

An Archaeological Aerial Survey in the Cotswold Hills: A Report for the National Mapping Programme



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2011



An Archaeological Aerial Survey in the Cotswold Hills: A Report for the National Mapping Programme

English Heritage; HEEP Project No. 4755

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DOCUMENT CONTROL GRID

Title	An Archaeological Aerial Survey in The Cotswold Hills: A Report for the National Mapping Programme
Project number	HEEP Project 4755
Project name	The Cotswold Hills NMP
Authors	Josephine Janik, Amanda Dickson and Russell Priest
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Origination date	October 2010
Version	3
Status	Final
Reviser(s)	Toby Catchpole
Date of last revision	4 August 2011
Summary of changes	Amended on basis of English Heritage collated comments
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English Heritage info.	
Circulation	English Heritage
Required action	
Approval	

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SUMMARY

This report describes the results of an archaeological survey covering part of the Cotswold Hills. The project was commissioned by English Heritage and undertaken by Gloucestershire County Council. It covered 950 square kilometres in southern Gloucestershire and adjoining parts of South Gloucestershire, Wiltshire and Oxfordshire. The project used National Mapping Programme (NMP) standards to transcribe, map and interpret all archaeological features visible on aerial photographs.

The main aims of the project were to enable the identification, preservation and improved management of monuments threatened by intensive arable agriculture in the Cotswolds, specifically through agri-environment schemes and to inform local planning decisions where housing development, transport networks, or industrial activities might threaten archaeological sites. This information will inform future research as well as promoting public appreciation and enjoyment of archaeology within the Cotswold Hills.

The NMP survey (including three pilot sheets undertaken by English Heritage in 2004) identified and created 1692 new records and updated 1136 existing records within the National Monuments Record database. Before the project the NMR database contained 2826 monument records within the study area, the accuracy and completeness of 40% of these existing records was improved and the total number of monuments increased by 59%. In total 62% of the current monument record for the study area was produced or improved by this project. One noteworthy and unexpected result was the discovery of 13 previously unknown Neolithic monuments comprising nine possible long barrows, three possible henges and a possible mortuary enclosure. Whilst these remain to be verified as such on the ground, such additions to extensively studied and supposedly well known monument distributions will allow for appropriate management regimes to be recommended at these sites and provide foci for future research. The Iron Age and Roman periods were characterised by cropmarks, with few monuments apart from the Iron Age Hillforts being visible as earthworks. Of particular note are the large number of Iron Age 'banjo' enclosures south of Northleach; the extent of which was not previously appreciated. Several new possible Roman villas were identified as a result of the archaeological aerial survey. Most of the archaeological evidence identified in the project area was of the medieval and post-medieval periods. This included field systems, ridge and furrow, strip lynchets, shrunken and deserted settlements. A further significant proportion of the recorded archaeology in the project area relates to Second World War military activity, including airfields, army camps, and hospitals.

ACKNOWLEDGEMENTS

The Cotswold Hills NMP project was undertaken by Amanda Dickson, Josephine Janik and Russell Priest of Gloucestershire County Council Archaeology Service (GCCAS). It was funded by the English Heritage Historic Enabling Programme (HEEP), now the National Heritage Protection Commissions Programme (NHPCP). Buzz Busby was the HEEP Project Assurance Officer. Helen Winton of English Heritage (Aerial Survey & Investigation) acted as the NMP Quality Assurance Officer and Toby Catchpole of GCCAS was Project Manager. Jan Wills of GCCAS acted as Project Executive.

Aerial photographic sources were provided by the English Heritage National Monuments Record Enquiry and Research Services team, in particular Luke Griffin; and the Cambridge University Unit for Landscape Modelling (ULM). Historic Environment Record data and assistance was provided by Tim Grubb from Gloucestershire County Council; David Evans from South Gloucestershire Council; Susan Lisk from Oxfordshire County Council; and Sarah MacLean of Wiltshire Council. Thanks go to all.

Many thanks go to all the Aerial Survey & Investigation staff at English Heritage, in particular Fiona Small and Sharon Bishop for their expertise and advice; to Cathy Stoertz and Edward Carpenter for quality assurance; and to Simon Crutchley for supplying the PGA data. Thanks also to Chantelle Smith, of English Heritage, for providing Ordnance Survey data.

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MAPPING CONVENTIONS

These mapping conventions are used in illustrations throughout this report unless otherwise stated. See Appendix 1 for a full explanation of the standard NMP map conventions and layouts. References to monument records in the National Monuments Record database (available on the PastScape website at www.pastscape.org.uk) will be made in the format (NMR: 1234567).



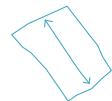
Ditch



Levelled Ridge & Furrow



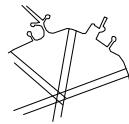
Bank



Extant Ridge & Furrow



Structure (e.g. Buildings)



Large Area Feature



Large cut feature e.g. quarry



Slope

ABBREVIATIONS

ALSF	Aggregates Levy Sustainability Fund
AMIE	Archives and Monuments Information, England
CUCAP	Cambridge University Committee for Aerial Photography
GCCAS	Gloucestershire County Council Archaeology Service
GHER	Gloucestershire County Council Historic Environment Record
HEEP	Historic Environment Enabling Programme
HER	Historic Environment Record
MOD	Ministry of Defence
NHPCP	National Heritage Protection Commissions Programme
NMP	National Mapping Programme
NMR	National Monuments Record
NMRC	National Monuments Record Centre
NSRI	National Soil Resources Institute
OHER	Oxfordshire County Council Historic Environment Record
OS	Ordnance Survey
PGA	Pan-Government Agreement
RAF	Royal Air Force
SGHER	South Gloucestershire Council Historic Environment Record
SMR	Sites and Monuments Record
TNA	The National Archives
ULM	Unit for Landscape Modelling, Cambridge University
WHER	Wiltshire Council Historic Environment Record

1 INTRODUCTION

1.1 General introduction

This report describes the results of the archaeological survey of the Cotswold Hills using National Mapping Programme (NMP) standards (Grubb 2007). This project was carried out by the Archaeology Service of Gloucestershire County Council. It was funded through the English Heritage Historic Environment Enabling Programme (HEEP), now the National Heritage Protection Commissions Programme (NHPCP). The NMP survey commenced in June 2008 and was completed in August 2010.

This report also includes the results of three quartersheets which were completed in 2004 by English Heritage's Aerial Survey & Investigation team based in Swindon (see Figure 1.1). This was carried out as a pilot project for the Cotswold Hills NMP (Grubb 2007).

The project area covered by this report comprises a total of 950 square kilometres, and falls almost completely within the Cotswold Hills; located within southern and eastern Gloucestershire and a small portion of western Oxfordshire (see Figure 1.1). The south-western part of the project area covers small portions of South Gloucestershire and Wiltshire.

The NMP survey created 1692 new records and updated 1136 existing records within the NMR database. The records and mapping produced by the Cotswold Hills National Mapping Programme can be obtained from the NMR and have been supplied to the relevant HERs. The records created as part of this project will also be available via the English Heritage PastScape website (www.pastscape.org.uk). All records produced will have been added to the Gloucestershire HER by mid-2011.

The results of the Cotswold Hills NMP project complement other NMP projects in the county, including the Forest of Dean (Small *et al* 2006) and North Cotswolds (report forthcoming), Leadon Valley ALSF (ALSF project number 4832, Priest *et al* 2007) and the Severn Estuary Rapid Coastal Zone assessment NMP component (HEEP project number 3885, Crowther & Dickson 2008) (Figure 1.2). These projects provided information required by the Gloucestershire HER to inform strategic planning and research issues in the county and region.

1.2 Aims of the NMP survey

The broad aim of the Cotswold Hills NMP project was to enhance the HER and NMR with the quality of information required to identify, preserve and improve management of monuments threatened by intensive arable agriculture in the Cotswolds specifically through agri-environment schemes. The project results will also inform local planning decisions where sites might be threatened by housing development, transport networks or industrial activities.

The project also aims to increase and enhance understanding of past human activity in the Cotswold Hills by providing primary information and synthesis for all archaeological sites and landscapes. This information will inform future archaeological research as well as promoting public appreciation and enjoyment of archaeology within the Cotswold Hills (English Heritage 2008).

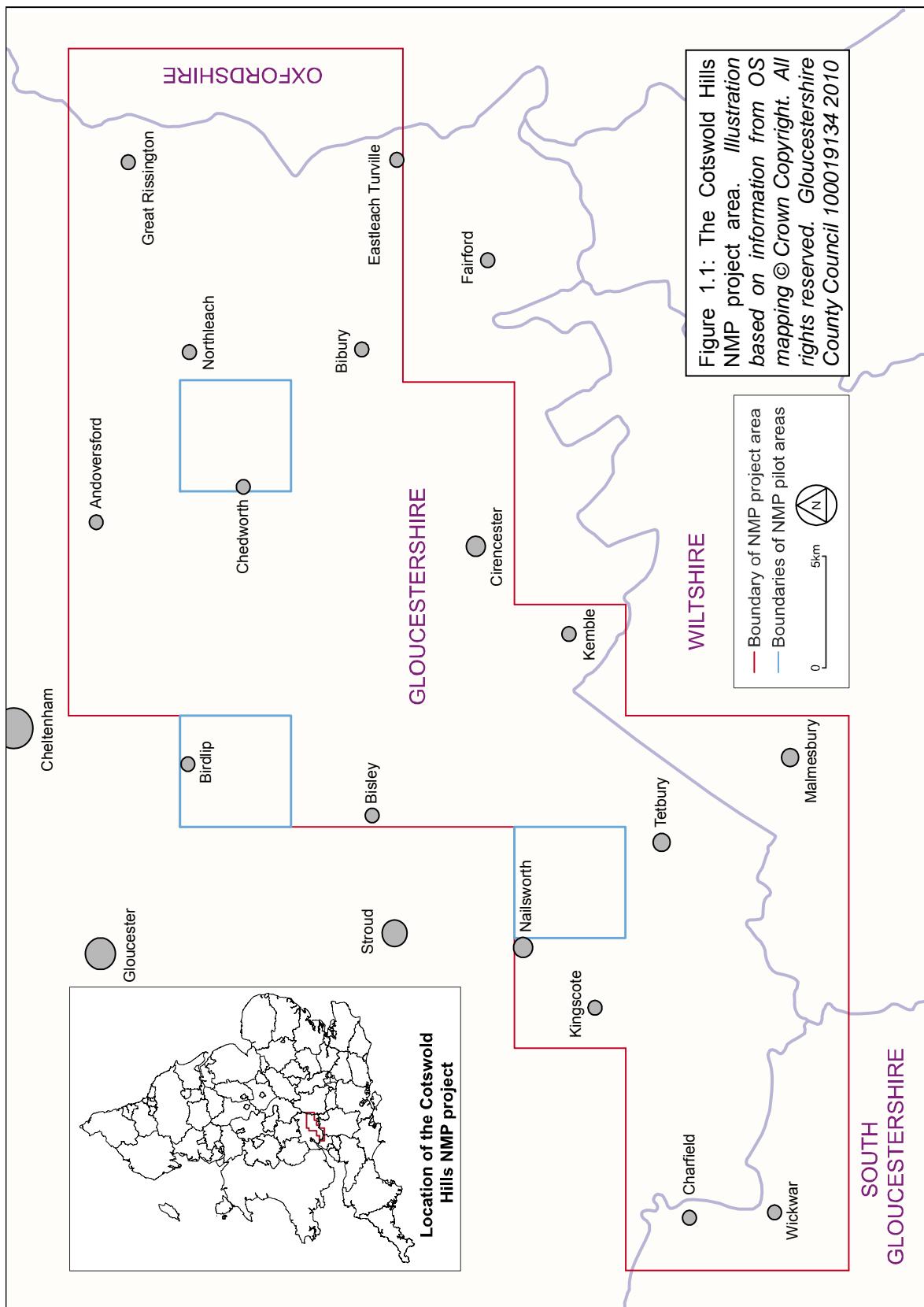


Figure 1.1: The Cotswold Hills NMP project area. Illustration based on information from OS mapping © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

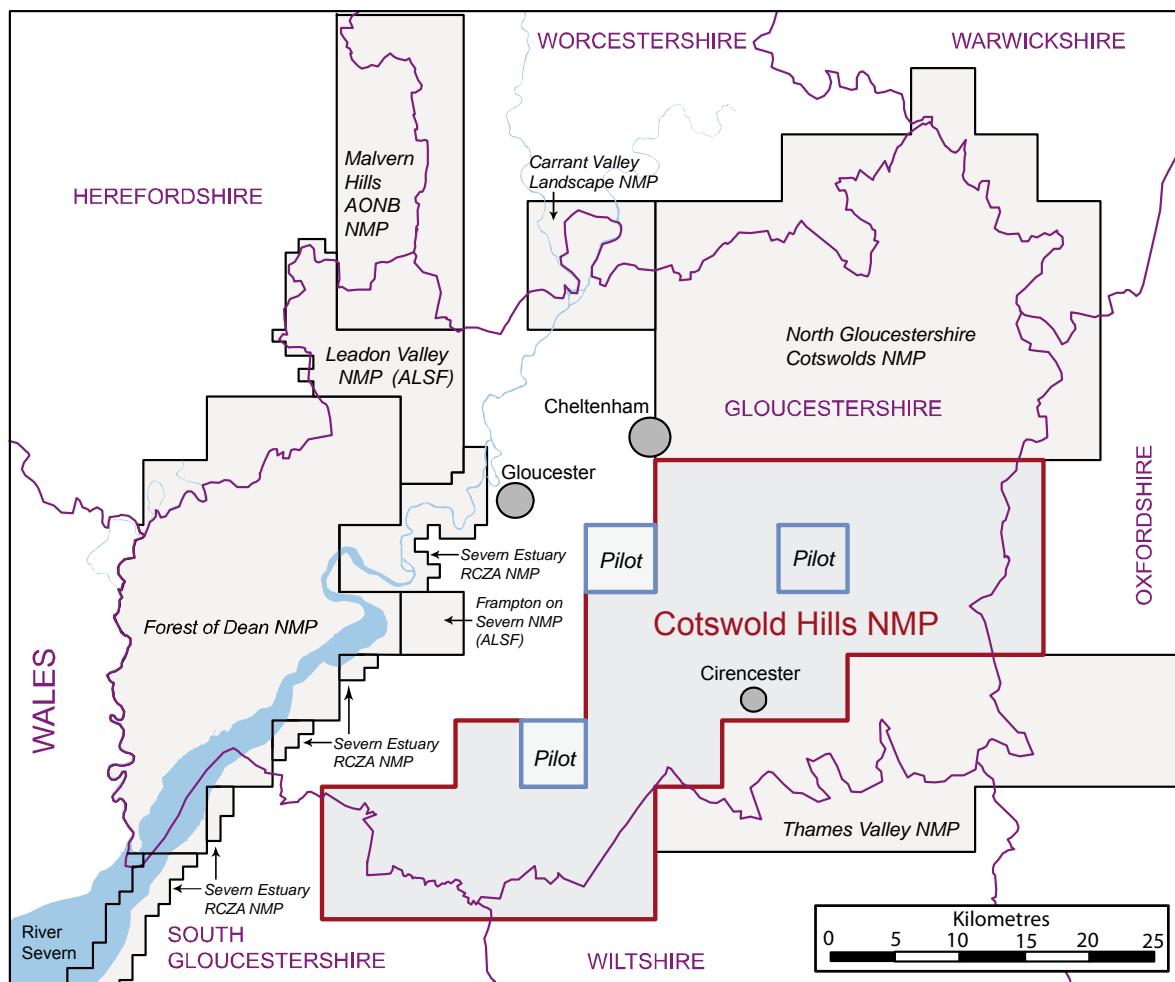


Figure 1.2: The Cotswold Hills NMP project area in relation to other NMP projects carried out within Gloucestershire and the surrounding counties. *Illustration based on Bishop 2009: Figure 1*

These aims were achieved through the accurate transcription, informed interpretation and description of all archaeological features visible on aerial photographs in line with the aims and objectives of the National Mapping Programme (Winton 2010). This included interpretation and mapping of earthworks, cropmarks (buried features) or structures (including buildings) which may date from between the Neolithic period (circa 4000 BC) and the late 20th century (up to the Cold War era).

1.3 NMP methodology

NMP methodology entails the interpretation, digital transcription and description of all archaeological features, dating from the Neolithic to the 20th century, visible on aerial photographs (See Appendix 1 for more details).

The main source of aerial photographs was the collection at the National Monuments Record (NMR), Swindon. This included vertical photographs taken for non-archaeological purposes between 1941 and 2006 by the RAF, Ordnance Survey and Meridian Aimap Ltd. The NMR also has a collection of specialist oblique aerial photographs which focus on archaeological and architectural sites and landscapes. Aerial photographs belonging to the Cambridge University Committee for Aerial Photography (CUCAP), held at the

Cambridge University's Unit for Landscape Modelling (ULM) were also examined, where possible. The recent closure of this collection prevented the project team from viewing photographs for Block 4 of the Cotswold Hills NMP project, on the south-western side of the survey area.

Coverage of recent colour vertical photographs and limited coverage of recent false colour infra-red aerial photographs were also made available by Next Perspectives through the Pan-Government Agreement (PGA). Online internet sources such as Google Earth (<http://earth.google.com/>), and Bing (<http://www.bing.com/maps/>) also proved useful in providing recent georeferenced vertical aerial photographs.

In addition to aerial photographs, relevant published material and map sources were consulted. The map sources included all the past editions of Ordnance Survey mapping; geological maps produced by the British Geological Survey; and soil maps via the National Soil Resources Institute's (NSRI) Soilscapes website, (<http://www.landis.org.uk/soilscapes/>).

The aerial photographs were transformed using specialist rectification software (Aerial 5.29) with Ordnance Survey MasterMap 1:2,500 scale mapping and a digital terrain model. This provided an accuracy of less than two metres to the 1:2,500 scale map for the rectified photographs. The Ordnance Survey advise that their 1:2,500 scale map data has an accuracy of ± 0.4 metres for rural towns, and ± 1.1 metres in all other rural areas. Therefore the archaeological features transcribed for the National Mapping Programme will on average be accurate to within two to three metres of true ground position. Archaeological features were traced from the georeferenced rectified photographs in AutoCAD Map 3D 2008 using standard NMP drawing conventions (See Appendix 1 for more details).

New sites and amendments to existing sites were recorded in the NMR database known as AMIE. A summary description of each archaeological feature recorded, as well as details of the sources consulted during the mapping process are available on the PastScape website (<http://www.pastscape.org.uk/>). This information will also be disseminated electronically to the relevant Historic Environment Records.

2 CHARACTER OF THE SURVEY AREA

2.1 Landscape character

The landscape within the project area can be divided into different zones on a roughly north-east to south-west orientation: the escarpment edge to the west and along the northern edge of the project area; plateau or high wold in the centre; and lower dip slope to the south-east bordering the Thames Valley. To the far west of the project, the escarpment gives way to the low-lying vale of the Severn Valley (see Figure 2.2).

These topographical landforms within the project area closely reflect the underlying geology (Figure 2.1), which is predominately Oolitic Limestone (Great and Inferior Oolite Groups). These two Groups form a discrete unit of elevated land defined by the distinctive escarpment to the west, from which the landscape 'dips' gently to the south-east (Landscape Design Associate 2002: 16), caused by the tilting of the rocks to the south-east. Many of the soils that characterise the project area derive directly from the parent rock and in this case, the main parent rock is limestone from the Inferior and Great Oolite Groups.

2.1.1 High wold and dip slope

Most of the Cotswold Hills project area lies within the Cotswold plateau or high wold and dip slope. Here there are large areas of flat plateau tops, which gently dip south-eastwards to form the dip slope. The Great Oolite Series forms much of the high wold and dip slope (Landscape Design Associate 2002: 14). This in general has produced shallow, lime-rich soils which are freely draining and fairly fertile (NSRI) allowing for adequate arable cultivation and grassland cover, classified as Grade 3 in the Agricultural Land Classification (*ibid*: 17). However, many local variations in soils occur throughout the project area as a result of the topographical landscape as well as the geological one. This is particularly evident in the river valleys, where alluvial drift deposits and underlying rocks become exposed. Between the Inferior and Great Oolite rocks is a layer of Fuller's Earth; soils that derive from this are sticky and wet and are often marked by patches of woodland.

During the Quaternary Period, valleys formed within the region, like those of the River Coln and Churn, from the many springs which issued through the porous limestone rocks. Spring sapping contributed to the progressive headward erosions of the valleys, which mostly flowed south-eastwards down the dip-slope (*ibid*: 15). Settlement is sparse and is generally located within these river valleys, with many indicating the location of natural river crossing points (*ibid*: 17). There are, however, many dispersed farmsteads and hamlets located across the plateau and dip slopes.

2.1.2 The escarpment

On the north-western edge of the project area the escarpment rises up from the Severn Vale to create a striking landscape feature that forms the western edge of the Cotswold Hills. The escarpment is the highest area, rising above 200 metres (see Figure 2.2). Along the scarp edge, the Great Oolite has been eroded exposing the underlying Inferior Oolite; the main scarp-forming rock. At the base of the scarp slope Lias Group shales, sandstones, and siltstones of the Lower Jurassic are exposed. These are soft and easily weathered and as a result have slumped or been eroded to form hummocky ground

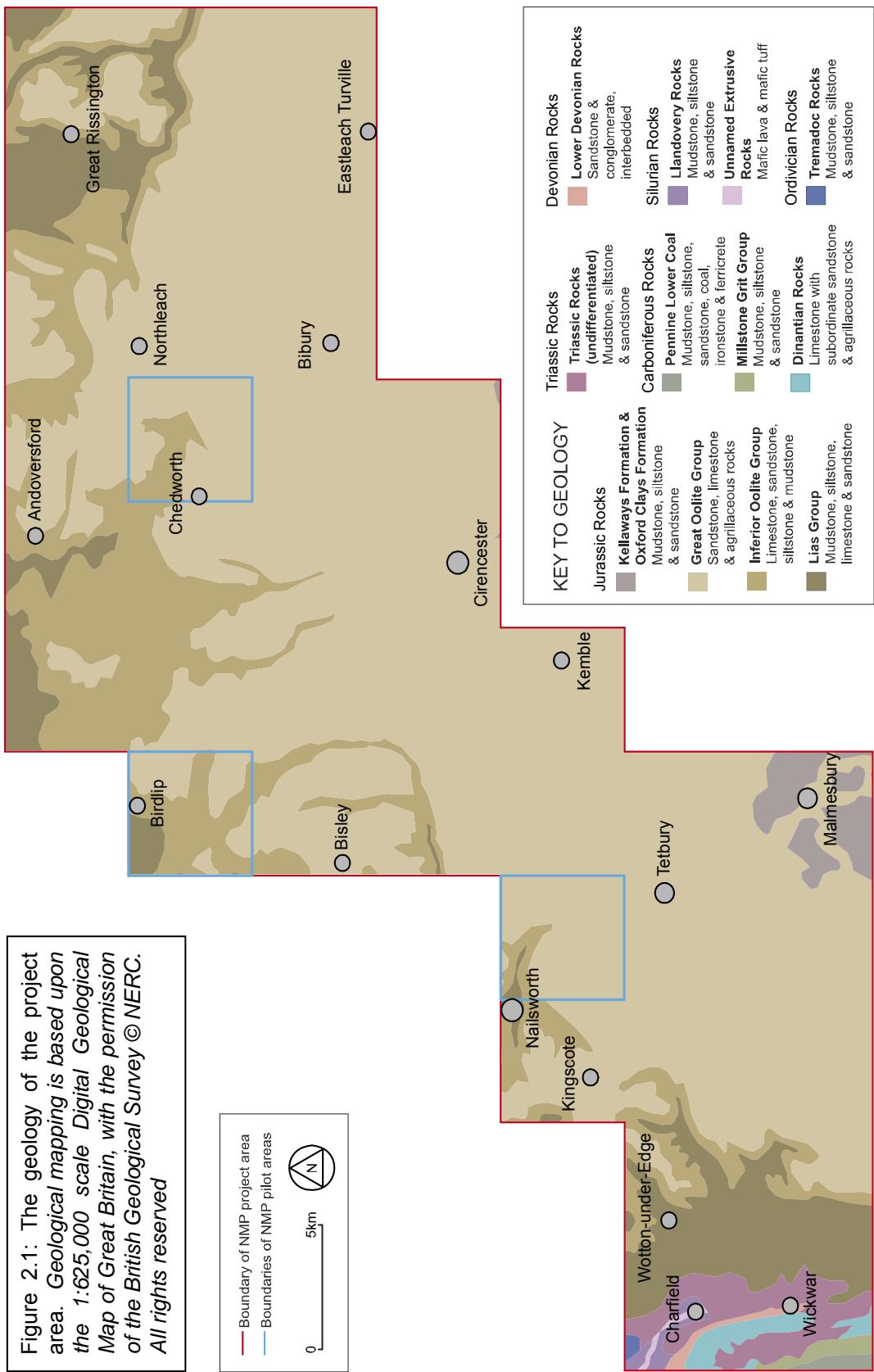


Figure 2.1: The geology of the project area. Geological mapping is based upon the 1:625,000 scale Digital Geological Map of Great Britain, with the permission of the British Geological Survey © NERC. All rights reserved

(Landscape Design Associate 2002: 16). The slopes here are typically steep, irregular, indented by springs, stream gullies, and coombes, and are predominantly grassland with little development. The landscape is pastoral in character, with a patchwork of broad-leaved woodlands and fields contained within hedgerows; the generally poor soils and steep relief are not suitable for arable cultivation. Settlement here is generally confined to the lower slopes of the escarpment, in sheltered locations and adjacent to spring lines (ibid: 16).

2.1.3 Rolling hills and valleys

As the escarpment leads to the south-west, in the process cutting through the western end of the project area, the drop of the scarp edge becomes less dramatic. This area, for example in the vicinity of Chalford and Nailsworth, is a distinctive region defined by rolling hills and deep valley complexes formed by a dendritic river system flowing west (see Figure 2.2). This has cut into the alternating layers of Oolite Series rocks, and the underlying Lias Group and Marlstone Rock Formations. The valleys, which are narrow at source, widen westwards towards the Severn Valley, e.g. Ozleworth Bottom. Extensive woodland characteristically forms around the valley rims and upper slopes. The valleys themselves are dominated by grazing pasture, but areas of arable cultivation do occur on the hill-tops. The settlement pattern is rather more diverse than in other parts of the project area, but in general the main settlement occurs where the valleys meet the Severn Vale, such as at Wotton-under-Edge, with smaller settlements forming along the valley floors and in close proximity to the spring lines (Landscape Design Associates 2002: 57-58).

2.1.4 Severn Vale

The far south-western edge of the project area, around Charfield and Wickwar, is part of a soft rolling landscape, forming a transitional area between escarpment and low-lying vale. A complex underlying geology exists here differing from the more homogeneous geology present in the rest of the project area (see Figure 2.1). This also gives rise to variations in local soil types. In general the soils are acidic clayey soils with impeded drainage (NSRI), but they do provide good arable and pasture land (Landscape Design Associates: 2002, Figure 7), with much of the area cloaked in a patchwork of small to medium-sized irregular fields. There is little woodland, though the remnant large ancient woodland east of Wickwar is notable (South Gloucestershire Council 2005: 106). Like most of the project area, settlement is limited and tends to be scattered farms or small hamlets, with Wickwar and Charfield the largest villages in the area.

2.2 Land use

The dominant present land use of the Cotswold Hills is arable cultivation, broken by occasional woodland blocks and shelterbelts. Improvements in modern arable farming have increased the fertility of the shallow soils on the central plateau of the Cotswold Hills. Despite modern ploughing extensive areas of medieval and post-medieval ridge and furrow are still visible within the landscape. For example, there is a concentration of ridge and furrow around Malmesbury and in the lower-lying parishes of Ampney Crucis and Ampney St Mary on the dip slope. Pasture dominates in the steep valley slopes and near the escarpment edge to the north and north-west of the project area where the hummocky

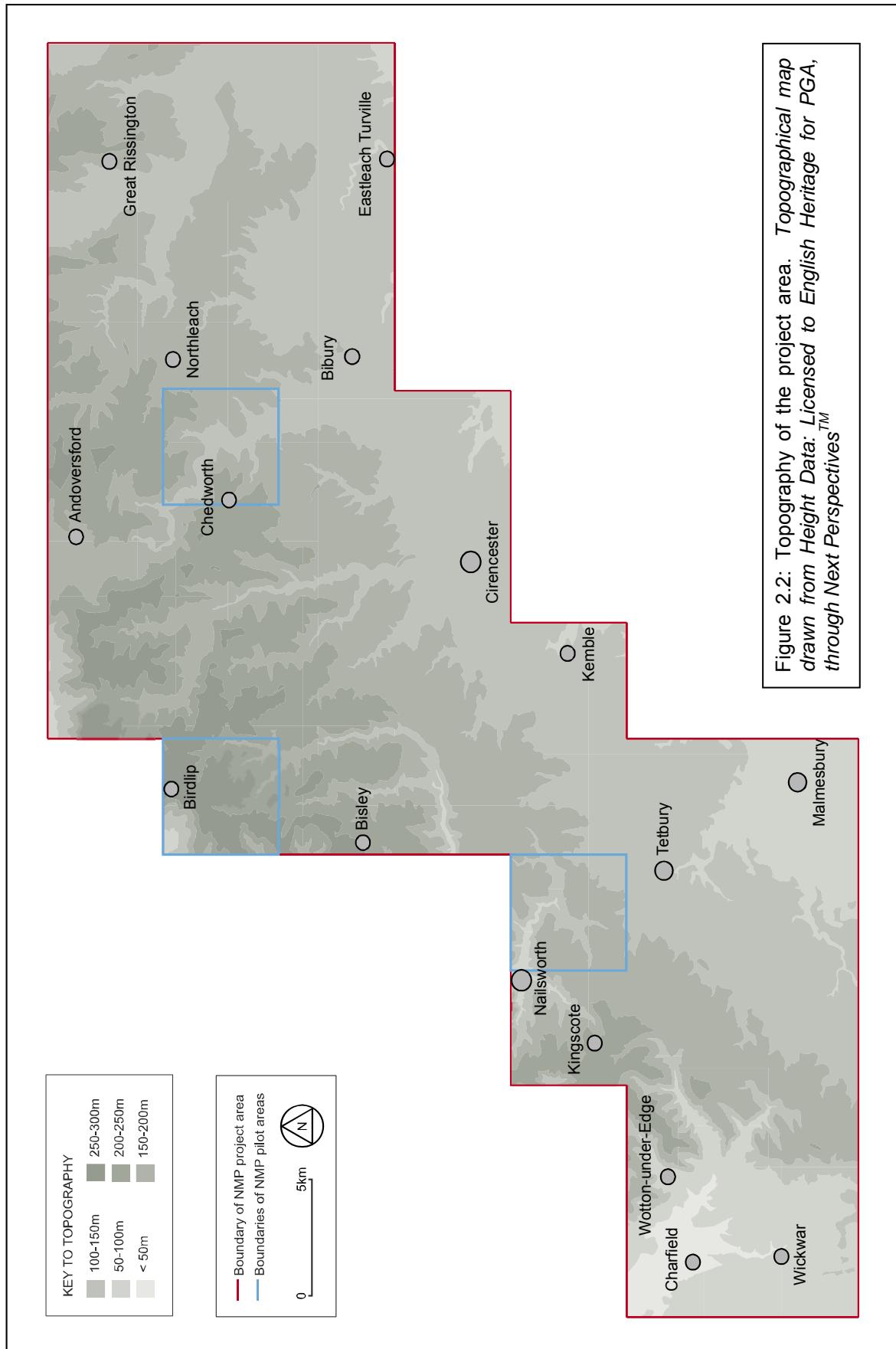


Figure 2.2: Topography of the project area. *Topographical map drawn from Height Data: Licensed to English Heritage for PGA, through Next Perspectives™*

Figure 2.2: Topography of the project area. *Topographical map drawn from Height Data: Licensed to English Heritage for PGA, through Next Perspectives™*

ground and steeper slopes are unsuitable for arable cultivation, though the archaeological evidence shows that attempts were made to cultivate these areas in the past. Strip lynchets are particularly visible on the steep valley sides to the west of the project area. Along the valley bottoms of the River Windrush, River Churn and River Coln are extensive systems of post-medieval water meadows, which still form a clearly visible part of the landscape. A good example can be seen at the recently restored meadows along the River Windrush within the National Trust Sherborne Estate.

Historically, patterns of drainage had a significant impact on the location of settlements, and many villages in the project area are located at bridging points on rivers and streams, at spring heads, and in valleys around shallow wells (Landscape Design Associates 2002: 17). Many other factors have influenced village development across the Cotswold Hills as discussed in detail by Pilbeam (2006: 97-108). These include social and economic changes such as the development of the textile industry (*ibid*: 104), which have affected some areas more than others; or severe episodes of disease, such as the Black Death of 1347-49 (*ibid*: 102, see also Chapter 7). Cirencester (the second largest town in Roman Britain) is the only settlement of any size within the project area and is the only one subject to major post-Second World War urban expansion.

The Cotswold Hills are crossed by many major routeways; a pattern originating in prehistoric times, with subsequent modifications, additions, and subtractions (Pilbeam 2006: 133). The straight Roman roads, many fossilised within the present landscape, are in contrast to some of the later winding routeways apparently established in medieval



Figure 2.3: A typical view of the Cotswold Hills; looking across the high wold and escarpment at Birdlip towards the low-lying flat Severn Valley in the distance. Ermin Street extends across this view from bottom right, towards Gloucester. NMR SO9413/17 NMR 23332/20 17-DEC-2003 © English Heritage (NMR)

times. Medieval and post-medieval roads across the Cotswolds followed the ridges, with feeder-lanes leading to and from the villages in the valleys (ibid: 139).

There is little large-scale non-agricultural modern industry within the Cotswold Hills. Examples of this, such as the textile mills, are confined to the edges of the Cotswolds proper and appear to have caused little expansion of the villages of the Cotswolds. However, there has historically been a long tradition of stone quarrying in the project area. The Inferior Oolite limestone, quarried for building stone is a creamy buff-coloured stone observed in villages throughout the Cotswold Hills (Landscape Design Associates 2002: 13). Most quarries tended to be small local affairs and have not made too much of an impact on the present landscape (Pilbeam 2006: 20). Extensive quarrying of Lower Limestone and the Lower and Upper Freestones of the Lower Inferior Oolite, has left a pockmarked and scarred landscape along the escarpment, for instance on Leckhampton Hill (Landscape Design Associates 2002: 14). There are a few large modern quarries, such as at Dodingworth, which have had a greater impact on the environment and landscape.

Second World War military activity has also left its mark in the present landscape, with nine original RAF airfields still visible in some form and retaining at least some of their military buildings. Many of these are still in use as civilian airfields and landing grounds, as at Kemble and Aston Down. However, most other structures and sites from the Second World War have been cleared or destroyed and so aerial photographs, some of which date from the 1940s, are particularly valuable in placing the surviving remains in context. Early aerial photographs also show earthworks which have now been levelled, such as ridge and furrow cultivation, as well as significant changes to the layout of field boundaries and the expansion of towns and villages. The aerial photographic record, consisting of aerial photographs taken at regular intervals, is therefore a valuable tool in assessing gradual processes of change in settlement and land use.

3 FACTORS AFFECTING THE AERIAL SURVEY

3.1 Introduction

The survival and visibility of archaeological sites is affected by geology, soils, and land use. The mapping and interpretation of such features from aerial photographs can be limited by a wide range of factors including extent of photographic cover; the scale of the photographs; an unfavourable time of day or year for optimal visibility; or climatic conditions such as haze (Wilson 2000: 47).

Within the Cotswold Hills NMP, buried archaeological evidence was visible as cropmarks, and above surface remains were seen as earthworks and structures. These archaeological features were interpreted and dated mainly from morphological characteristics and ranged in date from the Neolithic period to the modern era. Sites from this date range were evenly distributed throughout the project area. There was however a higher incidence of earthworks of medieval and post-medieval date, as opposed to any other periods (see Figure iii, Appendix 3).

3.2 Aerial photographs as a source for archaeological survey

When using aerial photographs as the source for an archaeological survey, it is important to consider the following points. Vertical aerial photographs often offer extensive landscape-wide 'blanket' coverage, and include prints dating from as early as the 1940s up to the present day. They are therefore a useful tool in studying the progression of changes over time within the landscape. For example, aerial photographs dating back to more than 60 years ago may show the original context of World War Two military remains which now exist in only a fragmentary state. Additionally, they may record military or other structures since removed without trace; or earthworks or even cropmarks which have subsequently been ploughed away. The disadvantages of vertical aerial photographs are that they were not generally taken for archaeological purposes, and therefore as well as being relatively small-scale, may not have been taken during the optimal climatic conditions, time of year, or time of day for the best visibility of cropmarks or earthworks.

Oblique aerial photographs tend to have been taken for a specific purpose, so often provide large-scale targeted coverage of a particular archaeological site or other feature of interest and can therefore offer a good level of detail. They are also likely to have been specifically taken at a good time of year for the visibility of cropmarks, or at the best time of day to reveal the presence of subtle earthworks. However, the targeted approach may introduce a degree of subjectivity into the aerial photographic coverage, with well-known monuments extensively photographed at the expense of less high-profile sites; or the true extent of a large-scale site being missed by 'zooming-in' on the main area. In general however, by its very nature the aerial viewpoint tends to provide a complete overview of an entire monument within its landscape setting; thereby minimising the possibility of omitting vital detail.

The extent of available vertical and oblique aerial photographic coverage may be affected by a range of factors. Apart from the comprehensive spread of Google Earth and PGA aerial photographs; the 1940s RAF vertical photographs tend to provide the most complete coverage of the entire project area. Runs of Ordnance Survey vertical

photographs are less consistently available, partly due to the fact that the OS only photographed areas where updates to their mapping were required. Targeted oblique aerial photographic surveys tend to be carried out in light aircraft and are often limited by airspace restrictions, such as the area around Aston Down Airfield, due to the activities of the Cotswold Gliding Club. Other restrictions may be based on security measures, as in the airspace over Highgrove House, Doughton, owned by the Prince of Wales. Considerations of security and safety also limit flying activity of this type in the vicinity of Kemble Airfield; RAF Brize Norton; RAF Fairford; and Staverton Airport at Gloucester, and as such there is less specialist oblique photography available for these areas.

When consulting aerial photographs it should be noted that archaeological sites, especially in the form of cropmarks, can vary in their appearance from year to year, or even from month to month. Different parts of an extensive complex may be visible on different aerial photographs, depending on the conditions at the time of photography. A common misconception is that a field which shows no evidence of earthworks or cropmarks on an aerial photograph must therefore be barren of archaeological remains. The complex factors affecting cropmark formation, or the visibility of ephemeral earthworks from the air mean that their absence on an aerial photograph does not necessarily equate to the absence of sub-surface archaeological remains. It is therefore important when carrying out a survey of this nature to ensure that the full extent of all available aerial photographic coverage, both vertical and oblique, is systematically viewed.

3.3 Factors affecting the detail visible on aerial photographs

As already mentioned above, the survival of archaeological remains depends in part on land use; a largely pastoral agricultural regime does little harm to extant earthworks or sub-surface remains, whereas long-term ploughing for arable cultivation can remove traces of past activity. Conversely though, the greater the extent of the crops; the greater the potential for cropmarks of archaeological sites which have survived the plough. The nature of the geology and soils of the region also plays a part in the visibility of archaeological remains on aerial photographs, as cropmarks are most clearly visible on light, freely-draining soils, such as those found on the high limestone plateau of the Cotswold Hills. The present land use of the majority of the project area is arable cultivation, which in combination with the soil types meant that most cropmark sites were observed in the area of the high wolds. As well as the geology, soils, and land use; cropmark formation is also dependent upon climatic conditions. For example, ditched features tend to show clearly in dry conditions on freely-draining soils, as they retain a higher percentage of moisture than the surrounding area. Cropmark formation is therefore dependent upon a complicated combination of factors.

Earthwork sites predominated within the pasture of the steep valley slopes and near the escarpment edge to the north and north-west of the project area. Earthworks in these areas have been preserved by the fact that large modern machinery is better suited to ploughing the wide level fields of the Cotswold plateau instead. Capturing the full extent of these earthwork remains on aerial photographs depends upon both the angle of light and the angle of photography. Often the best results are achieved in the low winter sunlight, with differential melting of snow or ice occasionally helping to reveal subtle detail. As mentioned in the previous section, the most comprehensive interpretation of a site will be gained by viewing the full range of available photographs, which may include shots taken from different angles, and under different conditions.

Both cropmarks and earthworks can be masked on aerial photographs by woodland or areas of settlement. As discussed in Chapter 7 there has been little settlement shift within the project area since the medieval period, meaning that the evidence of hundreds of years of occupation is not *necessarily* visible from the air in the case of the towns and villages due to continuous re-use of settlement areas. There are however numerous examples of areas of deserted, shrunken, or shifted settlement within the region (see Chapter 7); it is just that the current buildings may conceal further evidence from aerial photographs. However, the area of the Cotswold Hills has not been subject to large-scale urbanisation and is therefore fortunate not to have swathes of potential archaeological remains masked by modern development.

The extensive, and in some places dense areas of woodland within the project area, such as at Westonbirt Arboretum; Westmoor Wood; Swangrove and Cirencester Park masked archaeological features from the air. In the case of earthwork remains, the availability of lidar images *may* have helped if they had been taken in the optimum conditions. Lidar imagery was not, however, a source consulted for this project. In some cases, dense scrub and vegetation also prevented archaeological features from being recorded on aerial photographs. This was the case with a number of long barrows and round barrows, even where specialist oblique aerial photographs of the sites existed. West Barrow at Leighterton is a good example of this (NMR: 209221).

As mentioned above, the intensification of agriculture in the early to mid-20th century, specifically regarding arable cultivation, has meant that archaeological earthworks may have been destroyed by repeated modern ploughing. As already discussed, early aerial photographs may help to identify sites now lost in this way. Occasionally however, the removal of an earthwork site has the unexpected advantage of revealing the presence of earlier remains. This was the case on the southern side of the village of Farmington, where medieval settlement earthworks were plough-levelled revealing the cropmarks of an earlier, possibly Iron Age ditched enclosure beneath (NMR: 1507561).

Cropmark sites may also of course be lost to the plough, although it is important to reiterate here that due to the complex factors affecting cropmark formation; the absence of a cropmark does not equate to the absence of sub-surface archaeological features. Aerial photographs are just one example of a range of different sources available to archaeologists, and NMP data is therefore best used in conjunction with other techniques such as field survey, geophysical survey, documentary and/or cartographic research, as well as archaeological excavation.

It is not however, always the case that previously observed archaeological sites will inevitably be obliterated by modern land use. During the course of the project, it was also noted that some cropmark sites recorded during previous aerial reconnaissance were much more clearly visible on subsequent aerial photographs. This was observed to the south of Northleach, where in 1976 (RCHME 1976: 90) only fragmentary cropmarks of ditched enclosures could be seen. More recent aerial photographs have revealed the site in much greater extent and detail, including several possible Iron Age enclosures of 'banjo' type (see Chapter 6). This improved clarity is likely to be due to more favourable lighting and/or ground conditions.

4 THE NEOLITHIC PERIOD

4.1 Introduction

Results from the Neolithic period were characterised by funerary or 'ritual' monuments of which long barrows predominate. 64 possible Neolithic monuments have been recorded from aerial photographs of the project area (see Figure 4.1), with 13 of these sites newly identified during our survey. The previously unrecorded remains comprise nine possible long barrows visible as either cropmarks or earthworks; and the cropmarks of three possible henge sites and a possible mortuary enclosure. 43 Neolithic long barrows have previously been recognised within the project area, and the addition of nine possible further examples will enhance the distribution analysis of these monument types. Henge sites and mortuary enclosures are much less well-known generally, as well as within the Cotswold Hills, with only three henge sites previously having been identified within the project area, along with three mortuary enclosures. As such the identification of these possible new sites will greatly add to the understanding of Neolithic period activity in the region.

4.2 Long barrows

Long barrows, which generally date from the early-Neolithic period (3800 BC to 3000 BC) (Darvill 2004), are the most frequent form of evidence of the period visible on aerial photographs of the project area. Their occurrence in the region is so common that Cotswold-Severn long barrows form one of the main distinct regional groups for the country as a whole (Darvill 1988b: Section 4, 2004). Whether from the ground or from the air; long barrows have always been expected to be easily recognisable due to the fact that the majority of known examples survive as extant earthworks (see Figure 4.2). This is true even within areas of intense 20th-century arable agriculture, such as the long barrows south of Compton Grove (NMR: 327495) and West Barrow, north-west of Leighterton (NMR: 209221).

Neolithic long barrows exhibit a great deal of variation in regional type; although these differences are based on the variety and arrangement of internal characteristics (Darvill 1988b: Section 3) and as such are not visible from the air. Consequently, our study focuses on the distribution of this monument form within the landscape; rather than an analysis of the occurrence of different types of long barrow. However, it has been previously noted that the long barrow builders of the Cotswold region seemed to prefer the use of large quarry pits for mound material, rather than the flanking quarry side ditches adjacent to the mound commonly seen elsewhere (*ibid*). The fully excavated Hazleton North long barrow is an example of this (NMR: 327440).

Conversely, two probable and two possible examples of long barrows constructed with the use of flanking ditches were newly identified during this survey. In these cases it is in fact only the ditches which survive. They are visible on aerial photographs as wide parallel ditch cropmarks which are interpreted as having once flanked a now-levelled long barrow. In these instances it was the characteristic nature of the ditches which aided their interpretation as the remains of possible long barrows (Figure 4.4). The bulk of the long barrows mapped from aerial photographs however, did not display accompanying quarry pits or flanking ditches visible either as cropmarks or earthworks.

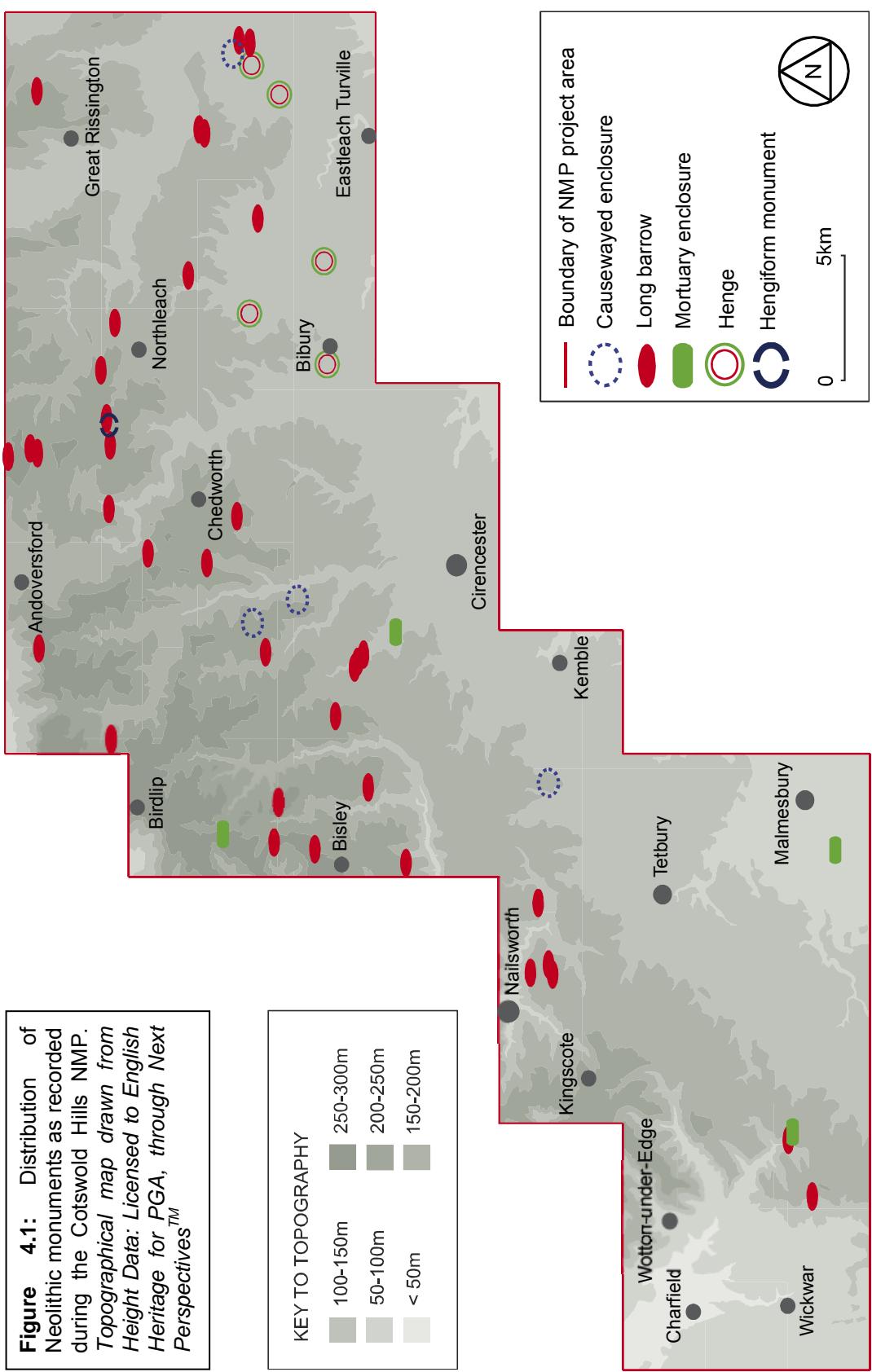


Figure 4.1: Distribution of Neolithic monuments as recorded during the Cotswold Hills NMP. Topographical map drawn from Height Data: Licensed to English Heritage for PGA, through Next Perspectives™

The main concentration of 52 potential long barrows is situated to the north and north-west of the project area, in the area of the high wold and towards the escarpment (see Figure 4.1). They are noticeably absent from the lower areas of the dip-slope, along the south-eastern edge of the project area. It is tempting to attribute such gaps in the distribution to subsequent land use (e.g. arable ploughing), particularly in view of the presence of levelled long barrows such as those described in the previous paragraph. However, the distribution of Bronze Age sites visible from the air, as illustrated in Figure 5.1, does not support such an argument as the areas devoid of Neolithic monuments conversely contain cropmark or earthwork evidence for dense scatters of possible Bronze Age round barrows.

Our patchy distribution of Neolithic long barrows (Figure 4.1) appears to concur with what has previously been observed by others (Darvill 2004, Barker & Webley 1978, Holgate 1988: 11, 1987), in that their situation within the landscape seems to favour raised ground, although not the very highest points. Where they have been found elsewhere in the country in river valleys or on other low-lying ground; they tend to occupy raised positions within these areas (Darvill 1988b: Section 4). Discoveries such as the Haddenham long barrow are the exception to this rule, as it was sealed below superficial deposits on the edge of the Cambridgeshire Fens (*ibid*). As such we cannot rule out the presence of long barrow remains on lower ground, although the generally expected locations, as well as our findings, indicate sites on higher ground.

As well as their obvious role in funerary rituals, it is also thought that long barrows may have served as territorial markers within the landscape (Darvill 1988b: Section 3, Darvill 2004: 187). Such a function seems likely to have required locations on higher ground, which coincides with our distribution. However, Darvill (2004: 211) notes that “if the environmental evidence is right, most [long barrows] lay in woodland clearances rather than in open country, and thus people must have stumbled upon them rather than admired them from afar”. This information appears contradictory, and highlights the fact that the siting of long barrows may be due to other factors not yet fully understood.

Nine additional long barrows recorded within the NMR database for the project area were not visible on the aerial photographs. This was mainly due to masking by tree cover or dense vegetation. In some cases it was because the earthworks had been levelled, presumably deliberately, before all traces were apparently ploughed away. Alternatively, as explained in Chapter 3, any remaining sub-surface traces of those particular long barrows may not show on aerial photographs due to unsuitable ground or lighting conditions at the time of photography. Some monuments were known only from the remains of a chambered tomb or stone slab, often not in situ, and so were not visible on the available aerial photographs.

The long barrow to the west of Miserden (NMR: 117204), within our project area, is an interesting example. At the north-western end of the barrow there appears to be a circular feature visible as a cropmark on aerial photographs taken in 1989 and 1976. This feature appears to overlie the long barrow and therefore post-date it. It is unclear whether this is the result of modern agricultural activity, or whether it is perhaps a further archaeological feature, such as a later round barrow. Further investigation is certainly required but a similar arrangement of Neolithic and Bronze Age barrows is known at Beckhampton Road, Wiltshire (WHER: 27, NMR: 215662). Alternatively, the circular feature may be an earlier funerary monument, such as a rotunda burial incorporated into the later long barrow, as is known at Sale's Lot, Withington (NMR: 327495), also recorded as part of this project. Notgrove Long Barrow (NMR: 327920), west of Bourton-on-the-Water, is a further example of this, and lies just to the north of the project area.

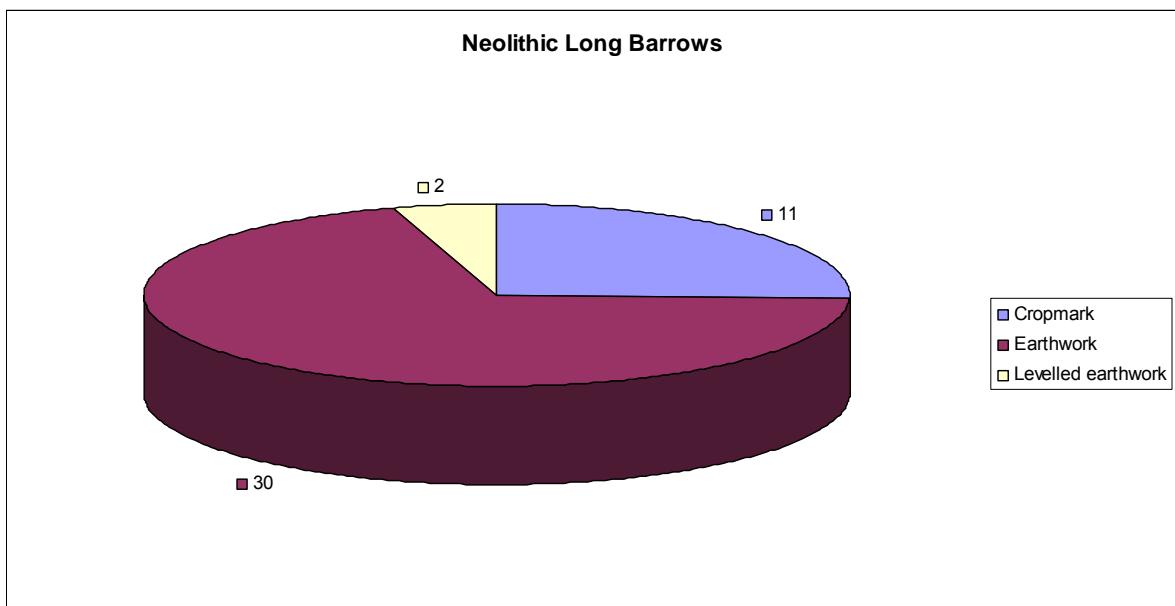


Figure 4.2: The state and number of the Neolithic long barrows visible on the aerial photographs within the project area. The two now visible as levelled earthworks were originally visible as earthworks on the earliest photographs.

Long barrows certainly did not exist in isolation in the Neolithic landscape (Darvill 2004: 187); and their relationship to possible contemporary or later sites and monuments will be discussed in more detail below.

4.3 Mortuary enclosures

Neolithic mortuary enclosures date from the early to mid-Neolithic period (3200 BC to 2500 BC), and in contrast to long barrows are regarded as a particularly rare monument type (Darvill 1988c: Sections 2&8). Consequently, the small quantity of only four possible mortuary enclosures visible on aerial photographs of the project area is not unexpected. All four examples were first identified as cropmarks from aerial photographs; three during a project conducted in 1993 (NMR: 918254, 1001586, & 984241); and one from our own archaeological aerial survey (NMR: 1512449). The identification of such sites from aerial photographs is notoriously problematic, as they are likely to be confused with the remains of long barrows or oval barrows (Darvill 1988c: Section 3). This may in part explain the apparent low incidence of mortuary enclosures within our project area and elsewhere. It should be noted that the possible new example identified during our project has been only very tenuously interpreted as a Neolithic mortuary enclosure; especially as most unusually the remains of the inner bank are visible on aerial photographs.

One of the previously identified possible mortuary enclosures (NMR: 984241) lies in close proximity to a Neolithic long barrow (NMR: 205049) also mapped from aerial photographs as part of this NMP project (see Figure 4.3). The enclosure is located just to the north-west of Starveall, and is situated approximately 55 metres to the south-east of the long barrow. Although mortuary enclosures are best known in combination with later bowl barrows or round barrows (Darvill 1988: Section 7), this possible association with what may have been a contemporary long barrow lends support to the theory that mortuary enclosures may have served as sites for the excarnation of bodies, prior to the inclusion of

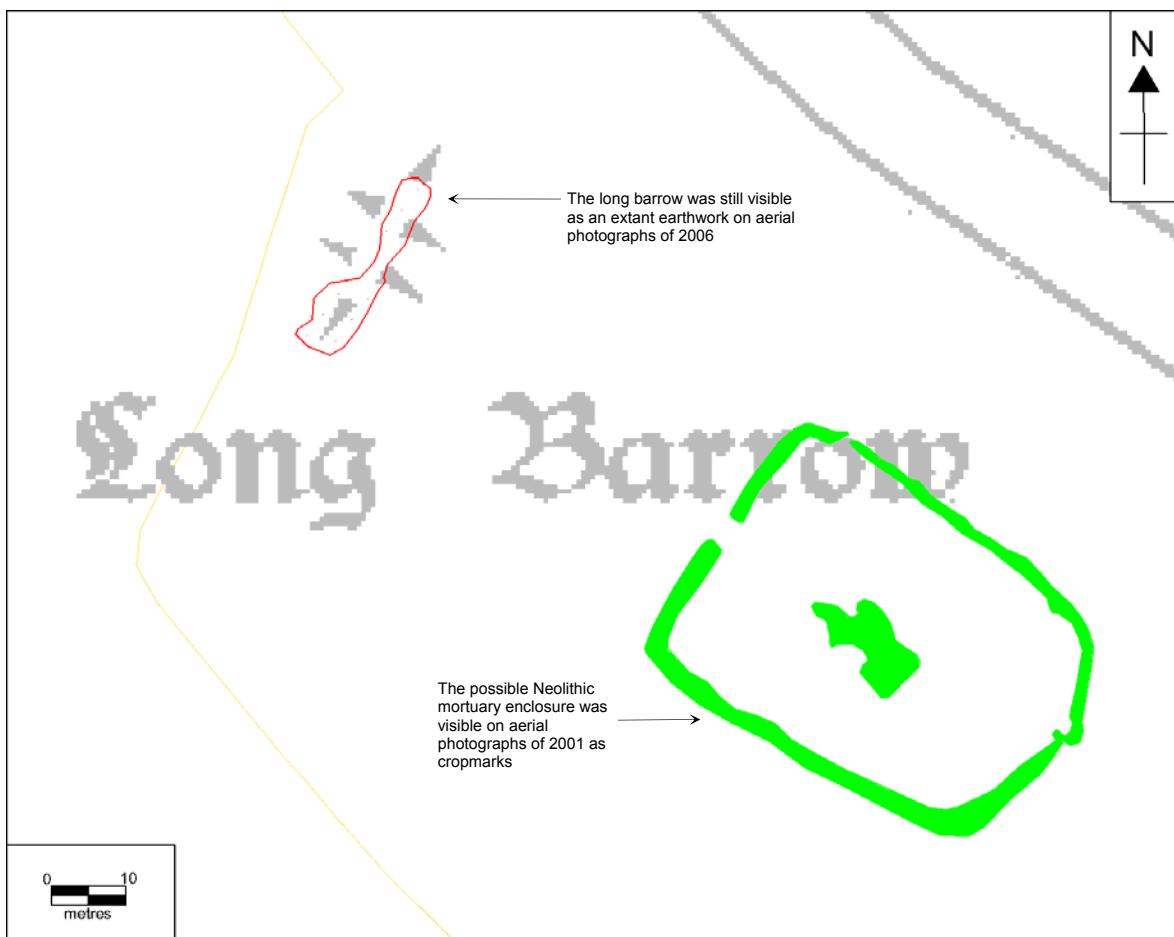


Figure 4.3: The Neolithic long barrow (NMR: 205049) and possibly contemporary mortuary enclosure (NMR: 984241) to the north-west of Starveall. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

the bones within a long barrow (Darvill 1988c: Section 3). Additionally, the mortuary enclosure is aligned at a right-angle to the long barrow, which suggests a deliberate planned placement of the two monuments in relation to one another, although it is also possible that this may be coincidental.

All four possible mortuary enclosures identified as part of the Cotswold Hills NMP survey lie within the western half of the project area. As illustrated in Figure 4.1, this is an area of varied terrain including sites on both the dip-slope and at the top of the escarpment. This corresponds with what is known of mortuary enclosures elsewhere, in that they have been identified from a range of topographic locations. Clearly though, a sample size of only four mortuary enclosures is too small to allow a detailed analysis of their distribution within the landscape; although the contribution of aerial photography to the knowledge of the Neolithic in this area should not be underestimated as without this form of archaeological survey, none of these examples of this rare type of site may have been as yet identified.

4.4 Henges / hengiform monuments

Neolithic henges, also referred to as hengiform monuments or hengiform ditches depending on their size (Darvill 1989: Section 1), are not regarded as a common form of prehistoric monument (*ibid*: Section 5). Therefore as noted for mortuary enclosures above, the presence of a relatively small group of in this case only six examples within the project area is not unusual. Five of these sites were originally recognised through the use of aerial photography, including three new possible examples as a result of this NMP project (NMR: 1496805, 1494339, 1493476). Although most recently identified henge sites have been found on aerial photographs (Darvill 1989: Section 4), caution should be exercised when locating new sites in this way, as they may easily be confused with ring cairns; enclosed cemeteries; fancy barrows; enclosed settlements; Roman signal stations; Roman amphitheatres; and windmill mounds (*ibid*: Section 1). However, as was also noted with mortuary enclosures; the contribution of aerial photography to the state of knowledge of the Neolithic period in this area should be highlighted, as it has dramatically increased the number of possible henge sites known.

Henges are found widely across southern England, particularly on areas lying below 125 metres AOD (Darvill 1989: Section 4). The six possible henges or hengiform monuments seen on aerial photographs during our survey are all located within the eastern half of the project area. This region is characterised by the gentle south-east-facing dip slope, which is lower-lying than the Cotswold Escarpment to the north-west. Five of the henges are located between 100 to 150 metres AOD, with only one found between 200 to 250 metres

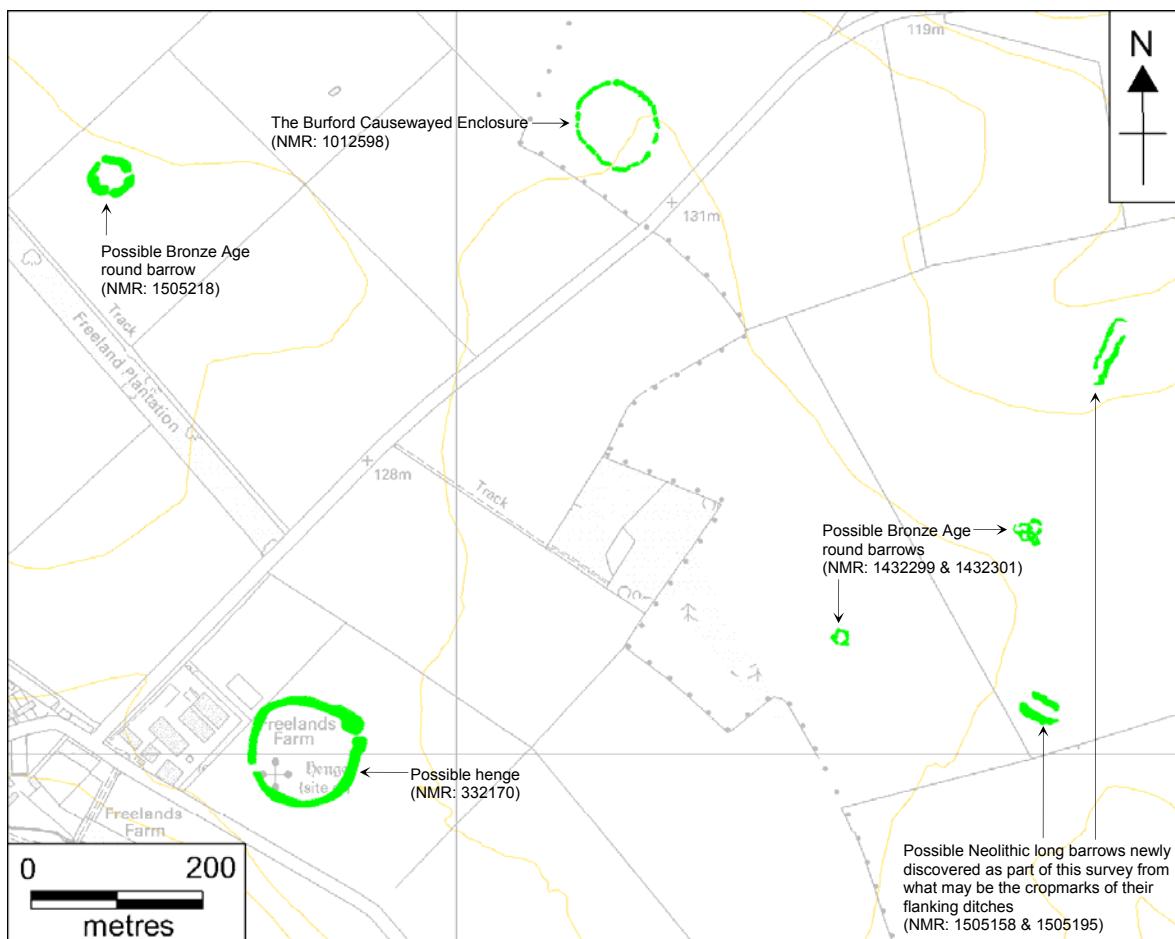


Figure 4.4: Neolithic and Bronze Age monuments to the south-west of Burford. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

AOD. This appears to approximately correspond with the types of locations observed elsewhere, although a group of only six henges is a rather small sample size with which to attempt a meaningful analysis of distribution.

Although the sample size is small, it was possible to note from the aerial photographs that we appear to have four possible Type I henges (with a single entrance), and two possible Type II henges (with a pair of opposed entrances). Types I and II are the most common henge forms seen elsewhere, and as is the case here, tend to be found together (Darvill 1989: Section 4).

Henges which have been dated from radiocarbon evidence, or from pottery or other finds have been found to originate in the Late Neolithic period (2500 BC to 1700 BC) (*ibid*: Section 2). This date range raises the possibility of a chronological overlap with the last use of long barrows, and it has therefore been suggested that henges were perhaps a way of highlighting the significance of ancient landscapes (Darvill 2004: 195-6). A possible association with other contemporary site types may also be explored, as flint scatters near some henges elsewhere have been suggested to indicate that settlement sites may be found nearby (Darvill 1989: Section 7). The possible relationship of rarely-identified Neolithic settlement sites to other monument forms will be discussed below.

4.5 Settlement / occupation

Evidence of settlement or occupation dating to the Neolithic period is particularly rare; even though it might be expected that the gradual transition to a slightly more settled way of life (in comparison to the Mesolithic hunter-gatherer model) (Darvill 2006: 18) might yield an increase in such sites in the archaeological record from this point forward. During our archaeological aerial survey we could not identify a single Neolithic settlement site from aerial photographic evidence alone. The reason for this dearth of settlement evidence is reasonably self-explanatory, as the transient and insubstantial nature of such sites of this period make it unlikely for their remains to be strongly detectable after the intervening millennia; if they even survive at all.

However, Neolithic findspots, flint scatters and the more visible and enduring type of Neolithic monuments, such as long barrows have all been suggested to signify contemporary nearby settlement (Darvill 2006: 49). The increase in numbers of all three of these forms of evidence in the region of the Cotswold Hills may therefore indicate that the area was fairly well populated during the Neolithic period (*ibid*: 49, 201). An analysis of flint scatters in the region has concluded that assemblages including certain types of flint artefacts in particular are likely to be indicative of a former settlement site (Darvill 2004: 196-7). Based on an extrapolation of the sample size of that study; it has been proposed that each long barrow within the Cotswold Hills region could have been linked to a nearby settlement (*ibid*). Holgate (1988: 150-3) believes that this occupation of the landscape was continuous from the end of the Mesolithic period, throughout the Neolithic through to the Early Bronze Age.

Although such settlement sites are rare; examples within the project area are known from excavation. An archaeological evaluation at Cirencester Park Polo Ground (GHER: 22292) identified Neolithic features at a shallow depth which appeared to represent some form of occupation (Nichols 2004). As mentioned at the start of this section, such remains are unlikely to be visible on aerial photographs due to their small-scale and ephemeral nature. Archaeological remains of this scale are also much more susceptible to later

plough-damage than the types of Neolithic monuments discussed above, such as long barrows. Pits and postholes might be expected at these types of sites, but even if they have survived; unless they form a substantial and extensive site they are unlikely to be detected by aerial survey. As discussed in Chapter 2 (Section 2.2), the prolific small-scale and relatively modern limestone extraction characteristic of the Cotswold Hills region means that small pit-like features, where they were visible on aerial photographs, were usually excluded from our mapping (Grubb 2007).

Occasional examples of Neolithic settlement survival do occur in the region of the Cotswold Hills, as at Cirencester Polo Club, in addition to more unusual circumstances. Excavation between 1979 and 1982 revealed a well-preserved site of early Neolithic occupation safely sealed beneath the Hazleton North long barrow (NMR: 327440), in the northern part of our project area. As long barrows consist of few cut features other than the accompanying quarry pits or ditches (Darvill 1988b: Section 6); the remains of this settlement survived intact, including: a midden; post-holes of a possible structure; a hearth; and post-holes of a fenceline; as well as finds of ceramic vessels; quern stones; flint tools and flint-working waste (Saville 1990: 14-22). Similar examples of Neolithic settlement preserved beneath stone-built monuments have been found at Sale's Lot, Withington (Darvill 1982: 60-1, Darvill 2006: 20), within the NMP project area; as well as at Crickley Hill, Coberley (Dixon 1988: 78, Darvill 2006: 20), just to the west of the project area.

These sites were all dated on the basis of firm stratigraphical evidence, and benefited from being preserved below substantial monuments which were much more likely to survive a maximum 6000 years or so of subsequent land use, including arable ploughing in particular. As noted above, even if they had by chance remained undisturbed since the Neolithic period; it is unlikely that any cropmarks produced by the remains of a small-scale early farming settlement of the period would be either remarkable or substantial enough to be recognised through aerial photography. The significant conclusion of all the work discussed above, however, is that these elusive settlement sites may be inferred by the remains of contemporary monuments of considerably greater scale, such as long barrows, mortuary enclosures, and henges; all of which may be seen on aerial photographs. Such monument types also include Neolithic causewayed enclosures, which may have themselves formed settlement sites, and which will now be discussed below.

4.6 Causewayed enclosures

Causewayed enclosures date from the Mid-Neolithic period (Darvill 1988a: Section 2), and where excavated have been shown to contain evidence of either permanent or seasonal occupation; although ceremonial features and human bone are also known from these sites (*ibid*: Section 3, Darvill 2004: 203). Some of the more esoteric interpretations suggested for these rare monument types, such as: ceremonial centres; cattle compounds; or mortuary sites have been based on the initial apparent absence of interior features. The lack of archaeological remains within the enclosures is however likely to be attributable to thousands of years of erosion and subsequent land use (Darvill 1988a: Section 3). Some causewayed enclosures were later re-used as Iron Age hillforts due to their preferential position within the landscape, and it is this kind of activity, rather than a lack of original occupation, which is likely to account for the lack of internal Neolithic-period remains in some cases (*ibid*: Section 5).

The segmentation of the ditch or concentric rings of ditches is the most characteristic feature of Neolithic causewayed enclosures (Darvill 1988a: Section 3). Due to their considerable scale, they are the elements most likely to survive to the modern day, as well

as reveal themselves on aerial photographs. The bank originally inside the ditch is not often visible either as earthworks or cropmarks. It has been noted that archaeological aerial survey tends to account for the majority of new discoveries of sites of this type, and indeed the four known examples within the NMP project area were all previously identified this way (NMR: 1073061, 327248, 918362, 1012598). Aerial survey has therefore once again formed a significant contribution to knowledge of the Neolithic period in this region.

The small quantity of only four possible causewayed enclosures within the project area is not unexpected, as this type of site is regarded as rare (Darvill 1988a: Sections 5&8) in comparison to the contemporary long barrows which contrastingly form a characteristic component of the archaeology of the Cotswold Hills. Causewayed enclosures are most well-known from southern, south-western, central, and eastern England, particularly the Upper Thames Valley and Cotswold districts. They have been found in a variety of landscape positions, but when seen on lower-lying ground they tend to occupy local promontories (*ibid*: Section 4). The locations of the four examples within the project area appear to fit this pattern, as they occupy a range of locations on the south-east-facing dip slope, away from the highest point of the Cotswold Escarpment; ranging from 100 to 150 metres AOD to 200 to 250 metres AOD in elevation (see Figure 4.1).

Close links have been suggested between the monument types of causewayed enclosures and long barrows. It has been previously noted that long barrows are often found within two to three kilometres of a causewayed enclosure (Darvill 1988a: Section 7), which largely concurs with our findings. The Burford causewayed enclosure (NMR: 1012598) is within 600 metres and 770 metres to the north-east of two long barrows newly-discovered as part of this NMP project (NMR: 1505158, 1505195, see Figure 4.4). The fairly well-known Southmore Grove enclosure (NMR: 918362) has two long barrows located just under 3 kilometres to the north-east (NMR: 327707, 1512391). A long barrow to the NNW of Woodmancote (NMR: 117114) lies 1.2 kilometres to the WSW of the Southmore Grove enclosure, as well as 2.4 kilometres from the possible causewayed enclosure to the west of North Cerney (NMR: 327248).

If this enclosure form does indeed represent either seasonal or permanent Neolithic occupation, their distribution in relation to long barrows also agrees with the observation that although long barrows seem to be linked to contemporary settlements; it is thought that they were situated at a detached point from them (Darvill 2004: 210-211). Close links in terms of the role or function of such sites have also been suggested on the basis of the kind of human skeletal remains found at both long barrows and causewayed enclosures (Darvill 1988a: Section 7). Isobel Smith observed that the kind of human bones absent from the assemblage at West Kennet long barrow (generally skulls and upper limb bones) in Wiltshire were perhaps not coincidentally the types of bones found in the ditch fills of the nearby Windmill Hill causewayed enclosure (1965: 137).

When using archaeological aerial survey to either locate or study Neolithic causewayed enclosures, the following points should be borne in mind: excavation or other further investigation sometimes reveals a greater number of ditch circuits than visible on aerial photographs; and interpretation can be confused by the large overall size of these monuments, meaning that not necessarily every part of the site will be visible on aerial photographs due to differential ground or lighting conditions. In addition; natural banding in certain types of underlying geology can often cause cropmarks which resemble causewayed enclosures; and they may also be confused with segmented ditches, ring ditches, or pit circles (Darvill 1988a: Sections 1&3). Nevertheless, investigation through aerial photography remains a vital tool in the identification of this rare monument form, as is demonstrated here by the fact that none of the four examples within the NMP project area may be currently known-of without this survey type.

5 THE BRONZE AGE

5.1 Introduction

As noted for Neolithic period remains, above, Bronze Age sites recorded during this NMP project relate almost exclusively to funerary practices. The survey identified 105 previously unknown potentially Bronze Age monuments, predominately round mounds or ring ditches. This is in addition to 130 possible Bronze Age sites previously recorded within the project area; totalling 235 features thought to be of this date known either from aerial survey or other means (Figure 5.1). Ring ditch cropmarks interpreted as the remains of levelled Bronze Age round barrows were particularly common, but it should be noted that such cropmarks may alternatively represent a range of different features (Wilson 2000: 104), such as a post-medieval windmill mound or stack-stand, dependent upon size.

The occurrence of ring ditch cropmarks in conjunction with other archaeological features, as well as their topographical location, may aid interpretation. Many of the ring ditches recorded within the survey area may once have surrounded Bronze Age burial mounds ranging from five to 45 metres in diameter. However, there is a morphological overlap between barrows of the late Neolithic period and the Early Bronze Age, and as such it is likely that some of the mounds and ring ditches recorded as Bronze Age round barrows as part of this survey may upon further investigation be shown to have Neolithic origins.

The significant increase in quantity from monuments of possible Neolithic to Bronze Age date within the project area is striking, although not unknown, as a similar pattern was observed during the Thames Valley NMP project (Fenner 1995). It is possible that this may be explained by a population increase, perhaps attributable to climatic improvement during the Early Bronze Age, which brought warmer and drier conditions (Darvill 1987: 94). In addition, the focus of burial ritual in the Bronze Age seems to have shifted towards the individual; as opposed to the communal burials of the Neolithic period. This may in part explain the rise in the occurrence of burial mounds from this point forward (*ibid*). However, this is a simplistic overview, and the apparent increase from the Neolithic to the Bronze Age in the numbers of burial mounds is likely to be due to a complex range of factors, and is a topic therefore beyond the scope of this NMP report. Our intention here is to highlight the contribution of aerial survey in terms of supplying significantly increased quantities of possible Bronze Age data for future further investigation and analysis.

Linear features and field systems, detectable on aerial photographs as both cropmarks and earthworks are often provisionally dated to the Iron Age or Roman period (see Chapter 6, Section 6.2.1). It is worth noting however that the use of these sites may have originated in the Bronze Age (see Section 5.3, below). Such differentiation is rarely possible on the evidence visible on aerial photographs, unless the features in question occur in conjunction with cropmarks or earthworks firmly recognisable as Bronze Age in date. Further investigation, possibly excavation, would be required to ascertain the origin of such remains.

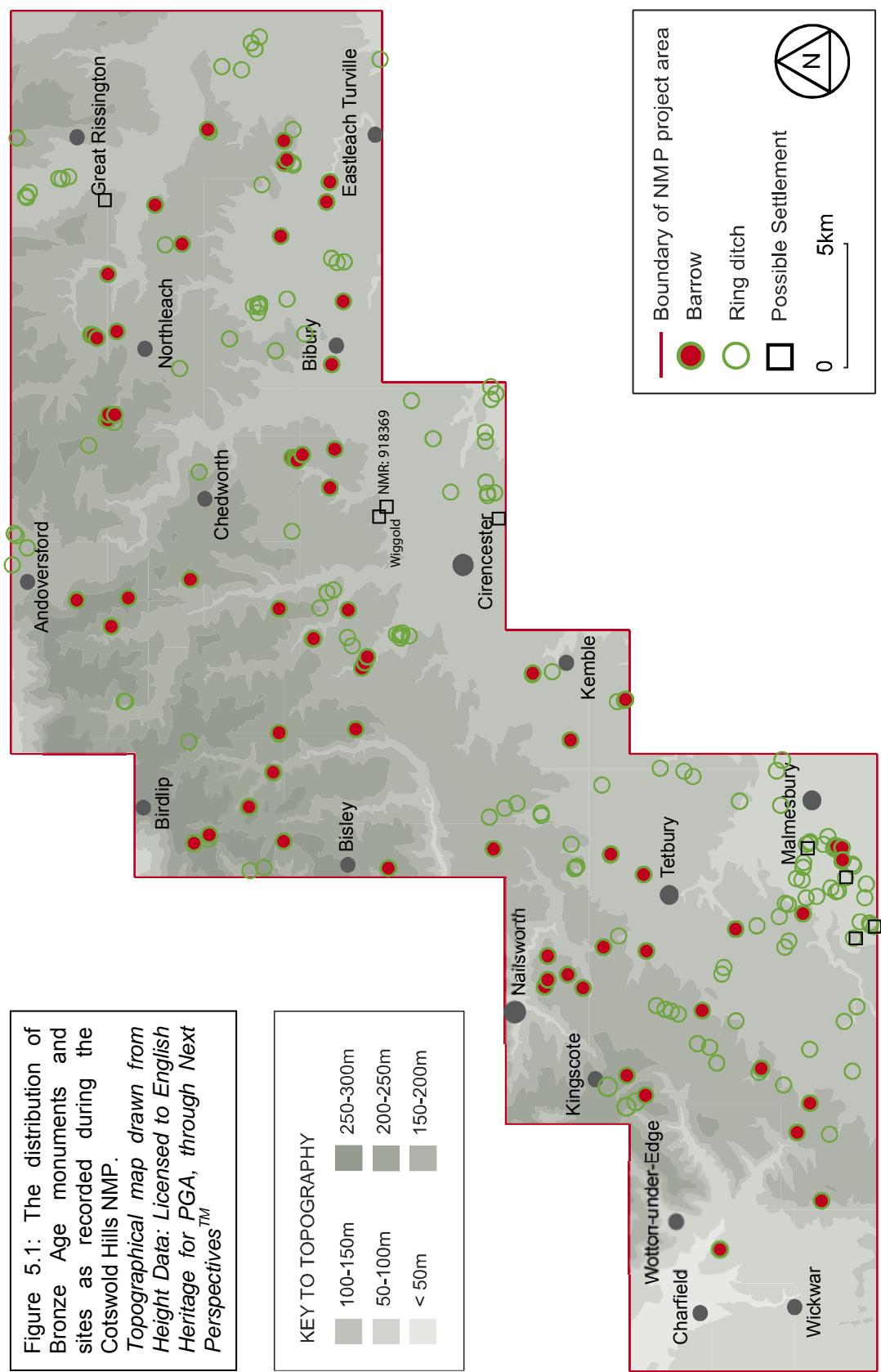


Figure 5.1: The distribution of Bronze Age monuments and sites as recorded during the Cotswold Hills NMP. Topographical map drawn from Height Data: Licensed to English Heritage for PGA, through Next Perspectives™

5.2 Funerary monuments

The distribution of Bronze Age barrows and potential barrows (ring ditches) is relatively evenly spread throughout the project area (see Figure 5.1). There are some concentrations, notably around Malmesbury, where there is also evidence of possible Bronze Age settlement. The highest proportion of possible round barrows (visible as ring ditch cropmarks) within the project area occurs on the south-east-facing dip slope, away from the highest ground of the Cotswold Escarpment. There is a noticeable 'blank' zone at the western end of the survey area, around Wickwar and Charfield, where no barrows were identified from aerial photographs as either earthworks or cropmarks. This is a low-lying district characterised by clayey soils with impeded drainage; subject to a degree of waterlogging. During the Thames Valley NMP project, based on aerial photographic evidence it was also observed that such areas appeared to have been avoided by the Bronze Age barrow builders (Fenner 1994:152). However, it should also be noted that these types of poorly-draining soils are generally not conducive to cropmark formation (see Chapter 3, Section 3.3), and indeed very few cropmarks sites dating to any period were identified from aerial photographs of this area. This low-lying area is also a region where many blocks of medieval and post-medieval ridge and furrow were still visible as earthworks on the earliest aerial photographs. It is therefore possible that cropmarks of earlier buried features, such as ring ditches representing Bronze Age round barrows, may become visible in optimum conditions during future aerial reconnaissance (see Chapter 3, Section 3.3).

Of the 235 new and existing NMR records for Bronze Age sites within the project area; only 69 were round barrows which were visible on aerial photographs. Further examples previously recorded were not visible through this survey means. This may be attributable to a range of factors, such as tree cover or recent destruction, as previously mentioned in Chapter 4, Section 4.2 in relation to Neolithic long barrows. Many Bronze Age round barrows were first discovered in the 1800s or early 1900s and were subsequently damaged by excavation or robbing. Many more have been levelled or much denuded by continual ploughing so that they were not visible on the aerial photographs, and others still were obscured by vegetation. One round barrow east of Bowdown Wood (NMR: 209224), was visible as a spread of fresh soil on aerial photographs from 1946/47, having been deliberately levelled sometime during the war. Some existing records for round barrows have erroneous grid references or have been mistakenly duplicated over the years; where possible these records have been updated to reflect their correct location.

5.3 Settlement evidence

A ditched enclosure to the south-east of Wiggold Farm (NMR: 918369; GHER: 29474) was dated to the Bronze Age through excavation in 2008 and has been interpreted as a Martin Down style enclosure (Darvill 2009). It is the only settlement site of this period visible on aerial photographs of the project area (see Figure 5.2). The settlement is partly enclosed by ditches on three sides with a possible entrance in the southern side; which is an arrangement similar to a Martin Down style enclosure known at Boscombe Down, Wiltshire (*ibid*, Stone 1936). A probable waterhole or pond appears to lie in the centre of the supposed entrance to the enclosure, which would have divided access to the interior into two pathways. This waterhole was therefore perhaps placed here as a form of stock management (T Darvill pers comm).

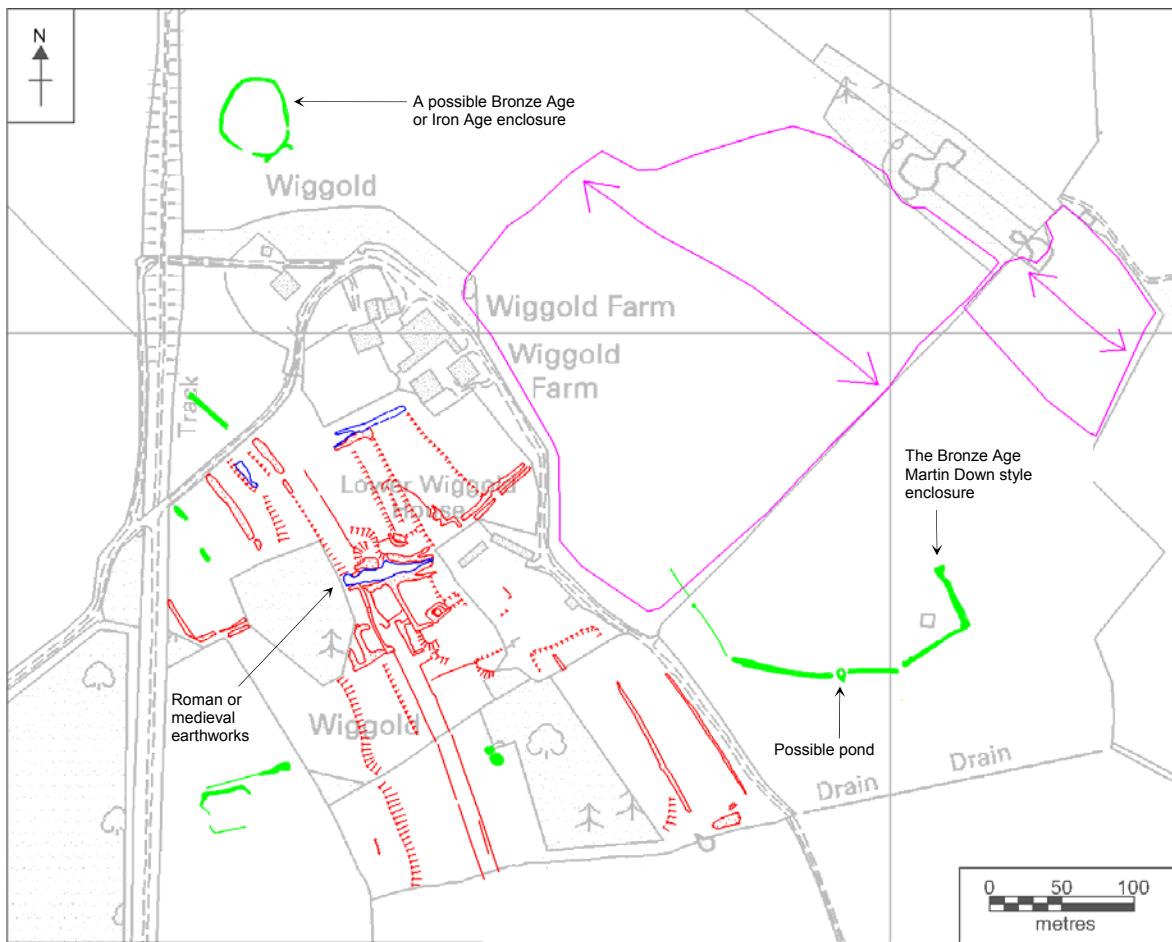


Figure 5.2: The Bronze Age settlement at Wiggold, with the three-sided Martin Down style enclosure to the right. The oval enclosure to the north of Wiggold may be part of the wider Bronze Age landscape or perhaps a later Iron Age enclosure. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

Other enclosure features and possible hut circles (defined as cropmarks of penannular ring ditches) were also mapped from aerial photographs as part of this project. These sites are difficult to date from morphological evidence alone and many of the examples discussed below may be of Iron Age or later date but have been highlighted as having possible earlier origins, due to the fact that some elements of their layout or appearance do not quite fit the pattern expected of Iron Age remains. The enclosures near Great Rissington (NMR: 329878) and to the west of Malmesbury (NMR: 1001685), which both contain the cropmarks of possible levelled Bronze Age barrows are examples of this. A series of possible field boundaries appear to underlie the Iron Age hillfort, Ranbury Ring, in Ampney St. Peter (NMR: 918391), suggesting an earlier, possibly Bronze Age date for the field system. This is the only field system to be tentatively assigned to the Bronze Age period within the project area (Figure 5.3).

The lack of Bronze Age settlement evidence from cropmark sources is not unexpected, due to the likely ephemeral nature of these sites. As discussed for settlement of the Neolithic period (see Chapter 4, Section 4.5), remains may consist of pits, postholes, and possible enclosure ditches which may not be of large enough scale to reveal themselves either as cropmarks or earthworks on aerial photographs, even under ideal conditions. Additionally, as opposed to the much larger monumental remains of the period, such as round barrows, these relatively insubstantial sites are less likely to have survived subsequent land use up to the present day. This lack of Bronze Age settlement evidence

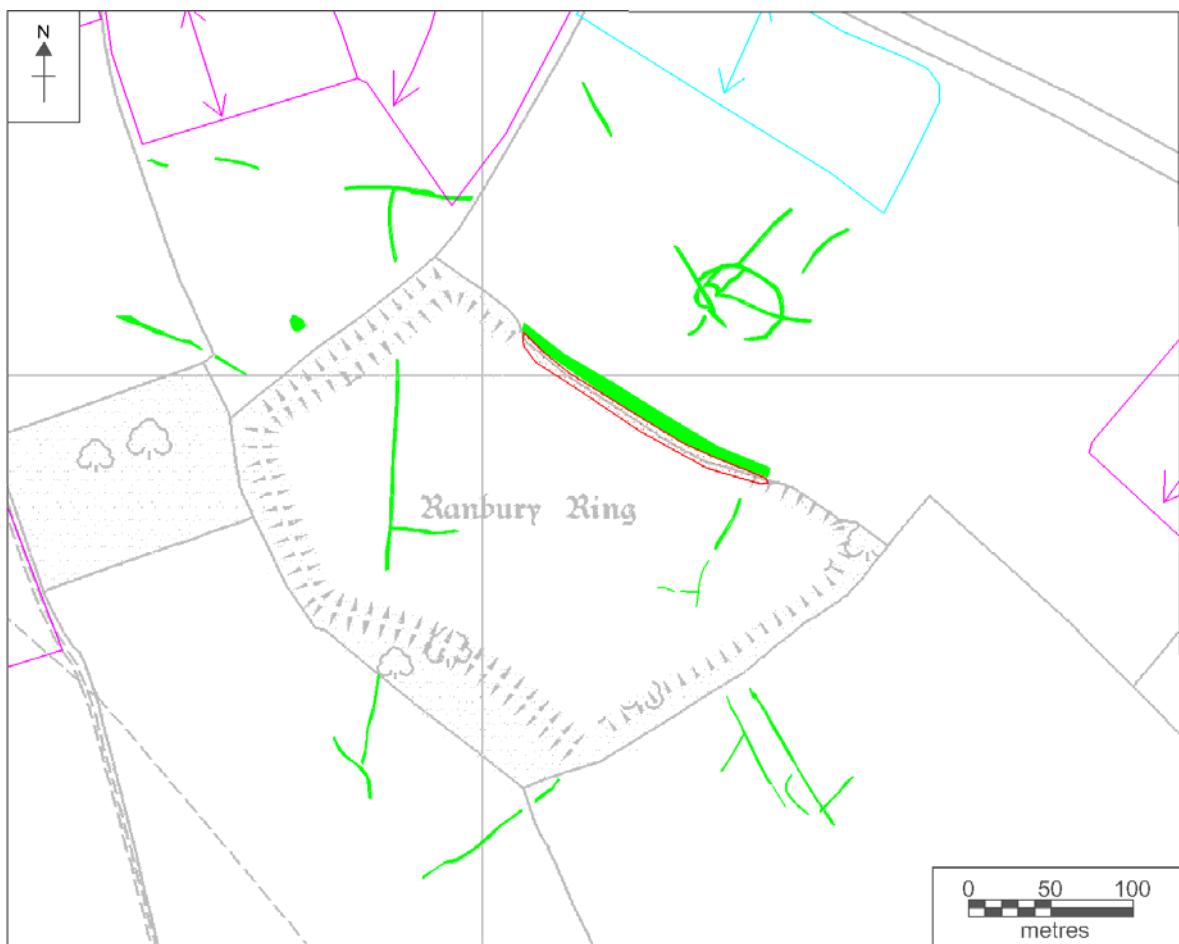


Figure 5.3: The possible pre-Iron Age field system visible underlying the Iron Age hillfort, Ranbury Ring. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

is a pattern mirrored in the Thames Valley (Fenner 1994:151-12) and North Cotswold Hills NMP (report forthcoming).

During this NMP project, the number of known sites of possible Bronze Age date was significantly enhanced; from 130 to 235. The 105 potential new sites of a range of types reflects a dramatic increase to the extent of known Bronze Age activity within the area. It is likely that this contribution from aerial survey will facilitate future investigation into the distribution of these individual types of sites, as well as the study of potential associations between them.

6 THE IRON AGE AND ROMAN PERIODS

6.1 Introduction

There is extensive evidence for the Iron Age and Roman period in the project area, as shown in Figure 6.1. Particular types of archaeological features, such as rectilinear enclosures or field boundaries, can extend in date across the Iron Age and Roman periods, and may even have their origins in the Bronze Age (see Chapter 5, Sections 5.1 & 5.3). Therefore, the survey results for the Iron Age and Roman periods are discussed together within this chapter. Some types of site, such as hillforts and villas can be more confidently placed in a chronological framework, and will be discussed independently.

6.2 The Early Iron Age to Late Iron Age (800 BC to 100 BC)

While the results for the Bronze Age are dominated by funerary practices, the evidence for the Iron Age is overwhelmingly domestic in nature. Enclosures, unenclosed settlements and (to a lesser extent) field systems dominate the archaeology within the Cotswold Hills project area. There is some evidence elsewhere that settlement locations and sites which were in use in the Iron Age period had a long history of occupation stretching back into the Bronze Age and Neolithic, and similar morphological site types, like the ring ditches of hut circles, can make period identification difficult. However most settlement sites such as this within the project area are discussed within this chapter.

In general, the broad chronology and social development of the Cotswolds has been bracketed in regional syntheses with the chalkland of central southern England (Cunliffe 2005: 588-594), or the Forest of Dean, south-eastern Wales and northern Somerset (Moore 2006a: 2), and has also been compared to the Upper Thames Valley (Hingley 1984: 77). While there clearly are regional similarities, there are also local patterns of development within the Cotswolds. There are methodological problems in comparing the project area with nearby areas such as the Upper Thames gravels which has had such a long and extensive history of investigation (Cunliffe 1991: 228-34 in Parry 1998: 53), much of which has been based on development-led archaeology (Allen *et al* 1997). Similarly, the 'core areas' of Wessex have had a great deal of research-led archaeology, leading to the Cotswolds area being considered as a periphery to both of these better studied and understood areas (Moore 2006b: 68). The Forest of Dean remains poorly understood with regards to the prehistoric and Roman periods, and therefore much more difficult to use as a comparator.

6.2.1 Field systems and other divisions in the landscape

Some of the key characteristics of Early Iron Age 'Wessex' are not typically seen in the Cotswolds, such as the large-scale reorganisation of the landscape with linear ditches or boundaries, probably in the first millennium BC (Palmer 1984, McOmish *et al* 2002, Miles *et al* 2003). Similar linear boundaries, also of a Late Bronze Age to Early Iron Age date appear to divide up sections of the Upper Thames Valley (Boyle *et al* 1998: 29-34). There are examples of extensive linear ditches within the Cotswold Hills NMP project area around Northleach, associated with a large number of banjo enclosures (see Figure 6.6). The longest of these extends for 2.5 kilometres, and is oriented at right angles to a limestone ridge between the River Leach and the River Coln. However, this seems to be atypical, as the only other example of an extensive linear ditched boundary within the project area is seen near Preston (see Figure 6.4). This example of a segmented ditch was interpreted as possibly Iron Age in date due to the fact that it appears to curve around the pre-existing conjoined Bronze Age funerary enclosures.

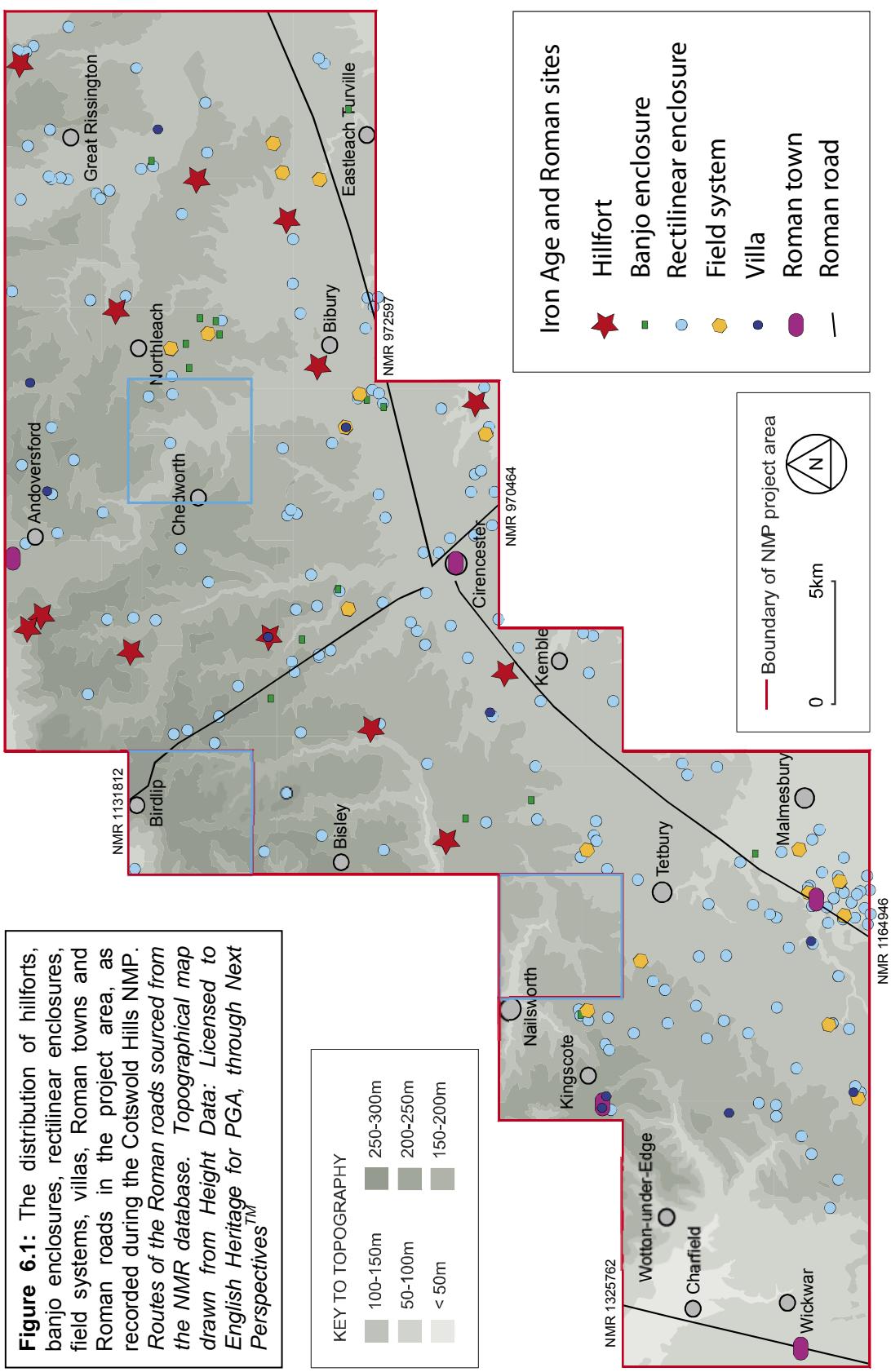


Figure 6.1: The distribution of hillforts, banjo enclosures, rectilinear enclosures, field systems, villas, Roman towns and Roman roads in the project area.

6.2.2 Rectilinear field systems

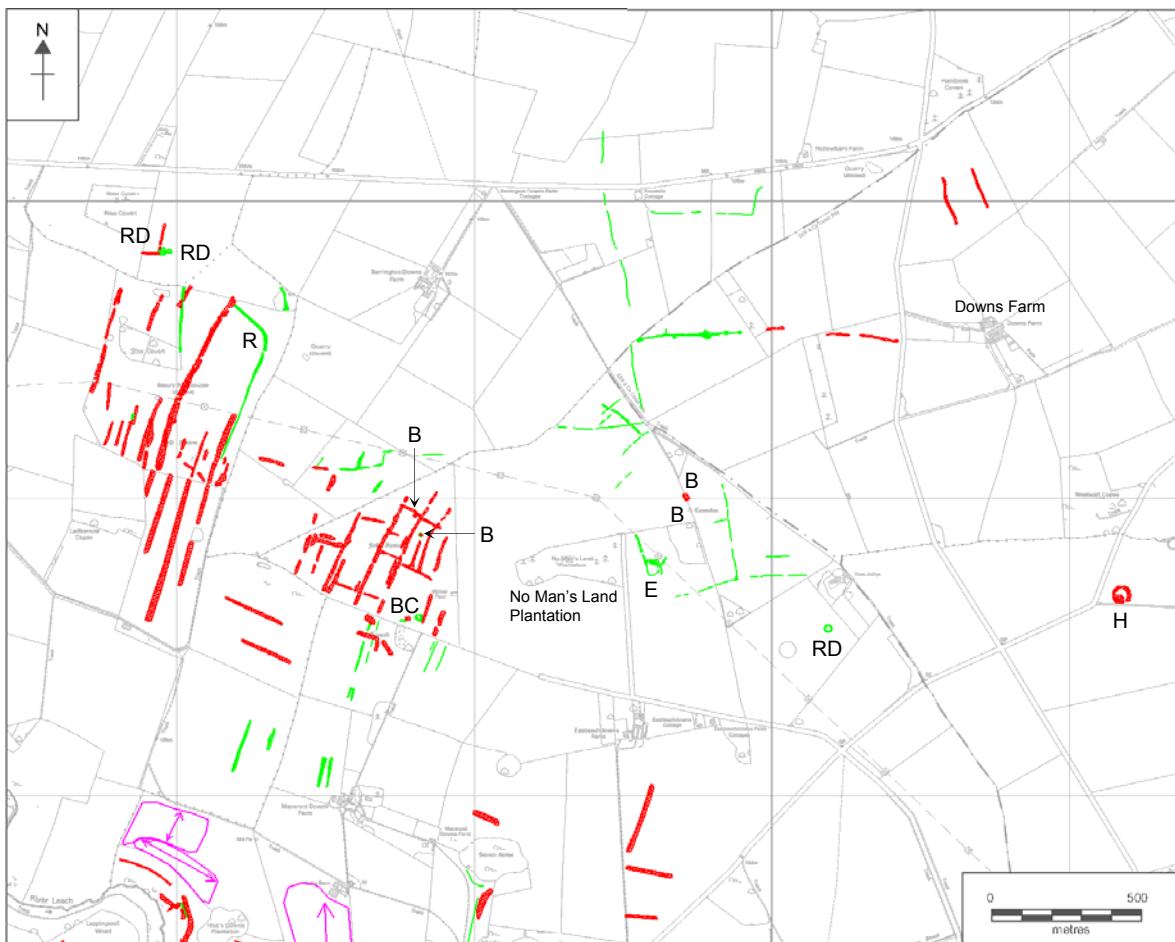


Figure 6.2: Probable Iron Age to Roman period field systems to the south east of Aldsworth, with ring ditches (RD), barrows (B), a barrow cemetery (BC), an enclosure (E), a possible henge (H) and 18th century racecourse (R) annotated. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

Two field systems were located to the east of Aldsworth. That to the west of No Man's Land Plantation (Figure 6.2) comprised both earthworks and cropmarks, and appeared to be split into two separate groups of field boundary banks on the same alignment (NMR: 329676, NMR: 329679), with parallel linear features to the west (NMR: 329679) and rectilinear fields to the east (NMR 329676). The rectilinear fields occur in parallel strip-like blocks, and appear to be similar in character to field systems seen at Barnsley Park (NMR: 327163) and a newly recorded one at Badminton Park (NMR: 1523223), as well as at Chisenbury Warren, Wiltshire (Bowen & Fowler 1966) and on the Lambourn Downs (Small 2002: 20). Most of the field boundary banks are still extant as earthworks, and it is interesting to note that the current hedge-lines lie on the same orientation. This suggests possible re-use; or continuity of use of the field boundaries. The eastern side of the field system (NMR 329679) was used as a racecourse in the 18th century (see 'R' on Figure 6.2), and has been under permanent pasture ever since.

The field system to the east of No Man's Land Plantation follows a different alignment (NMR: 918540, see Figure 6.2), and comprises only boundary ditches. Its NNW-SSE orientation does not appear to be continued in the current hedge-lines and fences. Perhaps this field system was less substantial than the boundary banks to the west, and

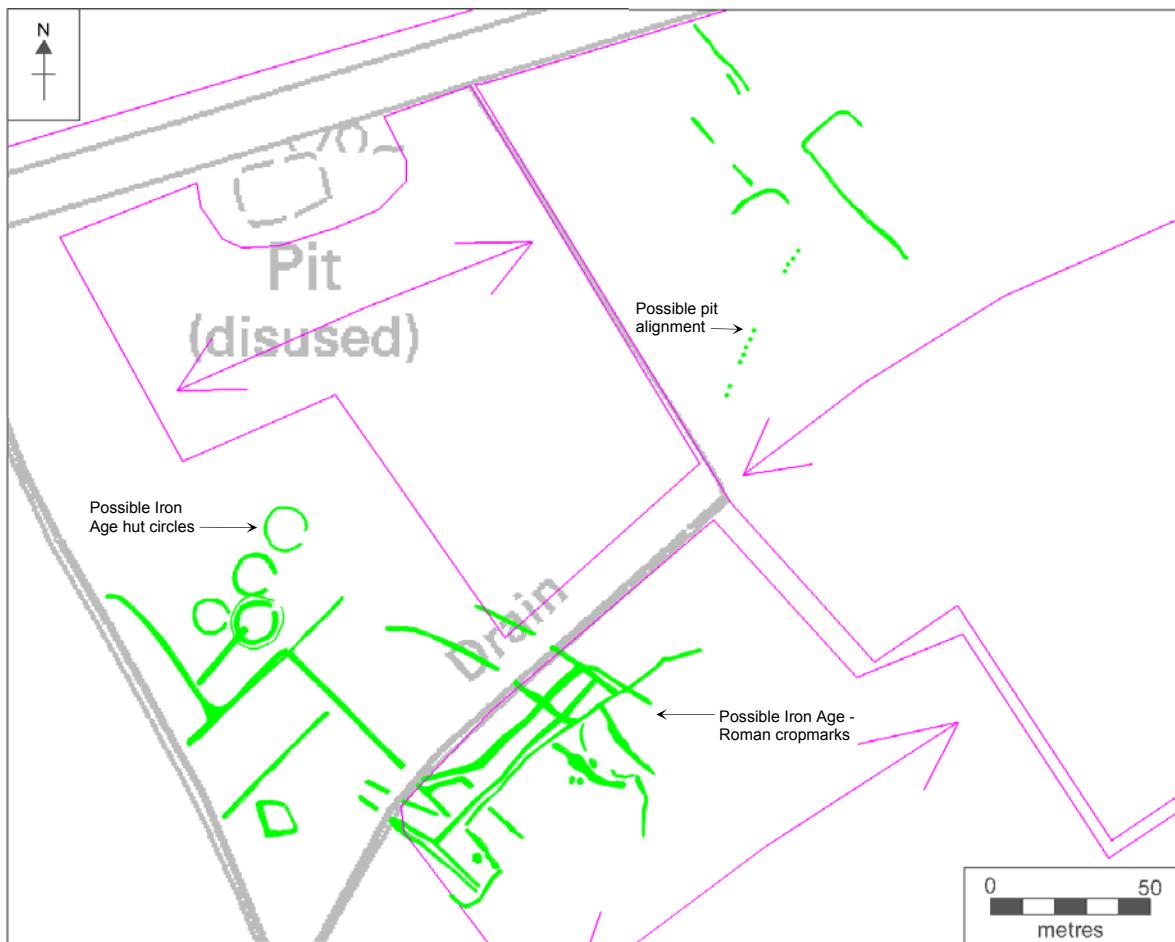


Figure 6.3: The pit alignment east of the River Windrush, Great Rissington. With possible Iron Age hut circles and other Iron Age to Roman period features. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

therefore more easily superseded by a new arrangement of field boundaries on a different orientation. Although boundaries which form part of the two field systems at Aldsworth extend towards each other, there is no clear relationship between them and it is not apparent which is earlier.

Both of the field systems at Aldsworth appear to incorporate barrows and ring ditches which are likely to date to the Bronze Age. A Bronze Age barrow cemetery (see 'BC' on Figure 6.2) is located within the western field system, with isolated barrows (B) and ring ditches (RD) over a wide area. One of the barrows is surrounded by a ring ditch, suggesting that it is more likely to be a barrow than a clearance cairn. There is also an undated oval enclosure (E) on the edge of the easternmost field system, which could be a contemporary stock enclosure. It is not clear what the association of the barrows and the enclosure have to the field systems, if any, as there do not appear to be any stratigraphical relationships visible on aerial photographs. The barrows may have been used as markers when laying out the fields; or respected as monuments in their own right (McOmish *et al* 2002: 19). It is also possible that one or both of these field systems originated are broadly contemporary with the barrows.

6.2.2.1 Segmented ditches and pit alignments

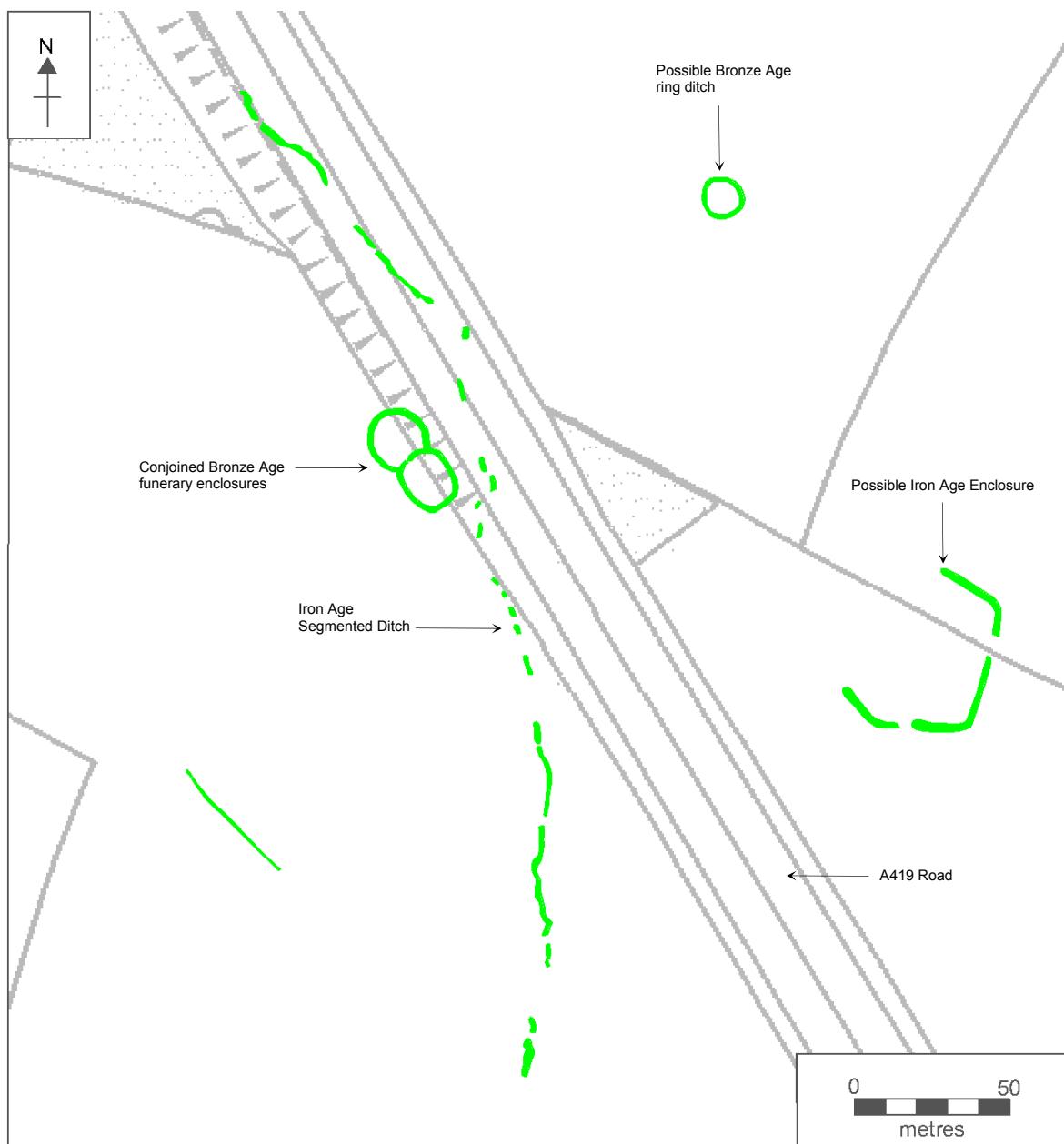


Figure 6.4: The Iron Age segmented ditch near Preston. Note how it kinks around the conjoined Bronze Age funerary enclosures. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

The Iron Age landscape of the Upper Thames Valley appears to have been divided up by pit alignments with examples excavated at Lechlade, such as at Roughground Farm (Allen *et al* 1993); Butler's Field (Boyle *et al* 1998); and Shorncote (Brossler *et al* 2002). The pit alignments, along with other land boundaries seem to have been used to partition the landscape, for example, by cutting off spurs in the river (Boyle *et al* 1998: 29-34). Moore (2006: 65) concluded that in the Thames Valley the linear boundaries were formed by ditches on the higher ground, and this is a possible explanation for the near absence of pit alignments within the Cotswold Hills project area. The sole example of a pit alignment was at Great Rissington (NMR: 329878) (Figure 6.3), where the adjacent excavated settlement (Rawes 1989: 256) is thought to be of probable Iron Age date.



Figure 6.5: The Iron Age segmented ditch and conjoined Bronze Age funerary enclosures (shown on the transcription in Figure 6.4), near Preston, with the road easement stripped. Note the further Iron Age boundary ditches at the top of the image, which were not visible on any of the previous aerial photographs. The parallel lines are likely to be plough scores from ridge and furrow cultivation. *NMR SP 0500/15 NMR 15425/10 24-APR-1996 © English Heritage (NMR)*

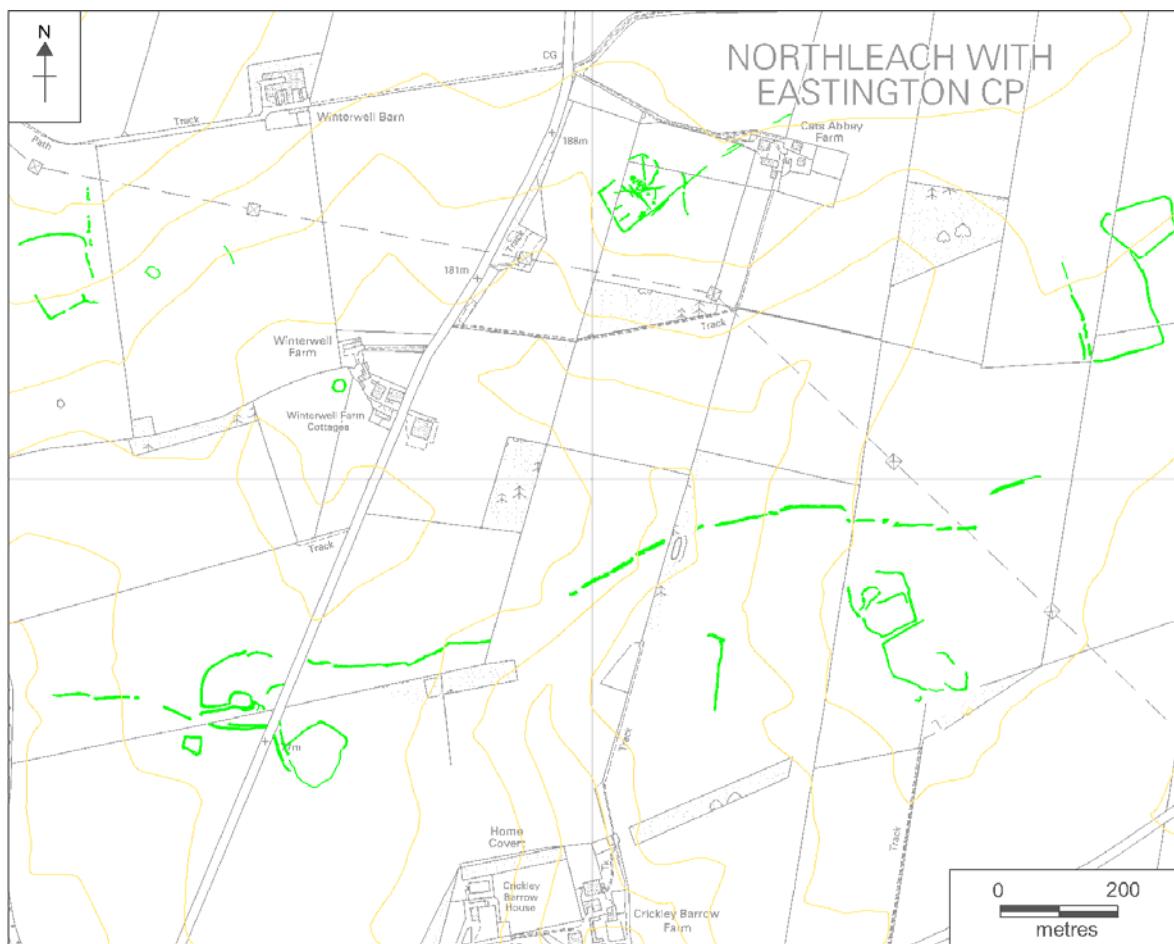


Figure 6.6: The linear segmented ditch south of Northleach. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

The pit alignment is located on a spur of higher ground between the River Windrush to the west and an unnamed brook to the east. However, the NNE-SSW orientation of the pit alignment does not seem to be intended to subdivide this spur; possibly suggesting a different function from the pit alignments of the Thames valley. However, it may simply be that this pit alignment was one element of a more complex system of boundaries which were not visible on aerial photographs.

A segmented boundary ditch (NMR: 1485268) was visible to the south-east of Preston (Figure 6.4, Figure 6.5), part of which was excavated during the course of road improvements on the A419. This boundary is thought to be associated with a polygonal enclosure to the south-east, which dates from the second to fourth century BC and is composed of segmented ditches of various lengths. The segmented boundary ditch respects a pair of conjoined Bronze Age funerary enclosures, possibly using them as boundary markers (Mudd *et al* 1999: 27-34). These segmented ditch alignments do not appear to be common in the Cotswold Hills or the Thames Valley region. There is another example to the south of Northleach (NMR: 1502781 & 1502779, see Figure 6.6), where it may have been associated with part of an Iron Age or Roman 'banjo' enclosure complex. Others were excavated further to the south at Shorncote (Brossler *et al* 2002) and possibly at The Park, Guiting Power, in the north Gloucestershire Cotswolds (Marshall 1990).

It is possible that this type of segmented ditch, also well-known as cropmarks from other locations in England (Mudd *et al* 1999: 41); may in this region have been overlooked after

having been interpreted as natural geological features. The underlying limestone geology of the Cotswolds area often creates complex and potentially confusing cropmarks which can be difficult to disentangle from genuine archaeological remains. The segmented boundary ditch in Figures 6.4 and 6.5 may not have been recognised as an archaeological feature were it not for the excavations carried out during the course of the road improvements.

6.2.3 Iron Age settlements

6.2.3.1 Hillforts and hilltop enclosures

The best known monuments from the Iron Age, and the only examples usually still visible as earthworks, are the hillforts and hilltop enclosures. Our knowledge of the Iron Age is still dominated by them, although they are not very well understood, with possibly even less understanding of non-hillfort settlement (Moore 2006b: 67). This has skewed our perception of Iron Age settlement and social organisation within the Cotswold Hills and surrounding landscape (Moore 2006b: 62).

In models of development based largely on the Wessex region, the earliest hillforts or hilltop enclosures are thought to date from the Early Iron Age.



Figure 6.7: Probable Iron Age hilltop enclosures. A: Abington (NMR: 329713); B: Norbury Camp (NMR: 117399); C: Dean Camp (NMR: 329658). OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

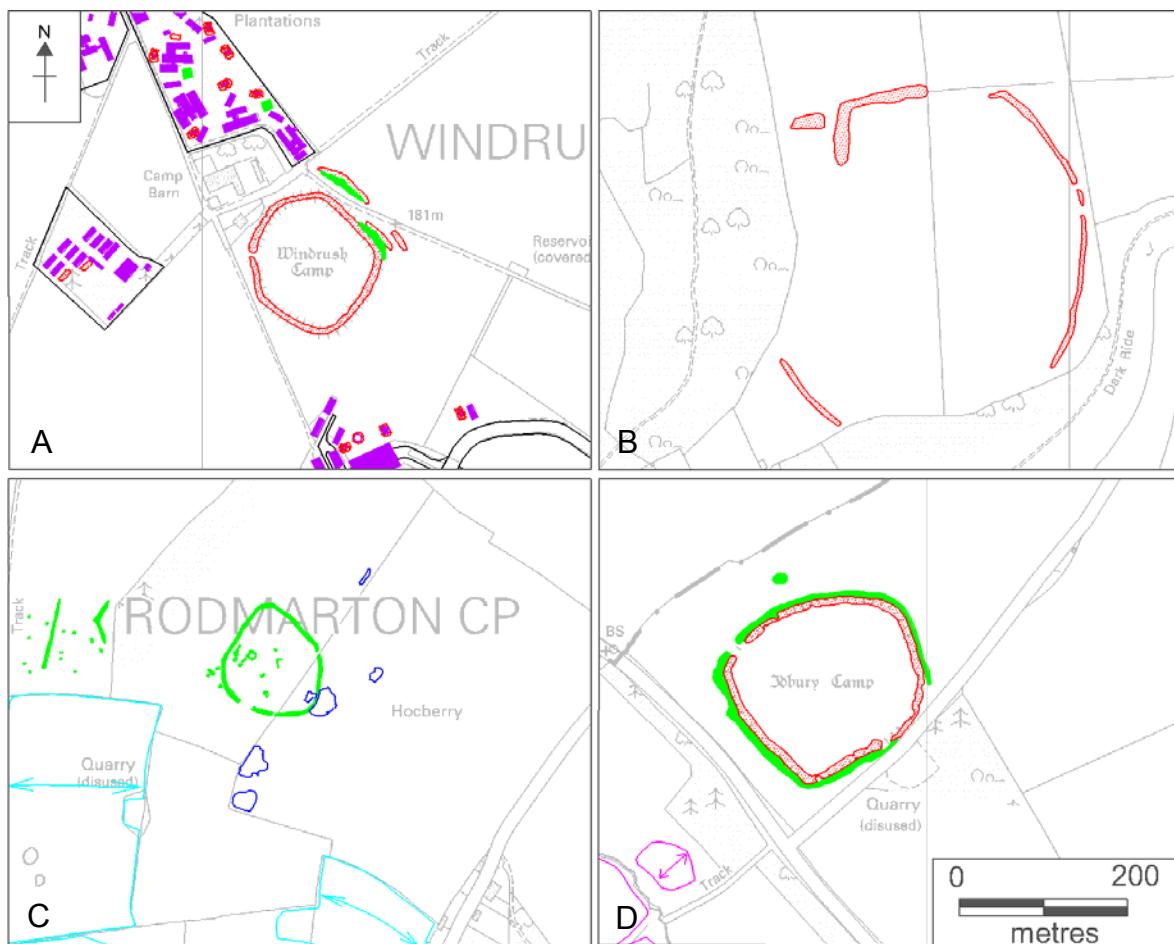


Figure 6.8: Circular and sub-circular Iron Age hillforts and enclosures. A: Windrush Camp (NMR: 330012); B: Pinbury Park (NMR: 117067); C: Rodmarton (NMR: 926562); D: Idbury Camp (NMR: 332307). OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

These non-defensive sites are characterised by 'simple' ramparts and four-posted structures, and may well have been used for corralling stock for seasonal management. Figure 6.7 shows several examples of sites which may be Early Iron Age hilltop enclosures. Dean Camp, Norbury, and Ablington seem quite similar in plan and scale, and in the apparent lack of elaboration to their defences. Dean Camp in Coln St Aldwyns, and Ablington in Bibury, are both located on the dip slope plateau; set above a valley with a stream. Norbury Camp is on the high point of a spur above the confluence of the River Churn and Hilcot Brook. These topographical locations seem to correlate well with the idea of these sites as stock enclosures. There is certainly the potential for more enclosures of this type to be discovered in the future, perhaps as an earlier phase of a more developed enclosure or hillfort.

Windrush and Idbury Camps (see Figure 6.8) are both located on the Oolite plateau in the east of the project area, while Pinbury and Rodmarton are both located on the slightly higher western plateau. Windrush Camp (NMR: 330012) is now visible on aerial photographs as a univallate enclosure but it was originally multivallate, with a double bank and ditch. John Aubrey, writing in the 17th century described "the works double" being ploughed-up on the southern and eastern sides (Aubrey *et al* 1980). Aerial photographs show the presence of a ditch and exterior bank extending from the north of the site around to the eastern side.

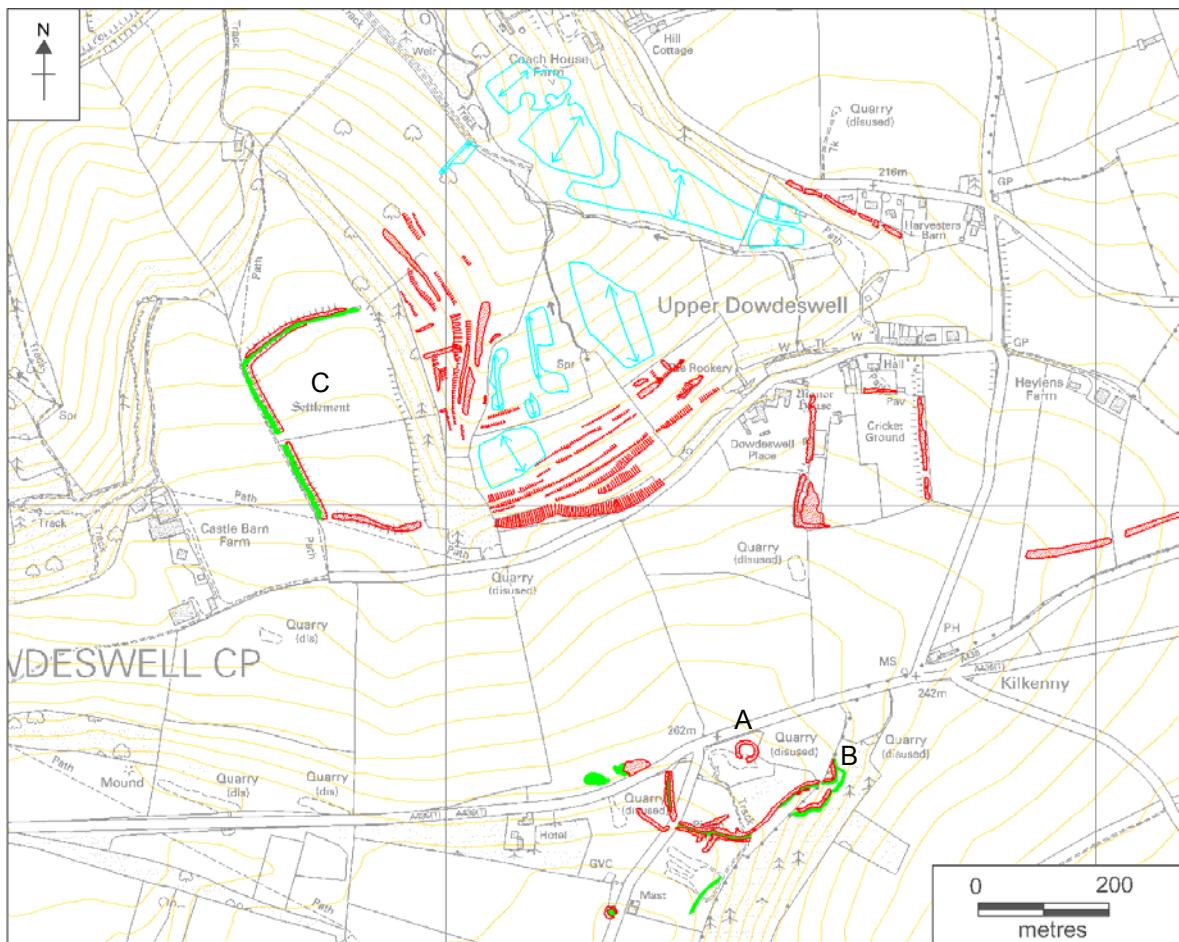


Figure 6.9: Two Iron Age hillforts at Dowdeswell. A round barrow or ring cairn is marked as A, a possibly extant section of South Dowdeswell is marked as B. North Dowdeswell is marked as C. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

The enclosure at Rodmarton is an example which illustrates some of the problems of interpretation and chronology presented by so-called hillforts. It was visible on aerial photographs only as a cropmark; and has been recorded as a curvilinear enclosure. Although there is no direct dating evidence for the site; it is comparable in size and scale to the other sub-circular hillforts shown in Figure 6.8. However, it is also comparable in plan and scale to Iron Age palisaded enclosures such as the examples at Meon Hill or Little Woodbury (Cunliffe 1984: 28; Cunliffe 2005: 238-241). If it still had an extant earthwork bank, rather than having been plough-levelled, it would probably have been recorded as a hillfort. The field name of 'Hocberry' just to the east of the site (see Figure 6.8 C) suggests that it may have survived as an earthwork into the historic period.

Dowdeswell, on the north-western edge of the project area, is in the unusual position of having a pair of hillforts adjacent to one another (see Figure 6.9). South Dowdeswell (NMR: 327538) was a multivallate hillfort, with an elaborate entrance and outworks. It shows well on aerial photographs of the 1940s but was almost entirely quarried away in the 1950s and 1960s. Aerial photographs record a large circular round barrow or ring cairn in the centre of the hillfort (see 'A' on Figure 6.9, NMR: 1509577), which was also subsequently quarried away. A small section of the hillfort bank and ditch was observed outside the area of quarrying, and may still be extant (B).

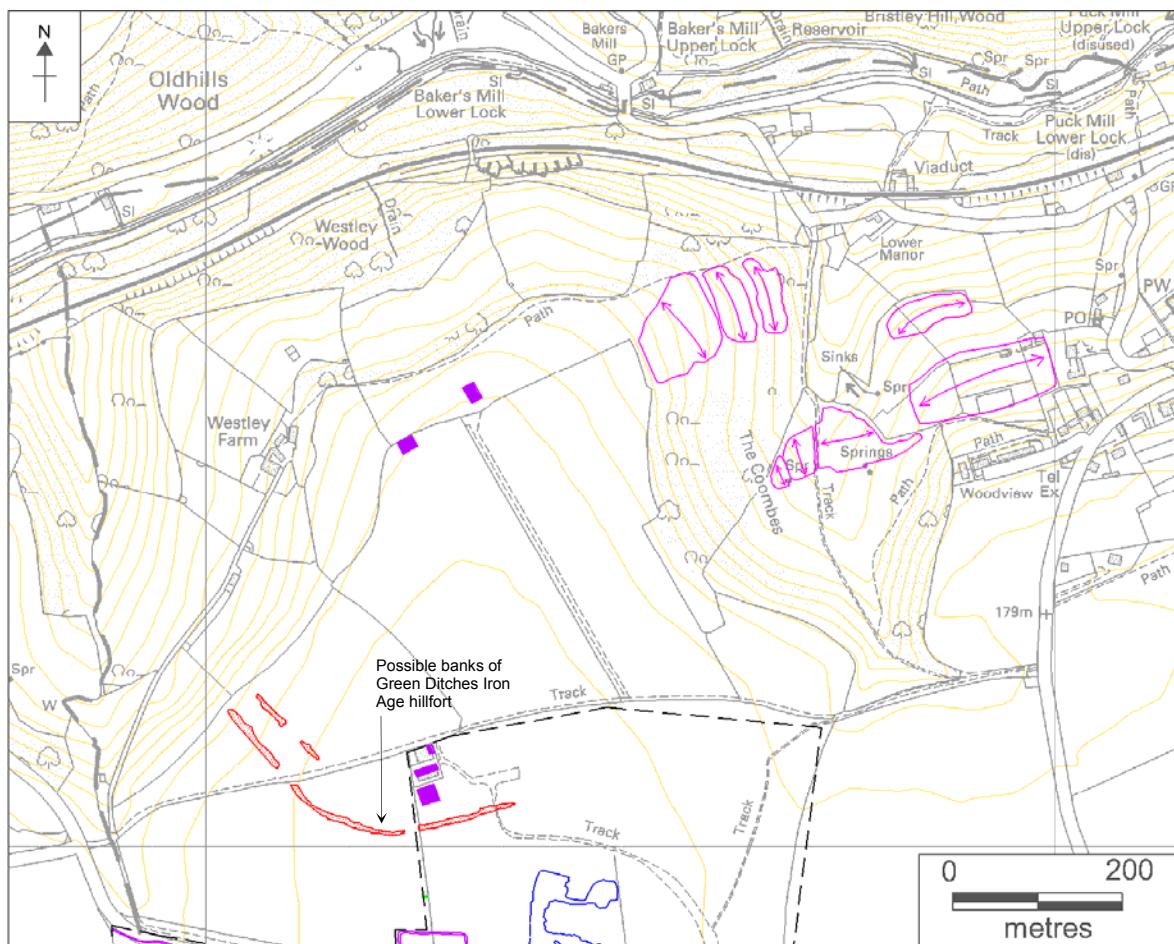


Figure 6.10: The possibly rediscovered Green Ditches hillfort at Frampton Mansell. OS Map Base
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North Dowdeswell Iron Age hillfort (NMR: 117383), formerly known as 'The Castles' occupies an unusual location for a site of this type, being situated on the edge of an escarpment, rather than on a hilltop. It is also significantly overlooked by South Dowdeswell hillfort, which is sited on a higher spur. North Dowdeswell has by far the simpler plan of the two; and both Roman and Medieval pottery have been retrieved from its surface, suggesting use of the site over a long period of time.

South Dowdeswell is more complex in plan, and is more suggestive of the Middle Iron Age 'developed' hillforts of the Cotswolds (e.g. Sodbury Camp, Painswick, and Welshbury (Darvill 1987: 134-139)). This might suggest that South Dowdeswell is later in date than North Dowdeswell, but with only morphological data it is difficult to be more certain. It could be that they were contemporary, and that their different form and location reflects their different status or economic functions.

Green Ditches Iron Age hillfort is known to have been levelled by around 1845 (NMR: 1513896; NMR 117324). Playne (1871-4: 214) stated that the hillfort was "above Frampton Mansell ... formed by two lines of earthworks running on a curved line enclosing a small area between them and the escarpment"; but no remains of the hillfort were visible on aerial photographs of this location. This project has tentatively located the hillfort at an alternative setting on a scarp edge to the south-west of Frampton Mansell (see Figure 6.10). Two curving parallel banks were visible as cropmarks, cutting off a spur of land above the River Frome, and abutting the steep north facing valley side (Figure 6.10).

However, further research and investigation is required before this interpretation can be confirmed.

Defended enclosures or hillforts show huge variation in their size; shape; scale of their defences; topographical setting; and relationships with the wider landscape. It therefore seems likely that this broad class has subsumed within it many types of site with different functions (Hingley 1984: 73). The enclosures adjacent to Idbury Camp and Pinbury Park hillforts (Figure 6.8), and the numerous pits and other features both inside and outside Rodmarton Iron Age hillfort remind us that these small sub-circular enclosures functioned as a part of a wider settlement; rather than as isolated sites.

6.2.3.2 'Non-hillfort' enclosures

Close to the highest point of the project area, on the watershed between the Rivers Leach and Coln, an extensive series of probable Iron Age enclosures of various shapes including some 'banjo-type' enclosures are linked by a series of field boundaries and linear features that seem to be trackways or perhaps boundaries between settlements (see Figure 6.6 & 6.11). It may well be that these interconnected enclosures were used for stock management, and many of the enclosures could have formed corrals for separating different components of flocks and herds (Moore 2006: 77). However, there seems to be a great deal of variation in the morphology of banjo enclosures, and some are clearly

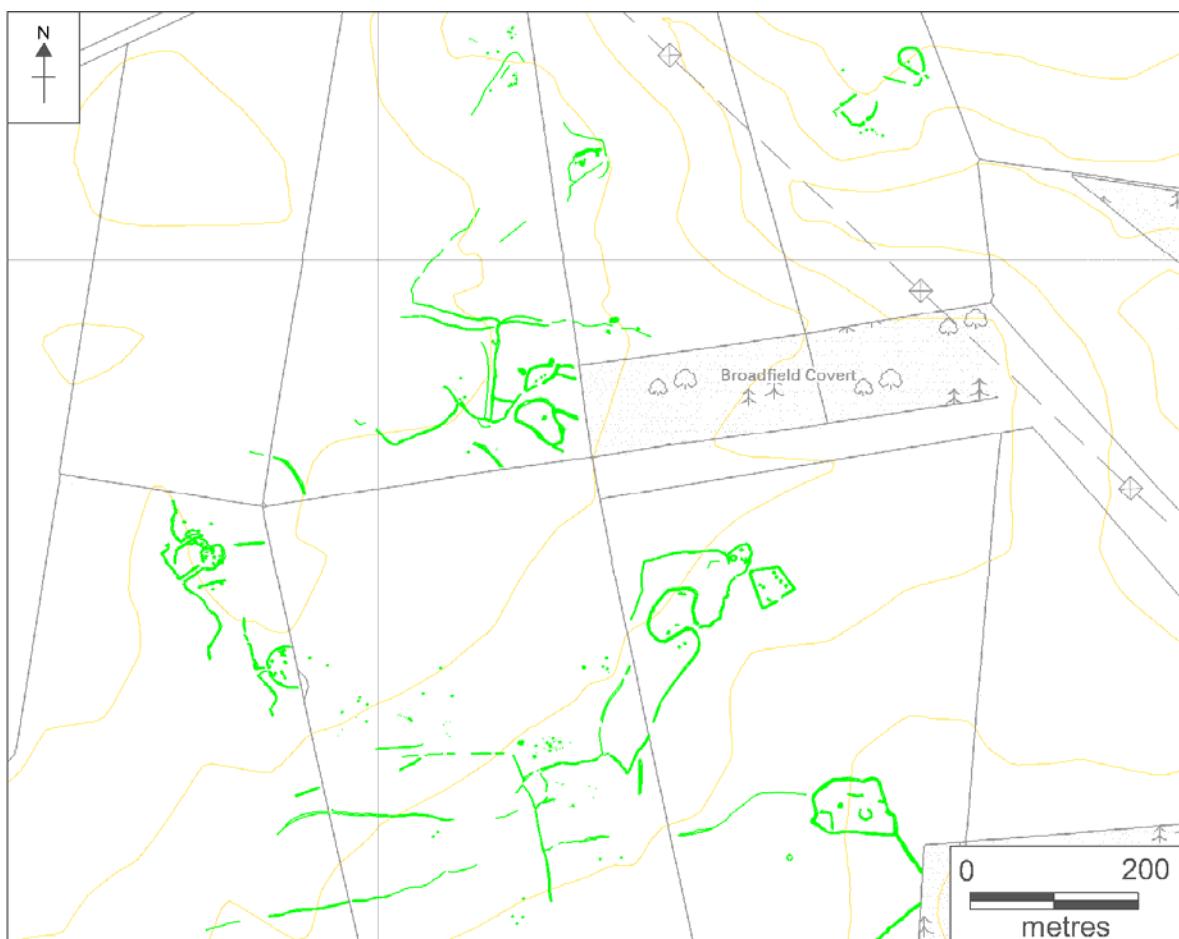


Figure 6.11: An extensive series of field boundaries, banjo enclosures and settlement in Eastington. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

associated with settlement as well. Within the Northleach cluster, particularly in the southern part of the group (see Figure 6.11) are a number of banjo enclosures which look more convincing as settlements due to the fact that they are associated with large numbers of pits, as well as cropmarks which appear to indicate structures such as possible hut circles.

The Northleach system of linear ditches, banjo enclosures, trackways, field boundaries and enclosed settlements seems to suggest extensive cattle ranching, making use of large areas of the landscape. It is tempting to think that these upland pastures may have functioned as part of the same system as the Middle Iron Age farmsteads and ranches on the Upper Thames between Fairford and Lechlade (Jennings *et al* 2004, Miles *et al* 2007), which are located 15 to 20 kilometres downstream. Perhaps these upland enclosures functioned as a part of a yearly cycle of transhumance (Cunliffe 2005: 257). However, any suggestion of how these enclosures may have related to their contemporary landscape does depend on obtaining more convincing evidence than morphology alone (Moore 2006a: 160).

Although groupings of 'banjo' enclosures seem to be rare, they are not unknown, as shown by an assessment of aerial photography in North Oxfordshire (Featherstone and Bewley 2000). Single and double enclosure examples were also found within the Cotswold Hills NMP project area.

6.2.3.3 Rectilinear and other polygonal enclosures

Many comparatively small rectilinear and square enclosures measuring up to 100 metres across were visible within the project area (see examples in Figure 6.12). These small enclosures, termed 'household-sized' by Moore (2006b: 69), are believed to be of Iron Age date, with excavated examples such as those at Birdlip, Preston, and in southern Worcestershire dating from the fourth century BC onwards (Moore 2006b: 69). Forty-eight examples were mapped and recorded with an even distribution across the project area. These enclosures are typically isolated; or alternatively formed of groups of no more than two or three. The best-known excavated examples in the area (at Birdlip and Temple Guiting) have been interpreted as being either part of larger communities; or as part of a pattern of occasional settlement shift across the landscape (Moore 2006a: 107).

The polygonal ditched enclosure visible near Preston (see Figures 6.4 & 6.13) has been excavated and dated to the Middle Iron Age (Mudd *et al* 1999: 42-53). Two further possible polygonal enclosures are located to the north (see Figure 6.13); perhaps suggesting a local preference for polygonal, rather than rectangular enclosures. All these enclosures are comparable in size to the rectilinear ones shown in Figure 6.12, and measure approximately 50 metres across.

Until recently, non-hillfort settlement during the Iron Age was poorly understood within the Cotswold Hills and beyond, but recent excavations on such sites at Claydon Pike (Miles 1984), Roughground Farm (Allen *et al* 1993), and Bourton-on-the-Water (Piper & Catchpole 1996, Nichols 2001) have helped to emphasise the unenclosed nature of much of the Iron Age settlement in the vicinity of the project area (Moore 2006b: 55-56). A significant amount of this form of Iron Age settlement will be difficult to identify from aerial photographs; as small-scale unenclosed sites do not form easily-recognisable cropmarks in the same way as large enclosed settlements. The relationships between these settlements and the wider landscape are not yet fully understood, but Moore (2006a) suggests that the Cotswold Hills and Severn Valley formed an intensively settled landscape with extensive social networks during the Iron Age. The pattern of probable Iron Age settlement recorded during the aerial survey can therefore, along with the



Figure 6.12: Comparative plans of probable Iron Age rectilinear enclosures. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

excavated evidence, begin to increase our understanding of the Iron Age communities in the Cotswold Hills by assembling all the evidence visible on aerial photographs into a single, readily-accessible data-set. It is hoped that this will facilitate future research and planning strategy in the region.

6.3 The Late Iron Age to Roman period (100 BC to AD 410)

There is a wealth of evidence for Roman-period activity within the project area, as the long-lasting Roman influence made significant changes to how the landscape was structured. New types of site such as villas, towns, and the extensive road network were constructed across the region. The late Iron Age is often bracketed with the Roman period in models of development because there is some evidence that cultural influences spread from Romanised continental Europe prior to the Roman invasion of Britain. There is extensive evidence for trade with the continent, in particular for the import of luxury goods; which were presumably exchanged for local goods or materials (Cunliffe 2005: 600-601). The contact and increasing cultural closeness with the Roman world appears to have been facilitated and maintained by local elites. The NMP project area extends across the heartland of what is thought to be Dobunnic 'territory', and covers a number of significant supposedly high status Iron Age sites. These include Bagendon 'oppidum' and the adjacent Ditches hillfort (Trow *et al* 2008).

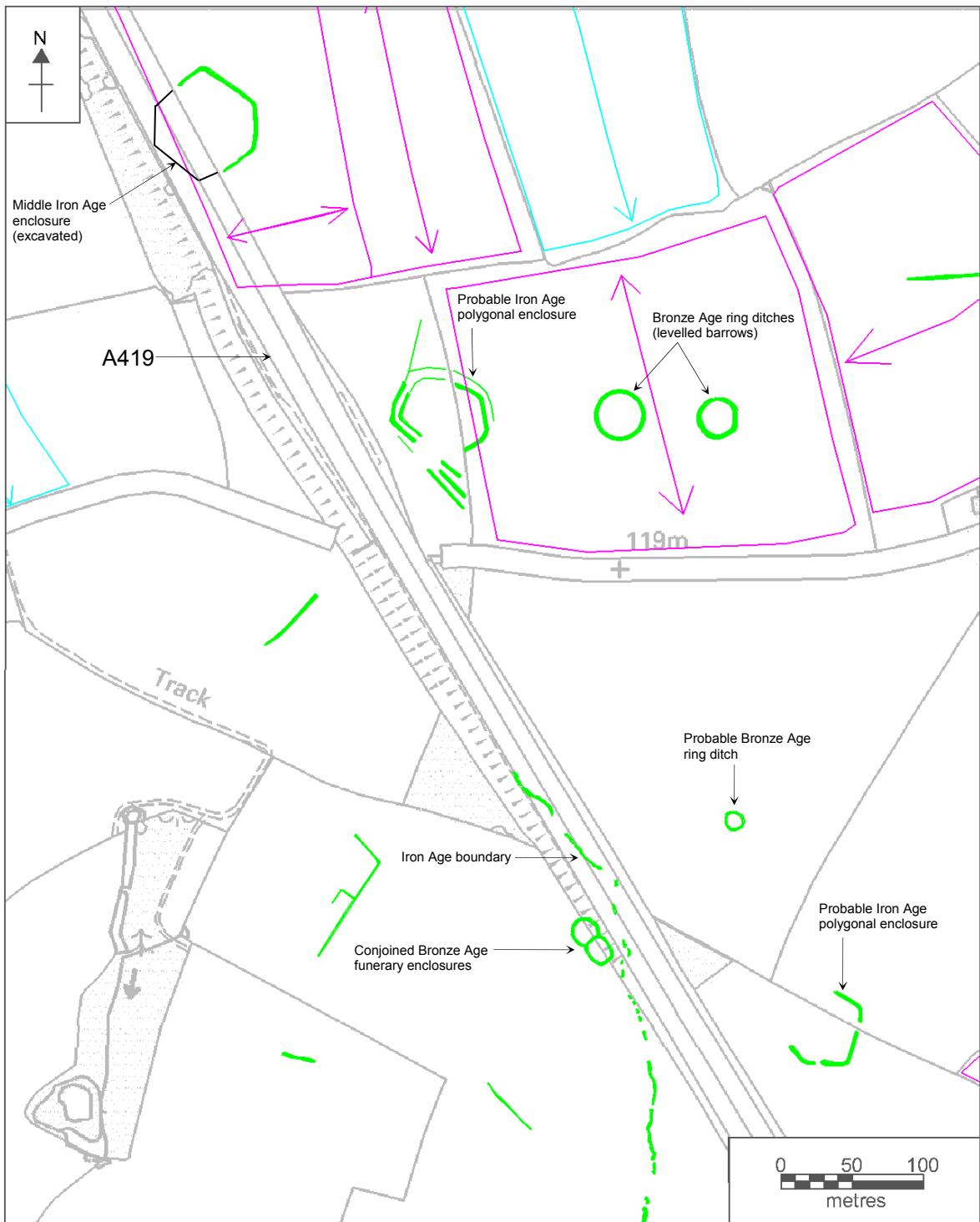


Figure 6.13: Similar probable Iron Age enclosures south of that excavated near Preston. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

Occupation at Bagendon appears to have spanned the decades either side of the Roman conquest, while the sequence of occupation at Ditches hillfort stretched from the first century BC to the third or fourth century AD and included the construction of a villa building around AD 70 (Trow 1988, Trow *et al* 2008: 45-46). There are a number of rectilinear enclosures which appear to be Late Iron Age in form within which villas were subsequently constructed (see Figure 6.19).

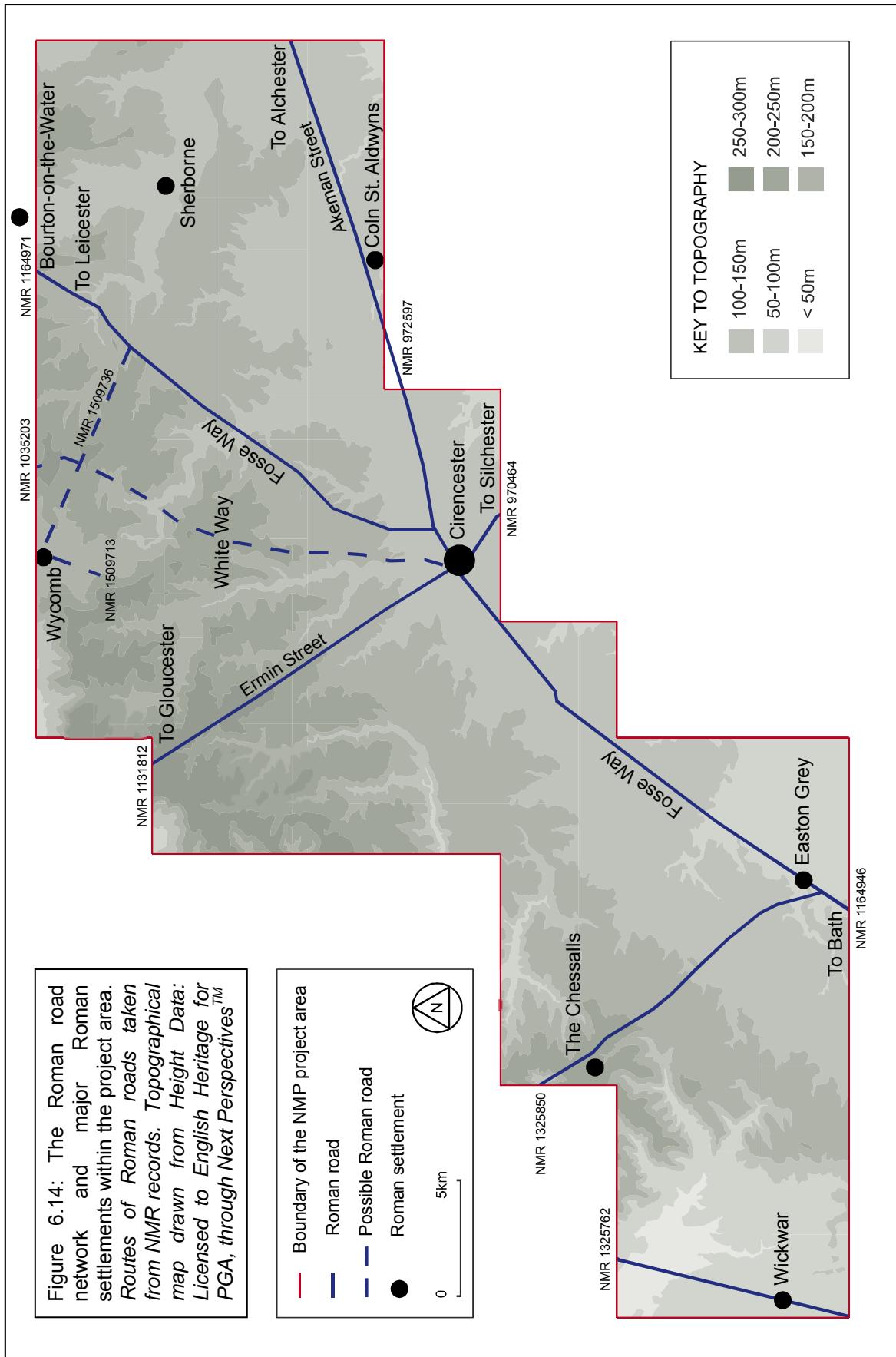


Figure 6.14: The Roman road network and major Roman settlements within the project area. Routes of Roman roads taken from NMR records. Topographical map drawn from Height Data: Licensed to English Heritage for PGA, through Next Perspectives™

In some cases, the aerial photographs can show that the same locations seem to be used by what appear to be local elites across the Late Iron Age and Roman periods. Although period identification of sites known solely from aerial photographs can be contentious (see Section 6.2); in terms of settlement location there appears to be as much continuity as change in the transition from the Iron Age to the Roman period.

6.3.1 Roads and settlements

It has often been suggested that the Fosse Way formed the northern and western border of Roman expansion in the early years after the Roman invasion of Britain (e.g. Cunliffe 2005: 604), and was probably a military frontier and supply route between the legionary forts. However, the Fosse Way does not appear to have remained a frontier for long; as an extensive network of roads was subsequently developed (Salway 1993: 378). The majority of known roads within the project area (see Figure 6.14) are considered to have been main routes, but there must additionally have been many more minor routeways. Cirencester is at a major crossroads within this network; where Akeman Street and Ermin Street meet the Fosse Way. All the other known substantial Roman settlements in the project area, such as Kingscote, Wycomb, and Wickwar are adjacent to known Roman roads. There are also a number of smaller Roman roadside settlements, which vary significantly in character (Timby 1998).

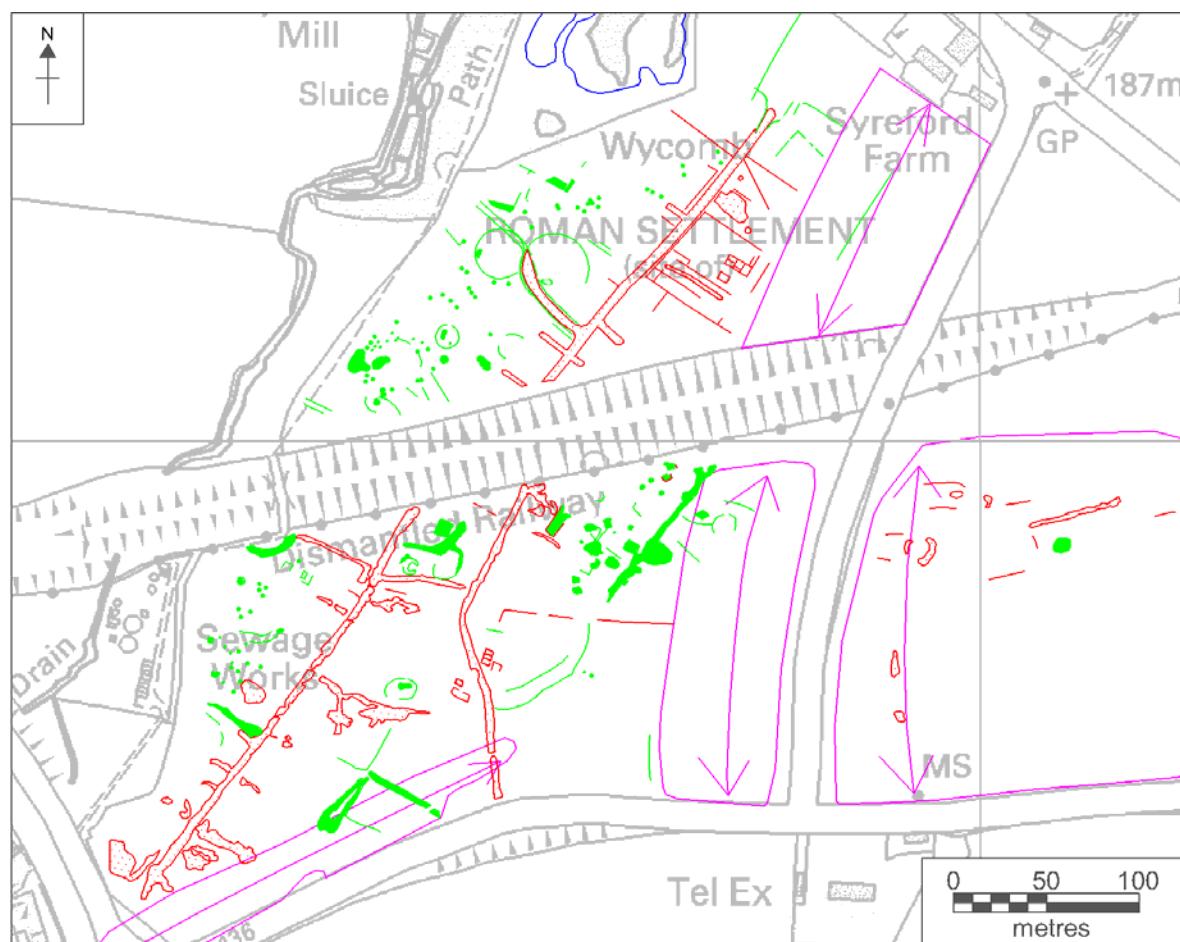


Figure 6.15: The Roman settlement of Wycomb. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

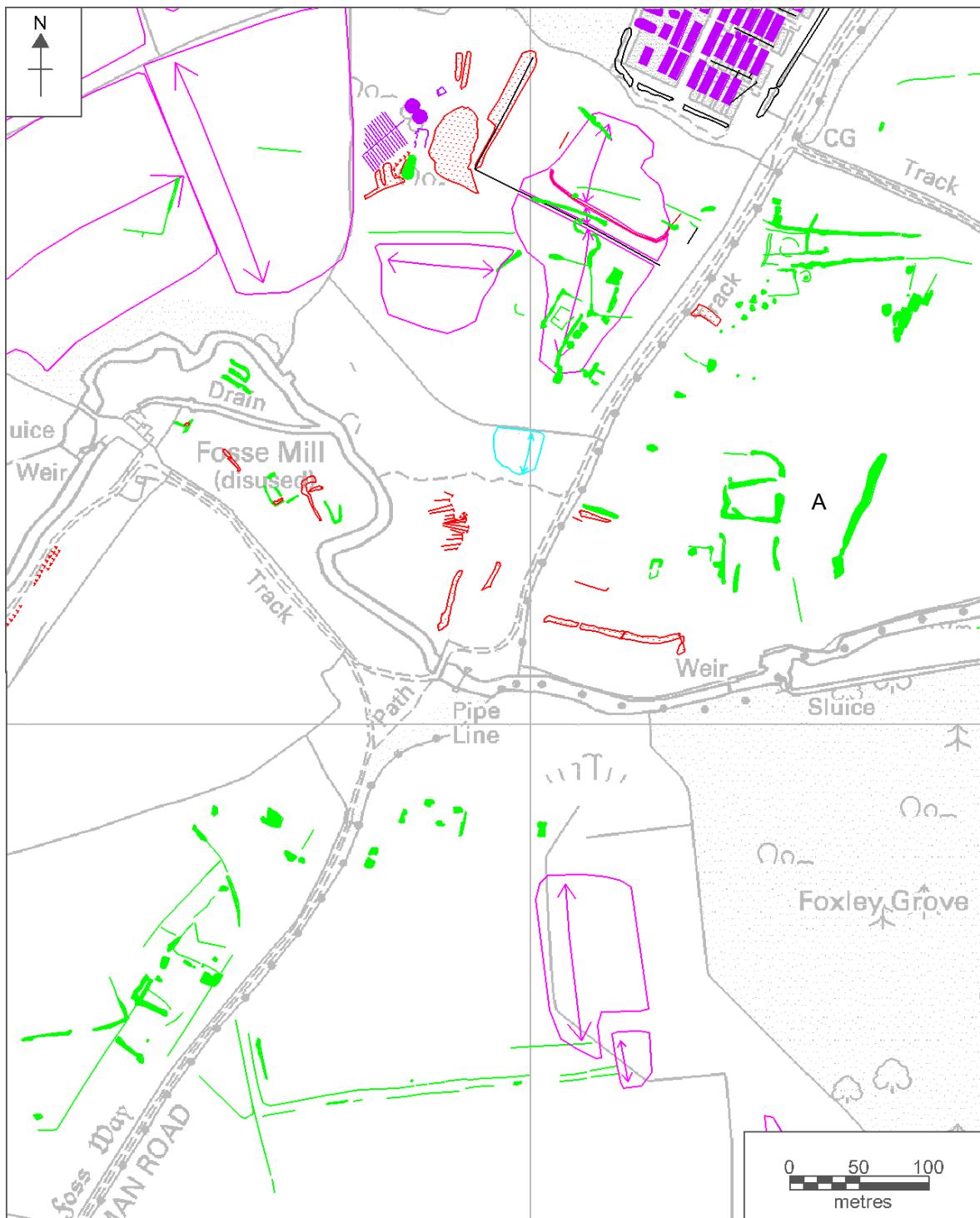


Figure 6.16: The Roman settlement of Easton Grey, with the features planned as earthworks by Colt Hoare marked as 'A'. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

The small Roman town at Wycomb (NMR: 327986) falls just within the northern edge of our project area (see Figure 6.15). It was originally identified from 19th century excavations (Timby 1998), and has previously been mapped from aerial photographs (RCHME 1994). The northern half of the site was re-examined as part of the North Cotswolds NMP project (report forthcoming, see NMR: 327986); and the southern half was re-surveyed as part of this NMP project. Recent aerial photographs, taken after the 1994 project was completed, allowed a further area of the settlement to be newly

identified as a result of this NMP project. A series of walls, hard-standings, and possible enclosures were identified on the eastern edge of the settlement, immediately to the south of the disused railway embankment which bisects the town. This resulted in increasing the known extent of the town by approximately 250 metres further east than previously recorded in 1994; and highlights the value of ongoing aerial reconnaissance of well-known sites.

To the south-west of the village of Wickwar, at the western end of the project area, a small Roman town was previously identified from geophysical survey and excavation (NMR: 205101, GeoQuest 2002, Young 2004). The town appears to flank a road which branches off from the Gloucester to Sea Mills road, heading for a crossing of the Avon at Bitton (NMR: 1325762, Holbrook 2004: 99). The course of this road is visible as both cropmarks and earthworks. The results of the NMP survey correlated with the previously known extent and plan of the town (GeoQuest 2002: Figures 2 & 5), with one significant addition. A circular feature of approximately 10 metres in diameter, located towards the south of the site at ST 7055 8745 may be the remains of a Roman temple. It was previously noted from aerial photographs as a ring ditch (Young 2004: 35, feature 48). However, it is possible that the circular cropmark represents a bank or underlying masonry foundations, as it shows up on the aerial photograph in the same light parch-mark form as the other building remains of the Roman town. Alternatively, considering the nature of the underlying limestone geology, it is not impossible to find cropmark inversion within a single field (H Winton pers comm 2010), so it is therefore still possible that this may be a ring ditch. Interestingly though, when the transcription from the NMP aerial survey is overlain onto the results of the 2002 geophysical survey (GeoQuest 2002: Figures 2, 3, 5, & 8); it appears that this circular feature falls centrally within a larger rectilinear enclosure. This arrangement, as well as its inclusion within a Roman roadside town, is reminiscent of other possible Roman temple sites at Andoversford in Gloucestershire (NMR: 327986), and Sansom's Platt, Tackley, Oxon (NMR 1092776) (Winton 2001).

At The Chessalls Roman town, Kingscote (NMR: 209044) further minor trackways or roads were added to the known plan as a result of this NMP survey. These features were visible as cropmarks on the aerial photographs. Although the short sections of Roman road normally visible on aerial photographs cannot necessarily be extrapolated in a straight line to form junctions with major roads; the pattern of the minor routes may tentatively be mapped by incorporating archaeological evidence gained from other methods and techniques.

Easton Grey (see Figure 6.16) is an extensive roadside settlement, constructed at the point where the Fosse Way is joined by a minor road extending from the Frocester area, through The Chessalls Roman town to a crossing over the River Avon (Sherston Branch). Colt Hoare (1821: 100-101) referred to it as a *mansio* or Roman posting station, which seems plausible given its location. Settlement appears to extend along the main road for a couple of kilometres, with intercutting cropmarks suggesting several phases. An earthwork survey by the RCHME showed that the central area of settlement appears to be laid out on top on a series of lynchets, which were also cut by the Fosse Way (Kirkham 1997). A series of enclosures and more enigmatic earthwork settlement features were planned by Colt Hoare in the early 19th century, and were noted as cropmarks in the course of this project (NMR: 1522375, marked as 'A' on Figure 6.16). Easton Grey also appears to be at the centre of an extensive network of enclosed and unenclosed settlements, many of which are linked by trackways and field systems which extend over approximately 10 square kilometres. Although not all of these are necessarily Roman in date, this part of the Fosse Way and the wider area seems to be the focus of substantial activity. The early medieval 'palace' near Cowage Farm, Foxley (see Figure 7.5 below) is located at the edge of this area of intense Roman activity.

Of the five substantial Roman settlements identified within the project area, the settlement at Sherborne is the least understood and warrants further investigation. The possible linear settlement is located to the west of the River Windrush, and is cut by the canalised and possibly diverted Sherborne Brook (Figure 6.17). Stone footings and building rubble dating to the Roman period have been found (RCHME 1976: 100-101), although no building remains show clearly on aerial photographs. The Sherborne Roman settlement represents one of a series of four substantial Late Iron Age to Roman period complex cropmark sites, including a Roman villa, situated along an eight kilometre stretch of the River Windrush (NMR: 329882, 329878, 329892/1076200, 330024 and 332436). This section of the river may have been a major routeway in this period, and as such there may be the potential for the discovery of further significant settlement sites.

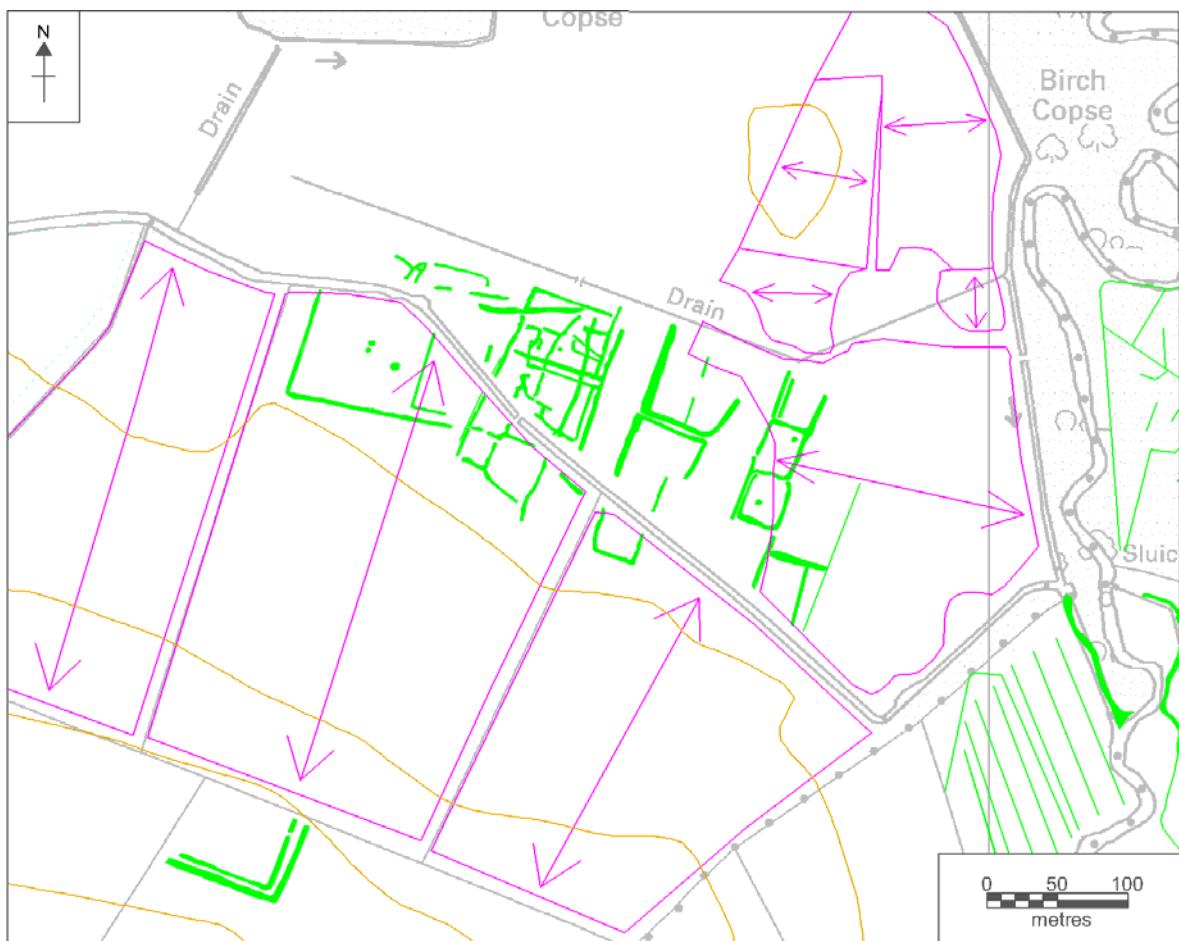


Figure 6.17: Possible Roman linear settlement at Sherborne. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

6.3.2 The villa as a settlement type

It is generally accepted amongst archaeologists that the key criterion of a villa is that it was a rural establishment, independent of larger settlements (Holbrook 2006: 101). Villas seem to have been a fundamental part of the model of Romanisation, with the spread of a villa-owning elite typically at the centre of an agricultural estate (Perkins 2000: 208). Villas are often thought of as high status buildings, with hypocausts, architectural ornamentation and baths as common features. Interestingly though, most excavated sites in Britain appear to have developed from simpler, perhaps 'lower status', to 'higher status' or more

substantial buildings. Examples of this on the Cotswolds include Barnsley Park villa (Webster *et al* 1967) and Ditches Hillfort (Trow *et al* 2008). These examples of villas within the project area are likely to have been occupied by local groups who probably used the Romanised language of architecture and lifestyle as an indicator of status. Although villas are generally interpreted as being at the centre of a wider estate; there is very little evidence of the extent and nature of these estates available from aerial photographs.

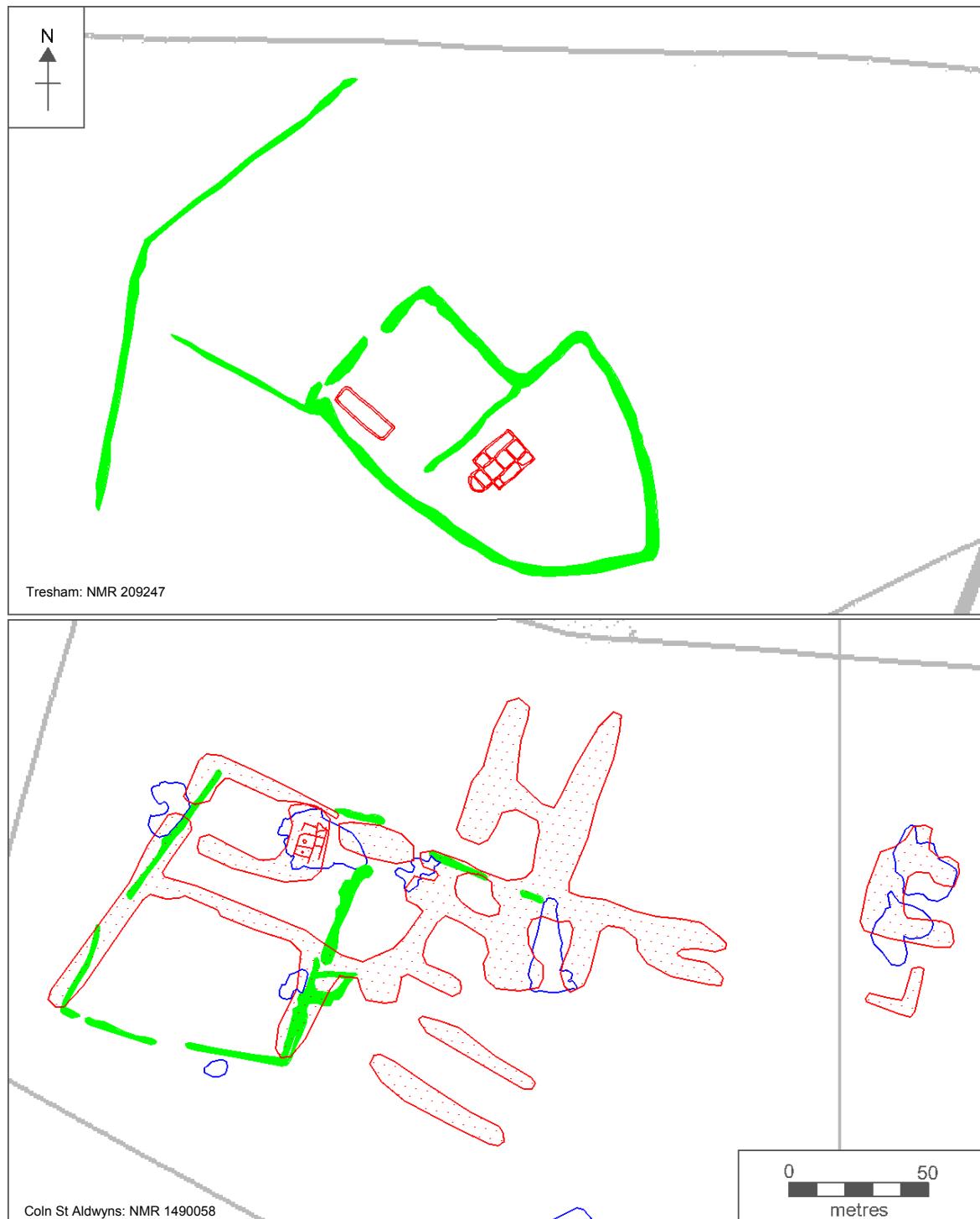


Figure 6.18: Roman villas near Tresham (top) and Coln St Aldwyns (bottom). OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

It is worth commenting on the rarity of villas as a settlement type. Mattingly (2004: 14 in Holbrook 2006: 101) estimates that 50,000 to 70,000 Late Iron Age to Romano-British rural sites are known in England, compared to just 500 to 2,500 villas. However villa sites are still more commonly found than farmsteads or other types of rural settlement. This is perhaps due to the fact that the characteristic morphology of villa sites makes them more readily identifiable on aerial photographs. They are also likely candidates to be found as part of ground-based investigations through the discovery of stone foundations, mosaics, and other finds attributable to these types of site; and there is a long history of ground-based prospection for villas.

Three possible new villa sites or Roman buildings were identified from aerial photographs during this NMP project, such as the example near Tresham (NMR: 209247, Figure 6.18), and the site to the north of Coldrington Plantation, Shipton (NMR: 1509781). The Coln St Aldwyns villa (NMR: 918535) was previously known from aerial survey; but a review of all the available aerial photographs has placed the villa within the context of possibly contemporary surrounding field systems and enclosures (see Figure 6.18). Further investigation would be required to ascertain the exact relationships between these features.

It is likely that additional villa sites may be surrounded by rectilinear ditched enclosures recorded during the survey, although no Roman buildings were seen within them. This may be the case south-east of Broadmoor Farm, Sherborne (NMR: 329892) and Duntisbourne Abbots (NMR: 117058) where scattered high status building remains suggest possible villa sites, and the rectilinear enclosures visible on the aerial photographs may be contemporary with them.

Villas seem to be much less prevalent in the Upper Thames Valley than in the Cotswolds region (Holbrook 2006: 102), as only nine were mapped and recorded from aerial photographs there (Fenner 1994: 31). Yet the Upper Thames Valley has plenty of aerial photographic and excavated evidence for Roman-period rural settlements and extensive Roman agriculture (Miles 1984; Allen *et al* 1993; Fenner 1994; Boyle *et al* 1998, Miles *et al* 2007). Salway (1993: 420) suggests that this is evidence for the estates which would have been associated with villas; as is the case in the Cotswolds. Nevertheless, as Holbrook (2006: 102) points out, the excavated evidence shows that agricultural developments in the Upper Thames Valley pre-dated the peak of Cotswold villa construction by at least a century. Perhaps another reason is therefore required to explain the differences in distribution.

6.3.3 Enclosed and unenclosed settlement

There are a large number of settlements which seem likely to be Roman in date in the parishes of Easton Grey, Sherston and Norton; including the small town or roadside settlement of Easton Grey (see Figure 6.16, also known as Whitewalls). The settlements are both enclosed and unenclosed and show a great deal of variation in their morphology and associations. Many of these settlements and enclosures are linked by trackways and field systems, perhaps indicating a particularly densely settled and organised landscape during the Roman period. Figure 6.19 shows a complex settlement of multiple enclosures and trackways to the south of Foxley (NMR: 1001426), as well as a double-ditched rectilinear enclosure to the east of Hyam Farm (NMR: 212632). This double-ditched enclosure was previously interpreted as a probable medieval moat.

These enclosures resemble a series of Roman sites excavated at Tewkesbury in the Severn Valley (Walker *et al* 2004). Building remains were not visible on aerial photographs in or near the enclosures at Foxley and Hyam Farm; but this does not

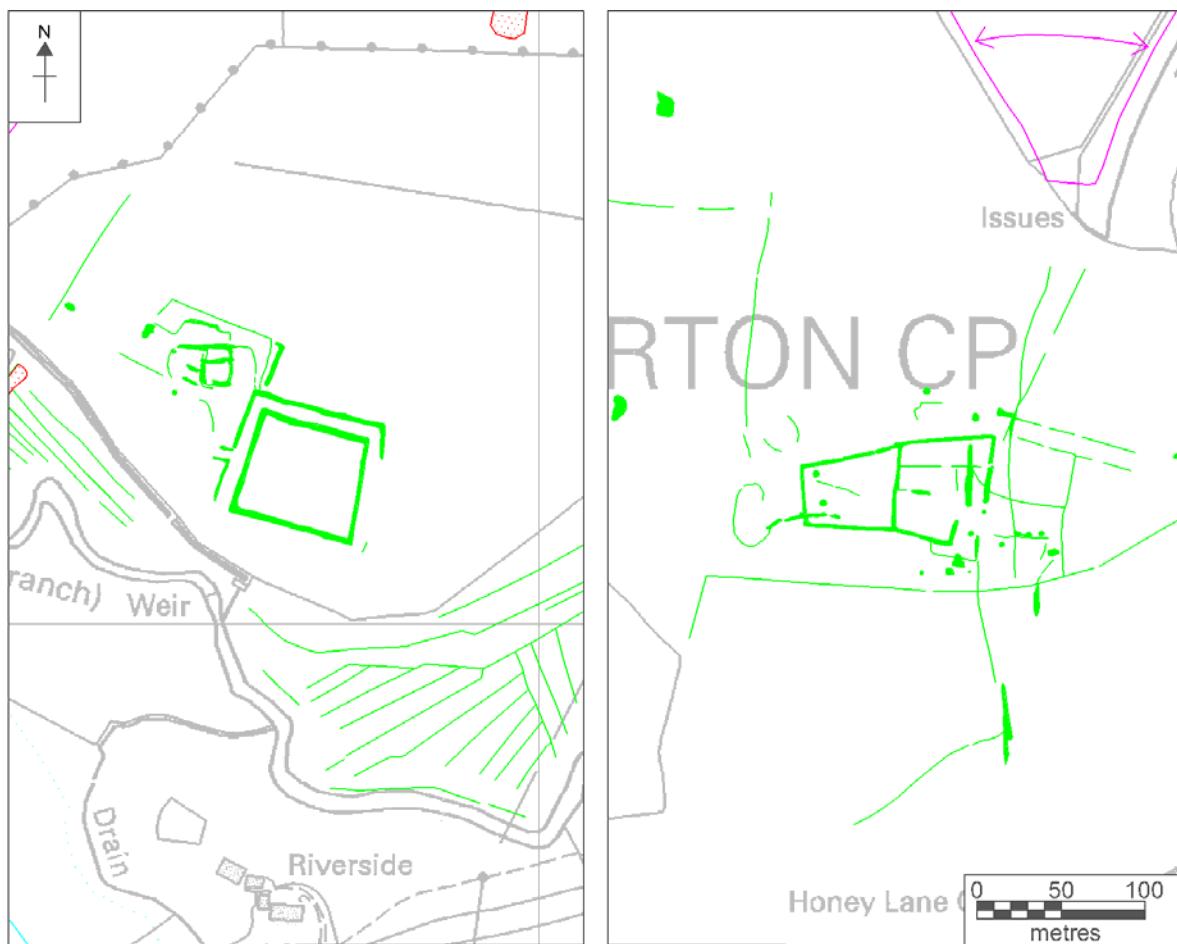


Figure 6.19: Late Iron Age to Roman period farmstead enclosures. The site in the image on the left is near Hyam Farm, Malmesbury. The site in the image on the right is south of Foxley. Foxley resembles Tewkesbury I and Hyam Farm resembles Tewkesbury II. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

necessarily mean they do not exist. It is possible that the foundations, perhaps of cob or turf as was the case at Tewksbury, are not particularly conducive to cropmark formation. The enclosures at Tewksbury dated from the mid-second century to the early third century, although there was evidence of occupation at the site from as early as the late Iron Age right up to the fifth century AD (*ibid*).

6.4 Conclusion

Sites dating to the Iron Age and Roman periods are some of the most numerous and widespread in the project area. This indicates that the Cotswolds were intensively settled during this time. Holbrook (2006: 103) states that we do not possess the complete pattern of non-villa rural settlements in the Cotswold Hills. However, knowledge of the distribution and morphology of these settlements has been much improved as a result of the aerial survey described in this report. In a number of cases the survey has significantly increased the extent of previously known sites, such as at Wycomb, as well as in the case of the Northleach banjo group. This increased level of understanding of the extent, relationships, and development of sites in the Roman and Iron Age landscape will significantly aid interpretation of the period.

7 THE MEDIEVAL AND POST-MEDIEVAL PERIODS

7.1 Introduction

The majority of sites visible on aerial photographs in the Cotswold Hills NMP project area were interpreted as probably dating to the medieval and/or post-medieval periods. These sites comprised approximately 72% of the total number of archaeological features mapped from aerial photographs (see Appendix 3). It is possible that sites dating from earlier periods may have been obscured or destroyed by later activity, which may have caused a disproportionate over-representation of sites interpreted as medieval and/or post-medieval in date. Their predominance in the record is also a reflection of the fact that these sites were often still extant at the time of the earliest aerial photographs of the 1940s; prior to the intensification of agriculture in the early to mid-20th century (see Appendix 3 for the proportions of cropmarks and earthworks visible on aerial photographs across the entire study area).

The large number of possible medieval and/or post-medieval sites identified during the aerial survey encompasses an extensive range of types; spanning settlement, agriculture, industry and defence. Comprehensive and in-depth analysis of such a quantity of data is beyond the scope of this report. Therefore as in the case of other NMP surveys; the intention is to identify general trends and highlights, and to suggest target areas for future multi-disciplinary research (Winton 2005: 27).

The early medieval period is defined for the purposes of this report as dating from the disintegration of centralised Roman rule in Britain in AD 410, up to the Norman Conquest of 1066. Sites which can be definitively dated to this period are rare, especially sites visible on aerial photographs. Across the entire 950 square kilometre area of the Cotswold Hills NMP project (including the pilot areas); only a single site has been mapped from aerial photographs which can confidently be ascribed to the early medieval period. In this case, dating evidence for what appears to be a possibly high-status settlement near Cowage Farm, to the south-west of Malmesbury, came from prior partial excavation (Hinchliffe 1986: 240-59, NMR: 1200155, see Figure 7.5).

The medieval period is conventionally accepted as spanning the period between 1066 and the dissolution of the monasteries in 1540. The post-medieval period therefore dates from 1540 up to the death of Queen Victoria in 1901. Differentiating between sites of medieval or post-medieval date based on aerial photographic evidence alone is generally not possible, as identification relies upon the form and context of cropmarks, soilmarks or earthworks. The remains of sites dating to these two periods often do not differ much in their general appearance. As such, the large number of possible medieval and/or post-medieval sites identified during this NMP survey have been treated thematically, as opposed to chronologically. Further precision in the dating of these sites may be achieved through archaeological excavation and/or consultation of documentary sources. This would form the kind of targeted and in-depth further research mentioned above.

7.2 Settlement in the medieval and / or post-medieval periods

The character of settlement in the medieval and post-medieval periods has been extensively discussed elsewhere (e.g. Roberts 1977, Taylor 1983, Roberts and Wrathmell 2000, 2002). Therefore it is not the intention to provide here a comprehensive review of all aspects of settlement for these periods, although the regional characteristics will be

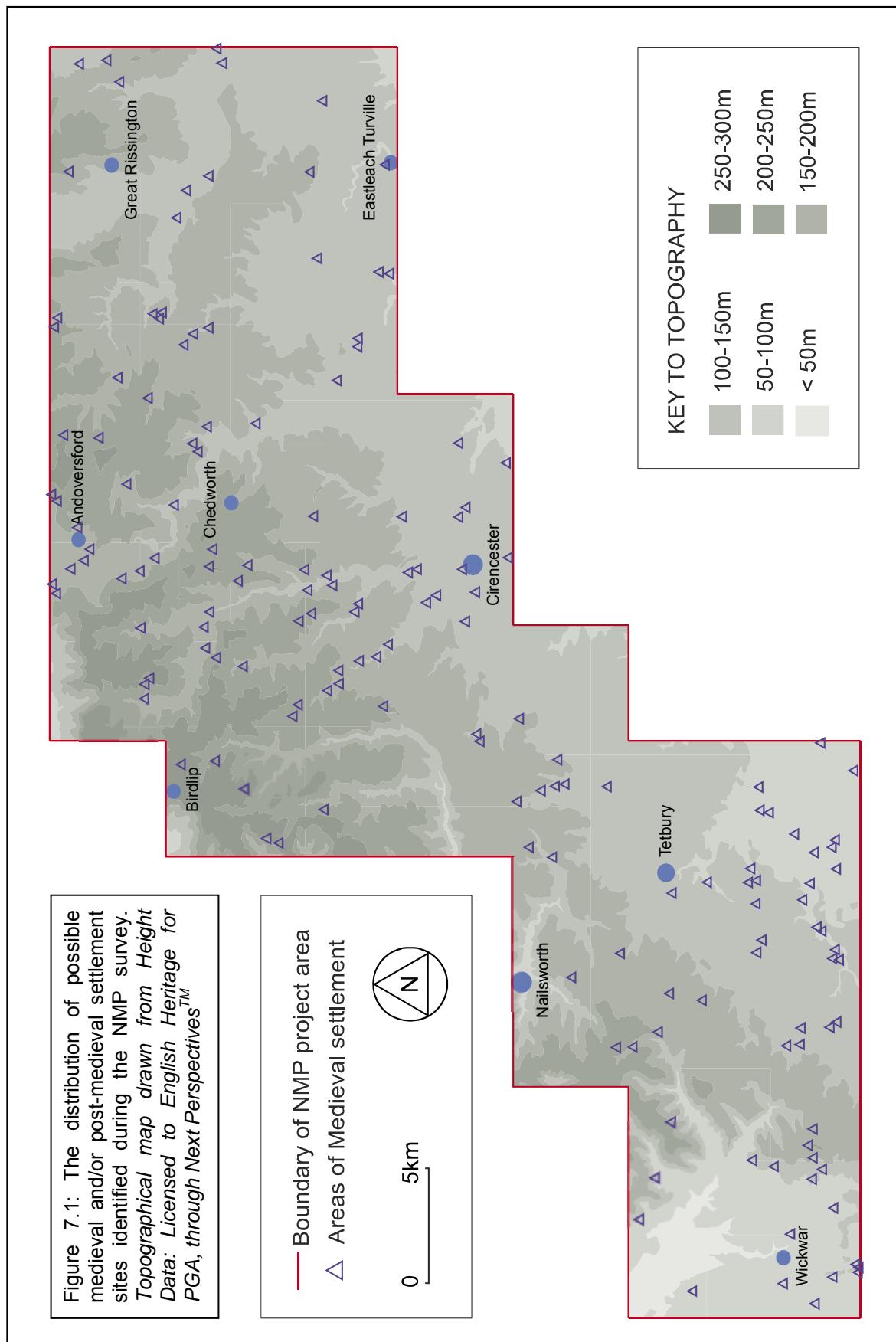


Figure 7.1: The distribution of possible medieval and/or post-medieval settlement sites identified during the NMP survey. Topographical map drawn from Height Data: Licensed to English Heritage for PGA, through Next Perspectives™

briefly discussed below. The conclusion of such work indicates that the general model for the Cotswold Hills shifted from the dispersed pockets of habitation typical of the large ecclesiastical estates which dominated the area in the eighth and ninth centuries (Dyer 1987: 165); to a more nucleated settlement pattern by the period 1200 to 1550 (Dyer 1995: 161). The NMP mapping of ridge and furrow (see 7.4.1 below) can, of course, contribute to the understanding of the open fields associated with these settlements and thus of the local economies of the period. The shrinkage, shift, or abandonment of some of these villages was the next major alteration to the nature of settlement in the area. Most villages across England contracted during the medieval period, although this process is thought to have begun slightly earlier in the Cotswolds; thereby pre-empting the Black Death of 1349, which is now considered to have been a secondary factor in population decline in the area (Dyer 1987: 175-177).

The character of settlement in the area started to shift from dispersed to nucleated in the eighth century, when the open field arable system meant it was probably more convenient for people to reside in the centre of their scattered holdings. Although the influence of the local lords was also thought to play a part in this nucleation, the driving factor is considered to have been the nature of the agricultural regime of the time (Dyer 1987: 167, 170). Contrary to popular belief, this was not predominately ovine in this region until approximately the 15th century onwards. Documents such as pre-Conquest Charters, the Domesday survey and landlords' records indicate a largely arable landscape for the ninth to early 14th centuries, without much permanent pasture. Sheep formed part of an integrated system whereby they fed partly on arable stubble whilst fertilising the land; with specific grazing land limited to uncultivable areas such as steep slopes and hilltops (*ibid*: 177; Dyer 1995: 160).

This combination of arable and pastoral agriculture was a delicate balance, and proved to be difficult to manage in the Cotswolds; where fertilisation of the poor soils required greater quantities of sheep manure than could generally be provided by the small peasant flocks (Dyer 1987: 178-179). A range of social and economic pressures of the late 13th and early 14th centuries highlighted these challenges, and a change in the character of agriculture and settlement resulted in the area. Serious episodes of sheep scab in the 1270s and 1280s; the heavy royal tax demands of the 1290s to 1330s; and the disastrous harvests of 1315-17 all played a part in destabilising the economy of the region. The ensuing poverty resulted in the depopulation of villages and the abandonment of farmland; as attested by King Edward III's tax surveyors in 1340 when they visited the now-abandoned medieval settlement of Little Aston, on the northern boundary of our study area (*ibid*: 175-177).

The factors outlined above meant that after approximately 1320; sheep farming was far more lucrative in this area than the production of crops. Consequently, in combination with the decline in the rural population and the abandonment of settlements; upland pasture increased in the Cotswolds throughout the 14th and 15th centuries (Dyer 1995: 160-161). Production of wool for distant markets had always been one of the aims of the mixed arable/pastoral system (Dyer 1987: 177), but from the 14th century onwards; the proliferation of sheepcotes across the area demonstrates the shift towards widespread sheep-farming and the establishment of the Cotswold wool industry (Dyer 1995: 160-161). This had far-reaching effects upon the nature of medieval and/or post-medieval agricultural and settlement remains as visible on aerial photographs today.

It should be noted that throughout the project area we frequently came across both HER and NMR records for possible sites of 'deserted medieval villages' where no remains could be seen on aerial photographs. A lack of visibility on an aerial photograph does not necessarily mean an absence of sub-surface archaeological remains; however many of

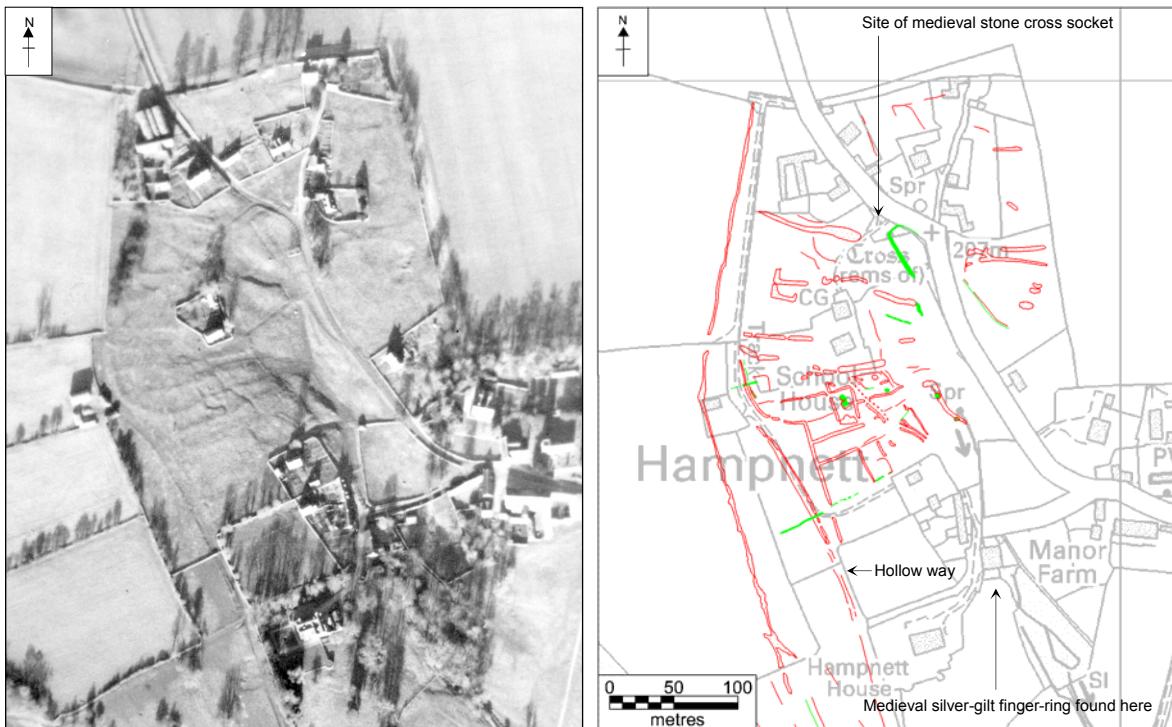


Figure 7.2: Remains of abandoned settlement within the village of Hampnett. The aerial photograph shows ditches and turf-covered banks representing building remains and former plot or toft boundaries. NMR RAF/CPE/UK/1897 4414 12-DEC-1946 English Heritage (NMR) RAF Photography. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

these records appeared to have been formed on the basis of a reference in the Domesday Book. Examples include Lasborough (NMR: 209229, GHER: 4061), Newington Bagpath (NMR 209244, GHER 2930) and Cliffordine (NMR: 327713, GHER 7390). As has been discussed elsewhere, the character of medieval settlement cannot be derived solely from Domesday; just because it is mentioned in the survey, does not mean that a significant nucleated settlement existed at that location in the medieval period (Dyer 1987: 168, Winton 2005: 27).

However, the number of possible medieval and/or post-medieval settlement sites that could be identified on aerial photographs formed a significant quantity, and is in contrast to other adjacent NMP survey areas (see Figure 1.2, in the Introduction) such as the Malvern Hills AONB, which noted an absence of visible shrunken or deserted settlement. In the case of the Malvern Hills AONB, this was attributed to a relatively stable pattern of settlement since at least the late medieval period (Winton 2005: 27-28). It has previously been observed that the term 'deserted medieval village' is often incorrectly applied to remains which are in fact nothing more substantial than a single farmstead (Bowden 2006: 170). As such, for this report, the remains of small, isolated instances of possible medieval and/or post-medieval settlement have been considered separately from clusters of settlement remains (see Section 7.2.1 below).

The frequently occurring remains of abandoned sites of possible medieval and/or post-medieval settlement identified during the project are evenly distributed throughout the study area (see Figure 7.1). The pattern of their abandonment, as well as the pattern of their visibility on aerial photographs does not appear to have been dictated solely by either the topography or geology of the area (see Figures 2.1 & 2.2); with both the scarp edge and dip slope showing evidence of medieval and/or post-medieval settlement remains. A range of different settlement types were visible on aerial photographs as both cropmarks



Figure 7.3: Remains of abandoned settlement within the village of Farmington. The photograph and the transcription are on slightly different orientations, and the levelled area of earthworks highlighted on the transcription is not visible on this photograph. NMR SP 1315/6 NMR 2144/0058 18-JUL-1983 © English Heritage (NMR). OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

and/or earthworks. Earthwork sites were the most commonly seen, with frequently occurring typical examples clustered around villages or farms still occupied today, many of which are thought to have their origins in the medieval period (Dyer 2002: 37). This concurs with the well-known settlement contraction and/or abandonment of the 14th century outlined above.

The much smaller and more isolated examples mentioned above were also common throughout the survey area; sometimes consisting of as little as a single possible house platform. Many instances of banked or ditched enclosures or groups of linear features have been interpreted as the possible remains of medieval and/or post-medieval settlements; possibly small crofts. It is however difficult to positively identify such remains as settlement sites where a house platform or other building remains are not apparent.

Across the entire project area, only a handful of settlement sites of possible medieval and/or post-medieval date can confidently be said to have been entirely deserted. At first glance this suggests a lack of settlement failure in the area; although it has been noted that it was commonplace for abandoned village sites to have their buildings re-used as sheepcotes during the boom in the Cotswold wool industry. These sites were then themselves sometimes subsequently re-used as dwellings; which later developed into some of the modern villages evident today (Dyer 1995: 161). It should therefore be borne in mind that as some of these sites may have been occupied continually over a period of approximately 800 years; the visible remains may be the culmination of several phases of intermittent expansion and development over time.

7.2.1 Insubstantial and dispersed settlement remains

Across the survey area of the Cotswold Hills NMP there is an evenly distributed abundance of small, isolated possible settlement remains that have been interpreted as dating to the medieval and/or post-medieval periods. Sometimes these consist of just a few banked and ditched boundaries which may have comprised a croft. Examples are numerous but include one within Williamstrip Park (NMR: 1489796) to the east of Coln St Aldwyns, and one just to the north of Witpit Copse, halfway between Cirencester and Ampney Crucis (NMR: 763355). In these cases, the apparent absence of a toft or other building remains makes it difficult to confidently interpret these earthworks and cropmarks as genuine settlement remains, as opposed to, for example, a stock enclosure. In the case of the remains at Williamstrip, it is thought the former settlement was in fact cleared for the creation of the park itself (Jones 2010: 23).

There are also frequent examples of earthworks or cropmarks which appear to represent solely the *buildings* of possible medieval and/or post-medieval settlement. In these cases none of the likely associated boundaries or trackways expected of a typical settlement or farmstead of this date can be seen on aerial photographs. Examples include single possible building platforms at a number of sites including one to the north of Eastleach Turville (NMR: 1490022), and one to the north of Malmesbury (NMR: 1519253). When examining these sites it is important to bear in mind that when there is so little to go on; alternative interpretations and/or dates of origin are possible.

7.2.2 Clusters of settlement remains (associated with currently occupied sites)

The most instantly recognisable form of medieval and/or post-medieval settlement within the survey were the areas of settlement shift or shrinkage within or around sites still occupied. The remains in these cases sometimes consist of cropmarks, but more usually earthworks representing plot or croft boundaries; tofts or building platforms; and trackways or hollow ways. These were sometimes associated with a larger system of field boundaries, lynchets, and ridge and furrow cultivation as in the case of Hampnett (NMR: 763365, see Figure 7.2), Brokenborough (NMR: 887795) and Farmington (NMR: 329944, see Figure 7.3).

The small village of Hampnett is situated on the high Cotswold plateau, approximately 1.2 kilometres to the north-west of the market town of Northleach. The remains of settlement are visible on aerial photographs as earthworks within the western and north-western parts of the village (NMR: 763365, GHER: 4003, see Figure 7.2). The ditches and turf-covered banks representing building remains and former plot or toft boundaries occupy the gaps between properties currently in use. A likely hollow way extends approximately 258 metres NNW to SSE from the southern extent of the area of shrunken settlement. A stone cross socket of probable medieval date stands on the village green (GHER: 7063), and in 2003 a metal-detectorist found a medieval silver-gilt finger-ring within the southern half of the village (GHER: 28150). Such finds support a medieval date for at least one phase of the settlement, if not its origin.

The village of Farmington is another interesting example of the remains of medieval and/or post-medieval settlement within the context of an area still occupied today (NMR: 329944, see Figure 7.3). Farmington lies just 3.4 kilometres to the east of the village of Hampnett, and is probably best-known for the fact that it is located at the eastern end of a multivallate Iron Age 'hillfort' (NMR: 329935). Additionally, a Roman-period villa was excavated in the 1960s at Clearcupboard, at the northern edge of the village. Although not sufficient evidence for continuity of settlement at this site, these earlier remains

suggest a long history of habitation in the area. This was a model also observed in the upper Windrush Valley, on the northern edge of the study area (Dyer 1987: 179). The settlement remains at Farmington are visible throughout the modern village. As in the case of Hampnett, above, the remains consist of extant ditches and turf-covered banks clearly visible on aerial photographs; representing former buildings and boundaries. Archaeological excavations in 1998 at Back Lane revealed a cross-section of the easternmost defences of the Iron Age camp, and the probable western extent of the medieval village of Farmington. A medieval date was established for the settlement with the finds from this dig, which consisted of substantial quantities of 12th and 13th century pottery (GHER: 20251).

The shrunken or shifted medieval settlement remains at Farmington occupy four main sites throughout the village. The most southerly of these areas, just to the south of The Old Rectory, is visible as extant earthworks on aerial photographs of 1966. Subsequently, this is the only area of possible medieval settlement within Farmington to have been ploughed-out. The faint cropmarks of the levelled remains are visible on an aerial photograph of 1983. Interestingly, the removal of the possible medieval earthworks has appeared to reveal the presence of an earlier ditched enclosure or boundary beneath them, also visible as a cropmark by this time (NMR: 1507561).

7.2.3 Clusters of settlement remains (site of total desertion / abandonment)

As already mentioned, the area of the Cotswold Hills NMP project has a very low incidence of areas of entirely abandoned settlement which can be seen on aerial photographs, compared to regions such as the Midlands. The infrequent examples of areas of deserted settlement are scattered across the project area, and include Manless Town, near Brimspfield (NMR: 117565), Shawswell, to the north-east of Rendcomb Park (NMR: 327683), Upper Coberley (NMR: 117398), and a site on the north-eastern edge of Westonbirt Arboretum (NMR: 209238). The distribution of these few sites of total abandonment does not appear to follow any demonstrable pattern, and their location does not seem to be particularly linked to the topography or underlying geology of the area. Their desertion may have been attributable to a combination of factors; but is most likely to have been caused, or at least accelerated, by the agrarian crisis of the early 14th century (Dyer 1987: 176-178).

Villages and hamlets occupied today are densely strewn across the landscape of the project area (Dyer 2002: 37). As discussed above, it is therefore possible that areas of medieval and/or post-medieval abandoned settlement were later re-used, perhaps for agricultural purposes, before arriving at the type of settlement in use today. Dyer (1987: 176-178) has discussed the possibility of dual-nucleus settlements in the area, using the example of Little Aston, which was abandoned in the medieval period in favour of the adjacent larger settlement of Aston Blank. This is now known as Cold Aston, and lies just within the northern boundary of the study area. It has been observed that smaller settlements were the most likely to fail, as they would have been more susceptible to the effects of contraction experienced by all settlements across England during the medieval period (*ibid*).

The examples of abandoned areas of settlement visible on aerial photographs include the aptly-named Manless town (NMR: 117565), located approximately 1.2 kilometres to the south-west of Brimspfield. This could be seen on early aerial photographs of 1946 and 1947 as extant earthworks (see transcription in Figure 7.4, A). An archaeological excavation of 1962 revealed building foundations, and pottery dating between the 12th and 14th centuries; as well as earlier Roman finds (Wingham & Spry 1993).

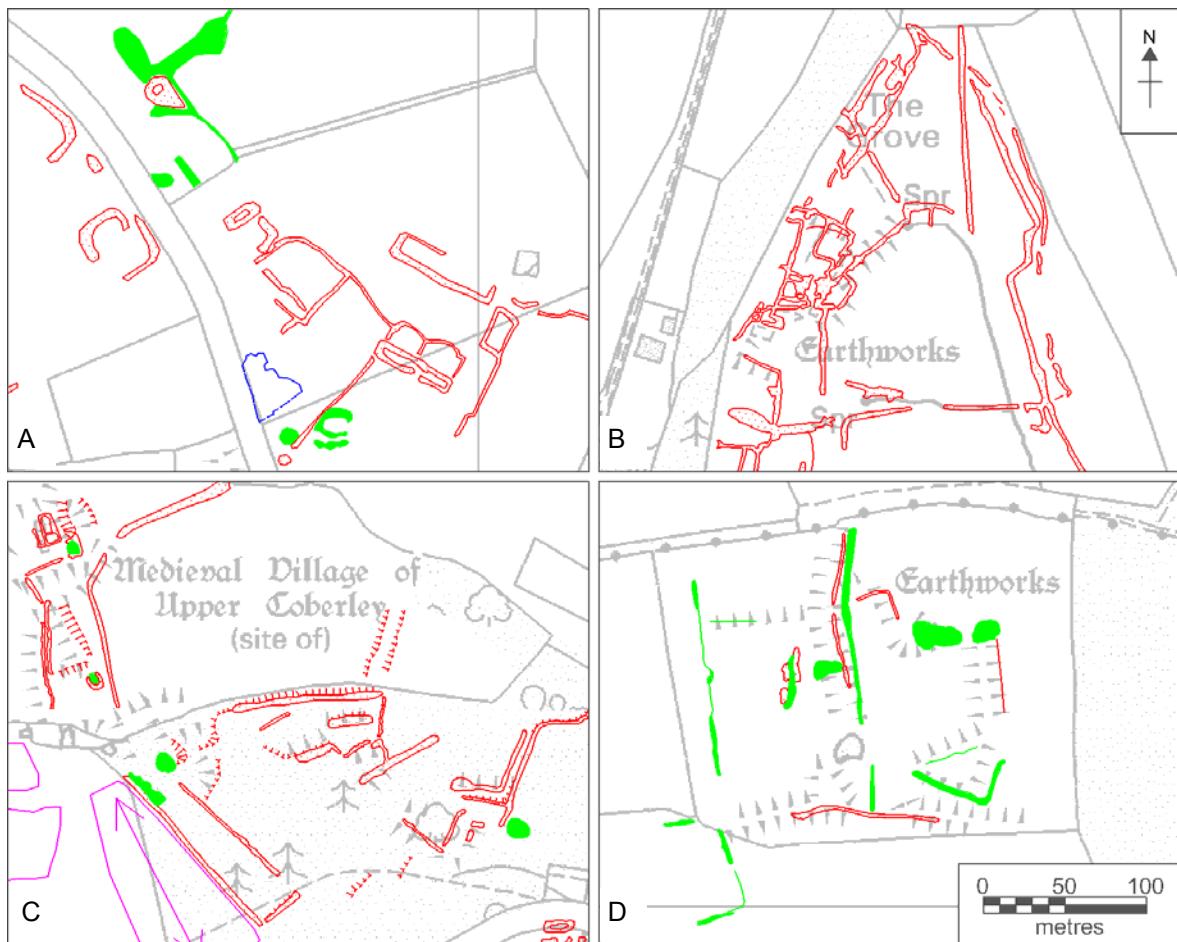


Figure 7.4: Areas of entirely abandoned settlement visible on aerial photographs. A: Manless Town; B: Shawswell; C: Upper Coberley; D: Chapel Hayes field, on the north-western edge of Westonbirt Arboretum. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

At Shawswell, to the north-east of Rendcomb Park, the remains of settlement are visible on aerial photographs as extant earthworks (NMR: 327683, see Figure 7.4, B). The turf-covered banks comprise the foundations of four to five buildings, with associated boundaries. According to the Victoria County History of the area, houses were recorded at this location in 1676 as part of the manor or grange of Marsden (Herbert 1981: 220), although it is likely that settlement predated this record. Even though there are a couple of currently occupied residential properties a little to the south-west of the area of desertion; there is no modern occupation within the field containing the medieval and/or post-medieval earthworks, which are therefore being treated as a site of abandonment.

The medieval village of Upper Coberley (NMR: 117398) is marked on the modern Ordnance Survey map just to the east of Coberley, which is the presently occupied village. The earthwork remains of approximately 10 buildings with associated trackways and boundaries are visible on the earliest available aerial photographs of 1946 (see Figure 7.4, C). On the latest available aerial photographs the site is partially masked by a small area of recently planted woodland. The Gloucestershire HER (4712) mentions surface finds of medieval pottery at the site, which have helped to confirm the date of the features visible on aerial photographs.

The final site of settlement desertion illustrated here is located just to the west of Hawkesbury Spinney, on the north-western edge of Westonbirt Arboretum (NMR 209238,

see Figure 7.4, D). The extant banks and ditches representing a small area of deserted medieval settlement occupy a field known locally as Chapel Hayes. The turf-covered remains of four or five small buildings have been recorded, and lie just to the south of a trackway named Waste Bottom, which leads on to Westonbirt Arboretum, and may have eventually led on to Westonbirt village itself just to the east. This may also have been an example of the failure of the smaller subordinate part of a dual-nucleus settlement.

7.2.4 Less typical areas of medieval and/or post-medieval settlement

7.2.4.1 *Settlement associated with religious and other high status sites*

As briefly mentioned above, the Cotswold Hills NMP included only a single site visible on aerial photographs which could be confidently dated to the early medieval period. This site (NMR: 1200155), located at Cowage Farm just to the south-west of Malmesbury, would be an unusual settlement form in just about any study area partly because of its definite early date, and partly due to its unusual high-status nature. The extensive settlement complex is visible on aerial photographs as clearly defined cropmarks of buildings and boundaries. When considering early medieval sites; it should be remembered that it can be difficult to label a site as 'less typical' when there is so little other contemporary evidence visible on aerial photographs with which to compare it. However, this particular site has been interpreted as potentially of high-status on the basis of the results of an archaeological excavation of 1983, in conjunction with similarities in form to early medieval royal palace sites at Yeavering (NMR: 3855) and Cowdrey's Down (NMR: 1187735) (Hinchcliffe 1986: 240-59).

Approximately 20 buildings were visible on oblique aerial photographs of 1975, 1976, 1982, 1990 and 2006. The buildings and boundaries were represented by the clear cropmarks of post-holes, beam-slots, and ditches, which revealed an intricate level of detail, as shown in the transcription from the photographs in Figure 7.5. As was the case with Yeavering in Northumbria, the early medieval settlement at Cowage Farm was initially identified from aerial photographs (Hinchcliffe 1986: 240). The Cowage Farm site has also been previously mapped from aerial photographs as part of RCHME project in 1983 (see NMR: 1200155). This illustrates the strength of aerial survey in locating and protecting previously unknown sites of national importance. In addition, this site also demonstrates that given the ideal lighting and ground conditions; aerial photography can in fact show enough detail to allow the preliminary characterisation of a site, prior to further multidisciplinary research. As shown on the transcription in Figure 7.5, the clarity of the cropmarks in this case allowed the identification of not just buildings in general, but a possible central hall and potential church.

The site of St Mary's Abbey (NMR: 327340) in Cirencester is also visible on aerial photographs; with the abbey buildings, chapter house, dormitory and cloisters all mapped from cropmarks as part of the project. The Augustinian Abbey was founded in 1131, and was later dissolved and physically demolished in 1539. Interestingly, in the context of the nearby early medieval site at Cowage Farm (above), the Abbey was built on the site of a seventh to eighth century Minster (Blair 1994: 57, Page 1907: 79-83, Wacher 1965, Brown & McWhirr 1966). Archaeological excavations of 1964-5 established the plan and layout of the 12th century Abbey, as well as that of the early medieval Minster beneath. The remains of the early medieval building were not visible on aerial photographs however, due to being masked by the construction of the later Abbey.



Figure 7.5: Cowage Farm early medieval settlement (NMR: 1200155). Top illustration shows the main part of the site. The illustration below is a zoomed-in extract of the transcription. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

Further possible ecclesiastical-owned remains are visible on aerial photographs as earthworks at both Rodmarton and Culkerton, both of which are thought to be linked to the Cistercian monks of Kingswood. The Cistercian abbey at Kingswood was founded in 1139; although the ensuing decades saw the Abbey location shift at least twice, before returning to Kingswood at some time between 1164 to 1170. The sites at both Rodmarton (NMR: 1515473) and Culkerton (NMR: 1515477) clearly show the earthworks of possible medieval and/or post-medieval settlement, which may have formed part of granges or manor farms owned by the Abbey. Hazleton Manor Farm, just to the west of Rodmarton, is thought to be the site of one of the temporary Abbeys of the monks of Kingswood. This site was established in the 12th century, but did not continue in use into the 13th century, and the site is now occupied by the post-medieval manor house (Knowles & Hadcock 1971: 121, Lindley 1954: 115-191). Culkerton, just to the south, is thought to be the location of the manor farm relating to the Abbey at Hazleton (Lindley 1954: 146-50). As at Hazleton, the earthworks possibly forming the remains of the associated grange or manor farm are clearly visible on aerial photographs and are clustered around the houses still in use today.

7.2.4.2 Moated sites, fishponds and pillow mounds

Other less typical sites of medieval and/or post-medieval settlement within the Cotswold Hills NMP project area included moated sites, two of which were in the context of known medieval manor houses. These moated sites often included evidence of fishponds and rabbit farming visible on aerial photographs (to be discussed below). For the purposes of this report, also incorporated within this catchment of less-typical sites of medieval and/or post-medieval occupation are landscape parks, which include a range of artificially created features visible on aerial photographs.

Only nine moated sites were mapped and recorded from aerial photographs. This quantity is comparable with the 13 possible moated sites mapped during the North Cotswolds NMP project (unpublished), but is in contrast to the 28 moated sites within the much smaller area of The Malvern Hills NMP project (Winton 2005). This can be explained by an examination of the topography and underlying geology. As shown by Figure 7.6, the nine possible moated sites mapped during the project all occupy sites located away from the higher ground of the Cotswold plateau. They are clustered instead on the lower-lying areas, characterised by heavier and more clayey water-retaining soils in the valley bottoms. This is a distribution also previously observed in Worcestershire (Bond 1978: 71-2, and Figure 24). It is possible that such settings indicate that some moats could have been constructed as land drains, as is thought may have been the case in Malvern Chase, where they may have been part of the assarting process (Winton 2005: 34). Alternatively, it is possible that moats were not commonly constructed on more freely-draining soils as the probable need to provide some sort of water-retentive lining would have been prohibitively costly and difficult.

As has been discussed elsewhere, a moat was not necessarily an automatic indicator of a high-status settlement site, and moats of a variety of shapes and sizes may have had several functions over their history of use, ranging from ornamental through to agricultural or industrial (Taylor 1978: 5, Bond 1978: 77, Smith 2000: 16). Therefore the distribution of moated sites is not *necessarily* a guide to the layout of manorial holdings (Winton 2005: 34); although the resources and manpower necessary for their construction and maintenance suggest this was not a feature likely to have been peasant-owned. The site of Bradley Moat (NMR: 205385) is believed to be the location of a former medieval manor house. There is also the suggestion of a medieval manor connected with the moat and/or fishpond at Shipton (NMR: 327563).

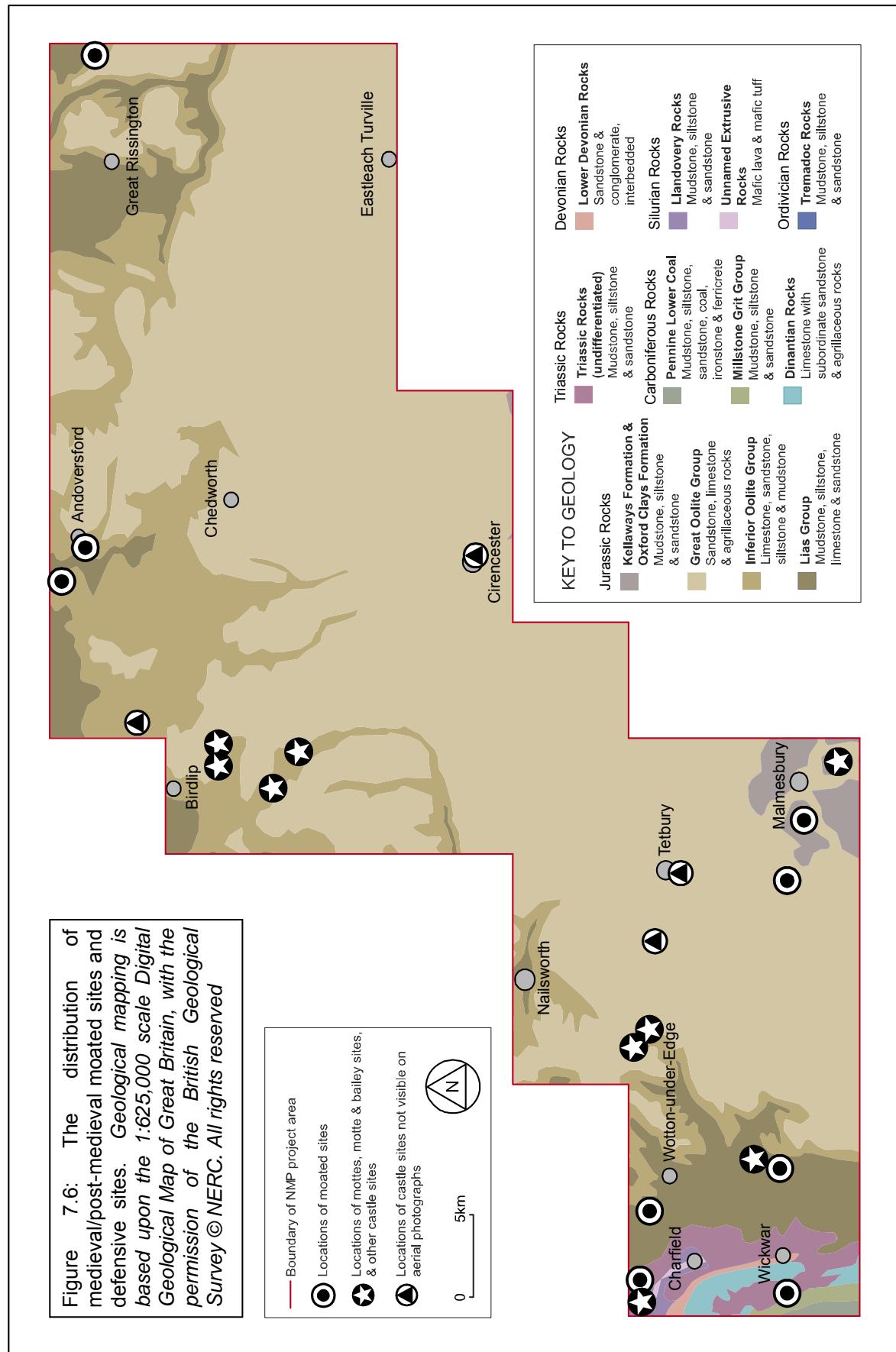


Figure 7.6: The distribution of medieval/post-medieval moated sites and defensive sites. Geological mapping is based upon the 1:625,000 scale Digital Geological Map of Great Britain, with the permission of the British Geological Survey © NERC. All rights reserved

Three of the other possible moated sites within the project area have been only tenuously interpreted as medieval and/or post-medieval; and may alternatively be ditched enclosures dating from earlier periods (NMR: 332329, 208620, 1518825). Three out of the total of nine possible moats within the project area appear to be associated with contemporary fishponds, or to have doubled-up as a fishpond, as is the case with the moat or moats to the east of Barber's Court Farm just to the west of Wickwar (NMR: 205109). Bradley moat, mentioned above, also appears to be located in conjunction with fishponds, as is the case for the moated settlement site to the west of Andoversford (NMR: 327516).

The complex-looking site at Andoversford is visible on aerial photographs as earthworks (see transcription in Figure 7.7) and includes banks and ditches of buildings and boundaries, as well as the moat and interconnected fishponds. The association with fish-farming is worth noting as this has also previously been suggested to have been the preserve of the wealthy during the medieval period, along with deer parks, dovecotes, pillow mounds and vineyards (Williamson 2006: 1-10, Riley and Wilson-North 2001: 103). As will be discussed below, pillow mounds have also been identified in conjunction with moated sites within the project area; as well as pillow mounds and fishponds being located together in some instances.

Nine instances of possible fishponds were mapped from aerial photographs. As would be expected, for the most part these ponds were located within valleys or on the lower ground, where access to a sufficient water supply would be more consistent. This is a pattern also observed both on Exmoor (Riley and Wilson-North 2001: 116, 120) and during the NMP survey of the Northern Mendip Hills (Dickson and Priest 2009: 52). Fishponds were sometimes used for breeding fish, or alternatively as stews for the storage of fish stocks obtained from local rivers (Aston 1985: 105). Whether for the breeding or storage of fish; the creation of the ponds would have taken up a reasonable amount of good farmland adjacent to a reliable water supply and are therefore likely to have been controlled by the more prosperous members of society and they are particularly associated with religious establishments. In the same manner, pillow mounds, which were often created in large groups (NMR: 205298, 1523310, 1401193 and 1001570) also needed a substantial portion of land, which was often enclosed. Additionally, those farming the rabbits for their meat and fur would have needed the resources to source fodder from elsewhere (Williamson 2006: 1-10). Fishponds and pillow mounds also required considerable manpower for both their creation and maintenance; and in this respect are similar to moated sites in that they were unlikely originally to have been peasant-owned.

Evidence for rabbit farming occurs frequently within the project area, in the form of pillow mounds visible on aerial photographs as earthworks or cropmarks. Pillow mounds of all shapes and sizes were observed from the aerial photographs; including some which are round (NMR: 1505623) and L-shaped in plan (NMR: 1512224). Some of the more typical oblong mounds measured up to approximately 150 metres in length (NMR: 1523310). These pillow mounds or warrens are scattered right across the project area, and there are examples of pillow mounds and fishponds occurring together at the same site. The two fishponds and three pillow mounds (one oblong and two round in shape) on the northern edge of Burford are an example of this (NMR: 1505623). The complex of fishponds just to the east of Cold Aston (NMR: 1507535) is also located immediately adjacent to evidence of a substantial oblong pillow mound (NMR: 329994). There is also an example of a system of pillow mounds located alongside a moat at Lovetts Wood Farm, to the south of Hillesley (NMR: 1524634, 205066), as illustrated in Figure 7.7.

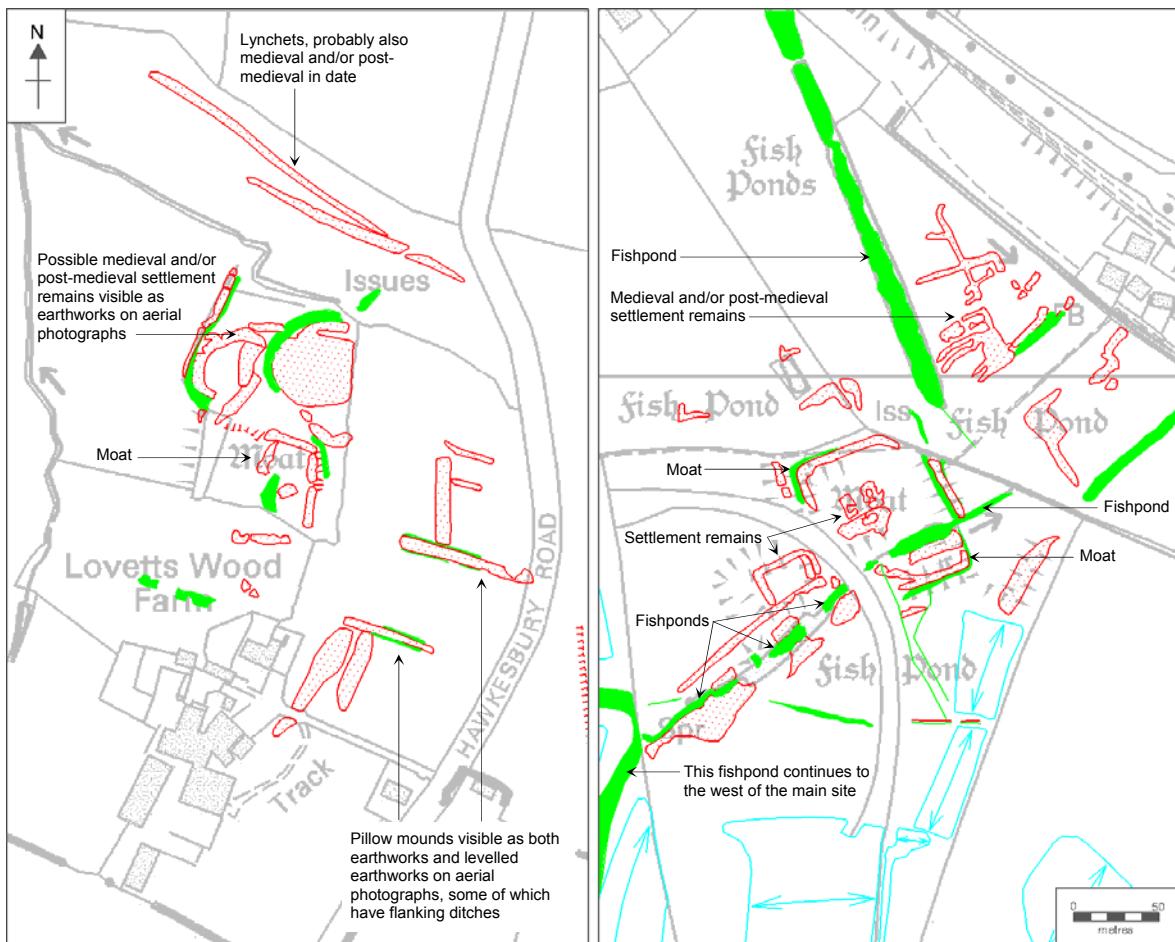


Figure 7.7: Moated sites at Lovetts Wood Farm and Andoversford. Left: The moated site at Lovetts Wood Farm has adjacent pillow mounds thought to be of contemporary date. Right: Moated site at Andoversford, with adjacent fishponds of possible contemporary date. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

Considering the possible high-status association of rabbit farming, fishponds, and moats individually, it is not surprising therefore to find them occurring together in various combinations on sites across the landscape of the Cotswold Hills. However, it should be noted that even if a moated site was originally constructed by a wealthy landowner either as a landscape feature or status symbol; the moat may later have had a different purpose. As mentioned above, moats may have served a drainage function, or may have facilitated the irrigation of crops, the watering of stock, or the powering of mills (Winton 2005: 34). Pillow mounds may also have undergone a similar transformation of ownership over time. Although rabbit farming was likely to have been controlled by wealthy landowners when it was first introduced to this country in the early medieval period; by the 18th century the importance of rabbits as a source of food had declined. Therefore the status of rabbit farming waned accordingly and it may be that pillow mounds dating to the post-medieval period can be less closely linked with the elite of society (Williamson 2006: 1-10).

7.2.4.3 Landscape parks

The results of the Cotswold Hills NMP project contain many examples of elements of a designed landscape; ranging from single tree enclosure rings (NMR: 1512400) or terraces or banks, right up to extensive landscape parks. The most notable of the latter type, and the most visible on aerial photographs as cropmarks and earthworks, is Lodge Park, to the north-west of Aldsworth (NMR: 858721, see Figure 7.8).

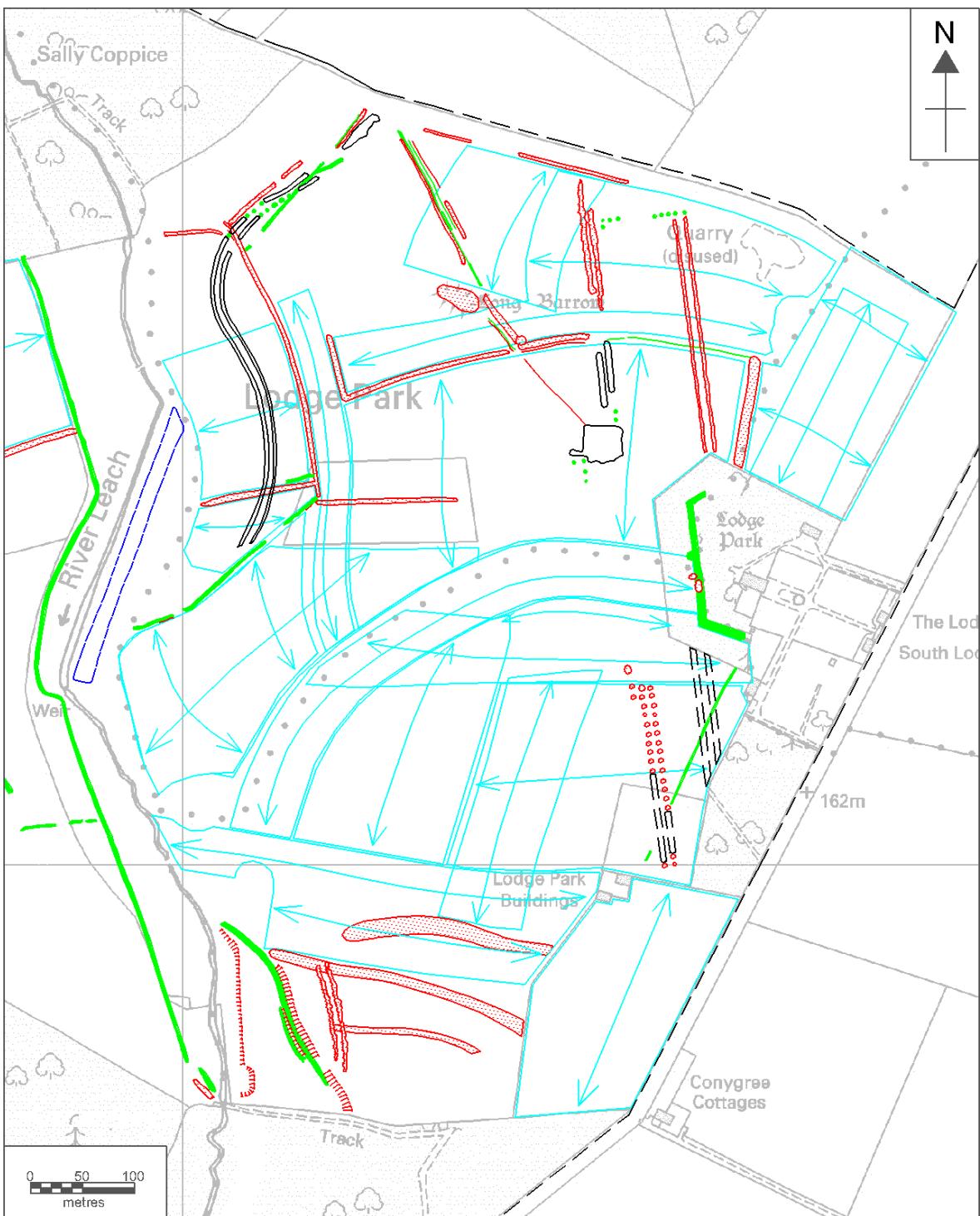


Figure 7.8: Pre-emparkment remains and post-medieval landscaped features within the eastern half of Lodge Park. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

Lodge Park was created in the early 17th century for the coursing of deer. Approximately 100 years later the landscape designer Charles Bridgeman was commissioned to extend the park and incorporated a variety of landscape features (Smith 2005). These features mostly consisted of avenues of trees, the remains of which are now visible on aerial photographs either as extant linear banks, or as the earthworks or cropmarks left behind by the individual trees. In addition to the layout of the tree avenues; a substantial extant ha-ha can be seen amongst trees to the west of the Lodge. Possible elements of a 'serpentine lake' which was to follow the River Leach through the centre of the park are visible on aerial photographs as extant scarp edges and a linear water-filled channel. It appears that the construction of the lake was never completed.

Apart from the clearly visible post-medieval landscape features themselves, the interesting thing about the aerial photographs of Lodge Park is that they provide a window into the earlier landscapes beneath. When the park was laid out and extended in the 17th and 18th centuries, it was created from land formerly used for ridge and furrow cultivation as part of the open field system, although it may have been converted to pasture by this time. Once the emparkment was complete, the absence of agricultural ploughing within its boundaries has ensured the preservation of even low-level earthworks. Therefore, as can be seen from the transcription in Figure 7.8, Lodge Park contains extremely well-preserved ridge and furrow earthworks with contemporary field boundary banks and ditches (NMR:1442466), as well as a Neolithic long barrow (NMR:330036), a hollow way (NMR: 1502767) and three banks at the southern end of the park, which are undated but possibly represent a field system predating the ridge and furrow (NMR: 1502645). Extant, or even levelled, ridge and furrow cultivation is not visible to such an extent in the surrounding area. This suggests that subsequent centuries of agricultural activity have ploughed-out these earthworks. If we were to extrapolate this pattern of medieval cultivation across the nearby area; this would indicate a much more intensively arable medieval landscape than presently demonstrated by the aerial photographic evidence. Agriculture and cultivation is discussed more fully below.

7.3 Medieval defensive sites

The Cotswold Hills NMP survey included seven examples of possible medieval mottes and/or motte and bailey castles; a possible medieval ringwork; and a medieval keep and bailey castle. Their distribution is illustrated in Figure 7.6. These well-known sites were all visible on aerial photographs as earthworks. There are four further medieval castle sites within the study area known either from excavation or documentary sources, where there were no remains visible to map from aerial photographs. The castles had either been destroyed, as in the case of Cirencester Castle (NMR: 327345), or were obscured by trees and/or later buildings, as at Beverstone (NMR: 209116). The other two unmapped sites are the 12th century castle at Tetbury (NMR: 209123), which is recorded as having been levelled in the 18th century; and the extremely tenuous remains of Coberley Castle (NMR: 117382), which consist of nothing more than a barrel-vaulted drain discovered at the reputed castle site in 1951.

Although these medieval defensive sites represent only a tiny percentage of the total number of archaeological features mapped from aerial photographs; what they infer regarding the social pressures of the time means they warrant a brief discussion here. The small proportion of sites of this nature is not unexpected as Gloucestershire is known to have a generally low density of medieval rural castles in comparison with areas such as Herefordshire and the Welsh Marches. As would be expected for these monument types,

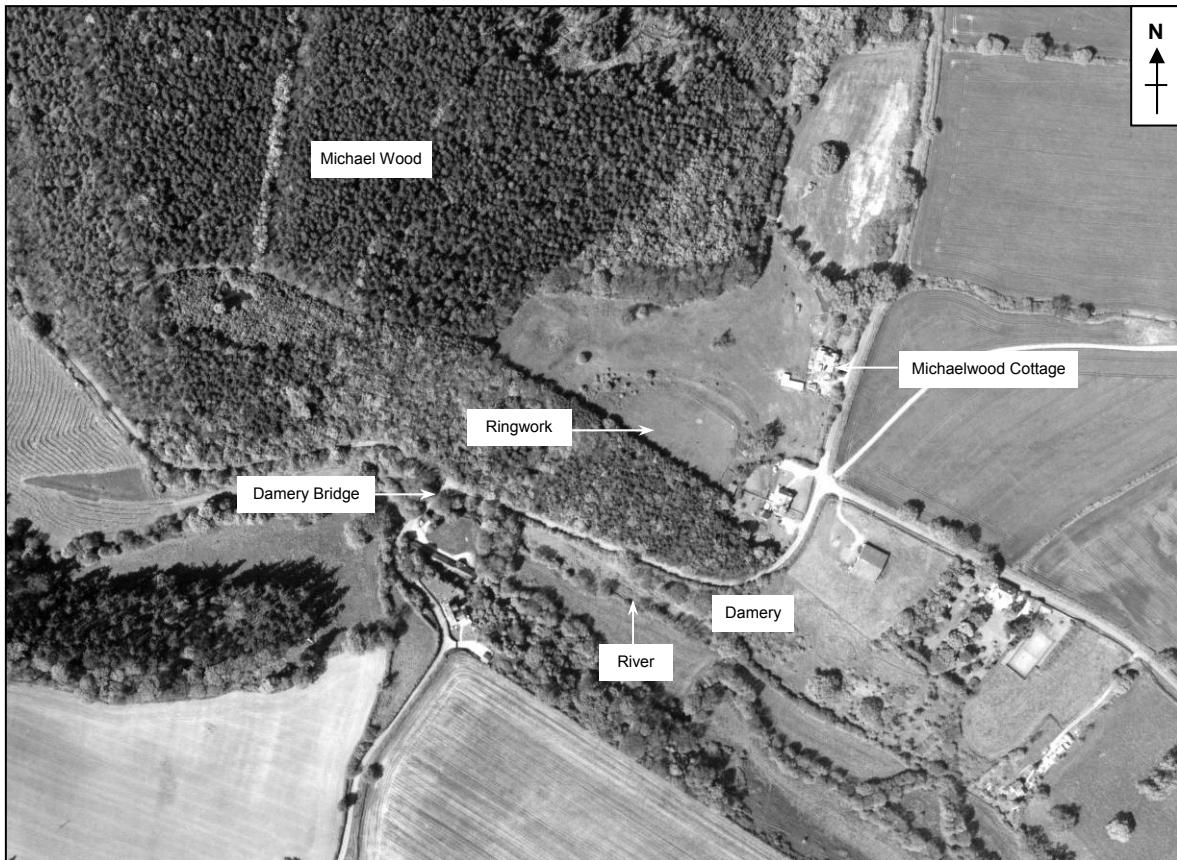


Figure 7.9: Possible medieval defensive ringwork at Damery, visible as an earthwork on a vertical aerial photograph. NMR OS/92064 094 13-MAY-1992 © Crown Copyright. Ordnance Survey

they occupy prominent locations within the landscape. Six of the seven possible visible mottes and the keep and bailey castle are located along the north-western edge of the study area, which is generally the highest part of the uplands; adjacent to the Cotswold Escarpment (see Figure 7.6). No post-medieval defensive sites were observed from aerial photographs in the study area.

7.3.1 A medieval ringwork

Defensive ringworks are regarded as a relatively rare monument type. They usually consist of a small roughly circular enclosure surrounded by a bank and external ditch. The bank may have included revetments, or been surmounted by a timber palisade which could have included a tower or gatehouse. The defended area within the earthworks may have included domestic buildings; although it is thought ringworks were more usually a garrison or military outpost with limited long-term occupation. Occasionally they are known in association with a bailey, which is differentiated from the ringwork by its much larger size (Leach 1988a). Ringworks are relatively common in the Welsh Marches; although they are found in both urban and rural locations throughout England. They appear to vary widely in form with no particular chronological or regional characteristics as yet identified. As such they may be easily confused with other monument types, including small hillforts or stock enclosures (Leach 1988a, King & Alcock 1969: 99). Ringworks are considered to be contemporary with mottes and motte and bailey castles, and were sometimes later converted into mottes (Leach 1988a).

The single possible medieval ringwork mapped from aerial photographs is located at Damery on the south-eastern side of Michael Wood, below the Escarpment (NMR:

205368, see vertical aerial photograph in Figure 7.9). Although it is not situated on the higher ground of the project area, it does however occupy a strategic position within the immediate vicinity; being located on a promontory above the road and bridge over the river. This location is typical of other known ringworks (Leach 1988a: Section 4). It is roughly oval in plan, and although not visible on the aerial photographs; the bank and ditch are continuous through the trees on the southern side of the site. A medieval schist hone was found at the site in c.1950, and is now in Bristol Museum (Verey & Pevsner 1970: 82).

7.3.2 Medieval mottes, motte and bailey sites, and other castles

Examples of mottes or motte and bailey castles are seen at Newington Bagpath and Lasborough, as well as Castle Tump at Miserden (see transcriptions in Figure 7.10). Mottes, which were watchtowers or military strongholds as opposed to domestic sites, usually consisted of a squat, flat-topped mound. They were surrounded by a ditch which may have been either wet or dry; and topped by a timber-built tower, which may have been further defended with a palisade fence or revetments. Structures of stone were added later in some cases (Leach 1988b). The motivation for the construction of either mottes or motte and bailey castles was the same as that for ringworks. Therefore the two monument types share dates of origin, as well as occupying similar locations and displaying comparable distributions throughout England. Mottes are additionally similar to ringworks in that they do not appear to have a definitive regional style, and may also be confused with other monument forms; such as barrows, windmill mounds, and slagheaps (*ibid*).

The motte at Newington Bagpath (NMR: 209173) is strategically located at the top of a steep slope, on the opposite side of the small valley of Hay Bottom to a motte and possible bailey at Lasborough (NMR: 209188). The Newington Bagpath example is visible on aerial photographs as a sub-circular mound, surrounded by a substantial ditch on all but its north-eastern side, where the ground falls steeply away. Mottes such as this, apparently without a bailey attached are thought to be a relatively rare monument type, comprising approximately 25% of known mottes (Leach 1988b: Section 4). Earthworks of a possibly contemporary area of abandoned settlement (NMR: 209244) lie 60 metres to the north-east of the motte at Newington Bagpath, on the other side of the modern road.

The motte at Lasborough occupies the top of the opposite side of the small valley; approximately 900 metres to the south-east of the site at Newington Bagpath. A ditched enclosure (NMR: 926366) which may have been either an incomplete or denuded bailey can be seen on aerial photographs as cropmarks on the northern side of the motte at Lasborough. Either of these explanations (incomplete or denuded) are recognised as possible reasons for a motte being identified without an obvious bailey (Leach 1988b: Sections 4&5). The ditched enclosure at Lasborough may alternatively be a different form of settlement enclosure. The locations of the two mottes in relation to one another suggest they were constructed as opposing siegeworks during a period of local conflict; in which case their usage may have been so short-term as not to necessitate an accompanying bailey in one or both cases (Leach 1988b: Section 4).

As well as apparently being positioned with consideration to one another, the two mottes discussed above also have a specific location within the wider landscape. They are sited, as is thought to be typical for such defended sites, at the junction of two existing roads (Leach 1988b: Sections 1&4). The modern A46, which runs roughly south-west to north-east, possibly originated in the Neolithic period (The Jurassic Way) and was partly utilised during the Roman period (NMR: 1035203) (Clarke 1940: 72).

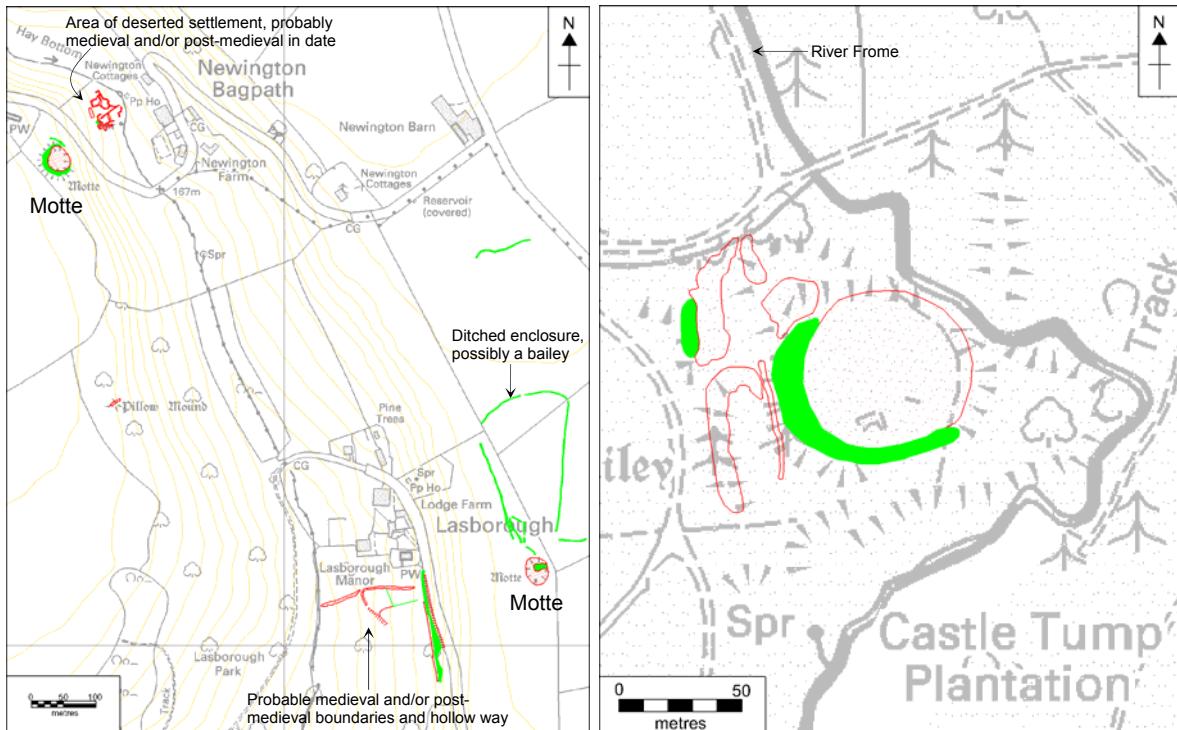


Figure 7.10: Transcriptions of mottes and motte and bailey fortifications. Left: Mottes at Newington Bagpath and Lasborough, which may have been built as opposing siegeworks. The motte at Lasborough appears to have a bailey attached to it. Right: substantial motte and bailey fortifications at Castle Tump, Miserden. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

Just to the south-east of the motte and possible bailey at Lasborough; this road intersects with the south-east to north-west aligned Roman route from Easton Grey to Arlingham, which is now known as Bowdown Road (NMR: 1325850). The substantial motte and bailey fortifications at Castle Tump, Miserden (see Figure 7.10, NMR: 117125) are also characteristically located in a strategic position. In this case control was exercised over a crossing of the River Frome, from a vantage point above a bend in the river.

Just to the north-east of the village of Brimspfield, a motte (NMR: 117548) and a keep and bailey castle (NMR: 117554) which lie just over 400 metres apart are visible as earthworks on aerial photographs. Rather than forming contemporary opposing siegeworks, as is possible for the mottes of Newington Bagpath and Lasborough, it is likely that the keep and bailey castle superceded the slightly earlier and lower-lying motte (Butler 1957: 76). No bailey is visible on aerial photographs in association with the earlier motte or castle mound. This type of site, as discussed above in the context of Newington Bagpath, is also known as a motte and fosse castle. The later keep and bailey castle lies on the north-western edge of the village of Brimspfield, and is thought to date from the 12th or 13th centuries (*ibid*). As such, this is one of the later forms of defensive site mapped during the project, as the majority of mottes (with or without baileys) and ringworks are thought to date from the immediately post-Conquest phase, and the turbulent period of The Anarchy in the 12th century (Leach 1988b: Section 2).

The sizeable earthworks of motte and bailey castles and related monument types, such as the possible ringwork at Damery, are unlikely to be newly discovered through aerial survey as such remains have usually been long-recognised. As already mentioned though, there can sometimes be confusion in their interpretation, and therefore an aerial viewpoint with the perspective of a landscape-wide approach can be beneficial. In the

case of the motte at Lasborough, the examination of aerial photographs has helped to develop the interpretation of this previously known site. An initial aerial survey of 1993 identified the cropmarks of a ditched linear feature (NMR: 926366) to the north of the motte (NMR: 209188). The slightly more in-depth survey undertaken as part of the Cotswold Hills NMP recognised this linear feature to be part of a larger ditched enclosure which appears to be orientated on the motte to the south. As discussed above, it is possible that this enclosure may represent an incomplete, or ploughed-out medieval bailey. Further research on this site, such as archaeological excavation combined with historical and cartographic research would help to develop the interpretation proposed as a result of the aerial survey.

7.4 Agriculture

The earthworks produced by medieval and post-medieval agriculture form the most extensive elements of the historic landscape and the NMP provides the clearest evidence both for the extent of their survival in the mid 20th century and of their subsequent destruction. Evidence for open fields of medieval origin in the form of ridge and furrow is widespread in the study area, as is the case for many areas of England. Aspects of its distribution within the study area are outlined below. The topography and geology of the Cotswolds results in a perhaps greater than average density of two other types of agricultural monument, lynchets and water meadows.

7.4.1 Lynchets

The English Heritage thesaurus defines a strip lynchet as 'A terraced field usually found on hillsides. Comprising a flat strip of land, called the tread, and a steep, scarped lynchet or edge, called the riser'; it defines a cultivation terrace as 'An area of land, usually on a slope, which has been built up to provide a flat surface for the cultivation of crops'. The Cotswold Hills NMP study area contains frequent examples of these ; ranging from single possible cultivation terraces, to extensive systems of strip lynchets. As would be expected, their distribution and occurrence mirrors the topographical map (see Figure 2.2, in Character of the Survey Area), and as such there is a particularly dense concentration of lynchets along the small section of the Cotswold Escarpment which falls within the western end of the study area. This region has been referred to in Chapter 2 as 'the rolling hills and valleys' area, as it is so markedly characterised by sudden changes in topography. Lynchets are also commonly found along the upper slopes of the Thames tributary valleys, as seen near both Hampnett and Bibury.

Hawkesbury, Hillesley, Alderley and Wotton-under-Edge fall within the heavily lyncheted area of the escarpment. The density of lynchets here points towards the intensive exploitation of the landscape from the 12th and 13th centuries onwards, as such steeply sloping hillsides are unlikely to have been ploughed without a lack of available level farmland elsewhere. This medieval demand for land is also demonstrated by the subdivision of yardlands in the area (as seen at Berkeley), as well as the introduction of a more intensive four-field system of rotation (Dyer 1987: 176-178). The agrarian crisis of the 14th century (discussed above) and the subsequent shift to an increase in upland pasture (*ibid*) meant that the demand for available plough-land decreased, and these steeply sloping fields gradually fell out of arable cultivation; thereby preserving their earthworks through disuse. At periods in the later 20th century the return to a predominately arable regime has had a detrimental effect on the survival of archaeological earthworks in the area. However, the hillside location of these lynchets has largely protected them from the modern plough as advances in agricultural technology and efficiency mean that it is now unnecessary to cultivate every last available square metre of land for arable purposes (Pilbeam 2006: 49).

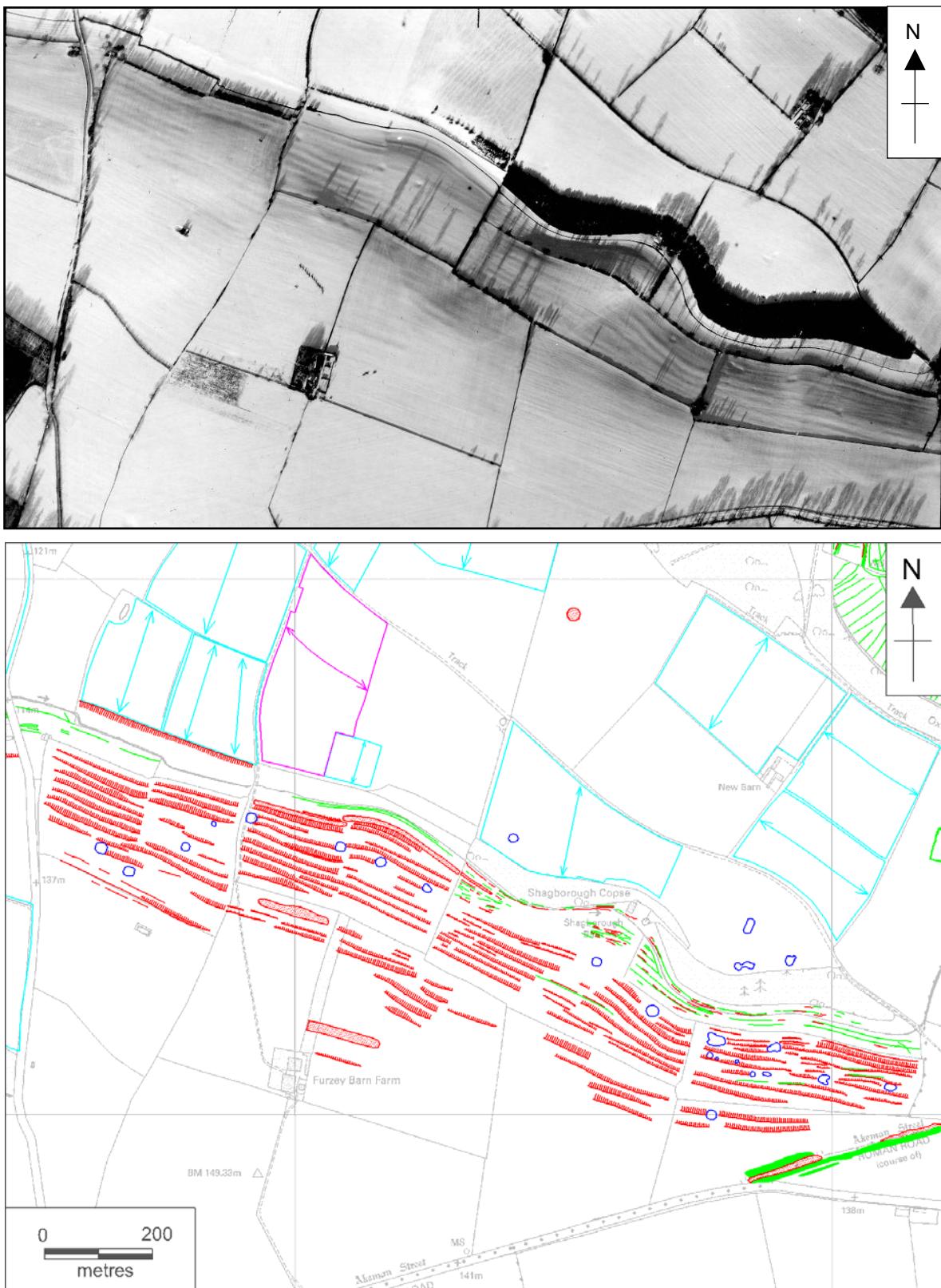


Figure 7.11: An extensive system of lynchets to the south of Bibury. NMR RAF/540/958 4324 01-DEC-1952 English Heritage (NMR) RAF Photography. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010

A particularly extensive system of strip lynchets can be seen on aerial photographs as earthworks to the south-west of the village of Bibury (NMR: 1493983, see Figure 7.11). The lynchets traverse at least 10 separate modern fields over a total length of

approximately 2.3 kilometres, on the north-west facing slope of a small valley aligned WNW to ESE. This example is worth highlighting because, as can be seen from Figure 7.11, the majority of the lynchets were mapped from a vertical aerial photograph of 1952 which shows the landscape under a blanket of snow. On all other available aerial photographs, both oblique and vertical, only small fragments of the larger system of cultivation could be seen. Without the snowy photograph, the extent of the intensive medieval and/or post-medieval farming of these slopes would not have been evident during the NMP survey. We are not fortunate enough to have vertical photographs of the entire project area under snowy conditions, and as such it is possible that other extensive systems of strip lynchets or other earthworks in the area have been missed. If new aerial photography or lidar imagery of the project area were to be consulted in the future as part of further research, it may be that such possible omissions would be identified.

Some of the lynchets identified and mapped as part of this NMP survey may have had origins pre-dating the medieval and/or post-medieval periods. There are examples of early field systems defined by lynchets to the north-west of Eastleach Martin (NMR: 329682) and north-west of Kemble (NMR: 212748). These lynchets are thought to be later prehistoric or Roman in date due to their form (Pilbeam 2006: 49).

7.4.2 Ridge and furrow

Evidence of medieval and/or post-medieval ridge and furrow cultivation was prolific throughout the survey area, in the form of earthworks and/or cropmarks visible on aerial photographs. In some areas, such as the parishes of Miserden and Elkstone on the high wolds, this consists of scattered, isolated blocks of ridge and furrow which hint at what may have been a formerly extensive agricultural regime. In other areas, such as the lower-lying parishes of Ampney Crucis and Ampney St Mary, it appears that the majority of the almost contiguous medieval open field systems are still apparent on aerial photographs. This form of arable cultivation characterised the area from the early medieval period up to the gradual takeover of sheep farming and the Cotswold wool industry from the 14th century onwards, as has already been discussed above (Pilbeam 2006: 49-50; Dyer 1995: 161). A 1603 map of Temple Guiting, which lies to the north of our study area, shows only the valley land under arable cultivation by this point. The remaining two thirds of the parish were designated as pasture, which was typical of the late medieval landscape of the Cotswolds (Dyer 1995: 160).

The blocks of ridge and furrow mapped from aerial photographs frequently included the plough headlands; trackways or hollow ways; drainage ditches; and plot or field boundaries with which they were associated. These were mapped as either banks or ditches, and were often included within the monument record for the ridge and furrow, as they formed part of the same overall phase of land use.

Figure 7.12 shows the distribution of the blocks of ridge and furrow across the entire survey area, in comparison with the geological mapping of the region. It is immediately apparent from this that the most densely occurring ridge and furrow cultivation is clustered away from the uplands, on the lower, more clayey soils below the Cotswold Escarpment and on the south-eastern extremities of the dip-slope. This is to have been expected, as the intention of this method of cultivation was to aid the drainage of waterlogged soils, thereby improving the productivity of farmland (Hall 1982). It is interesting how closely the distribution of ridge and furrow mirrors the geological mapping, especially along the northern and western edges of the study area. Although a general association was anticipated, such an exact correlation was surprising as it was thought that other factors affecting the visibility of the archaeology might have disrupted the distribution (see Section 3.3).

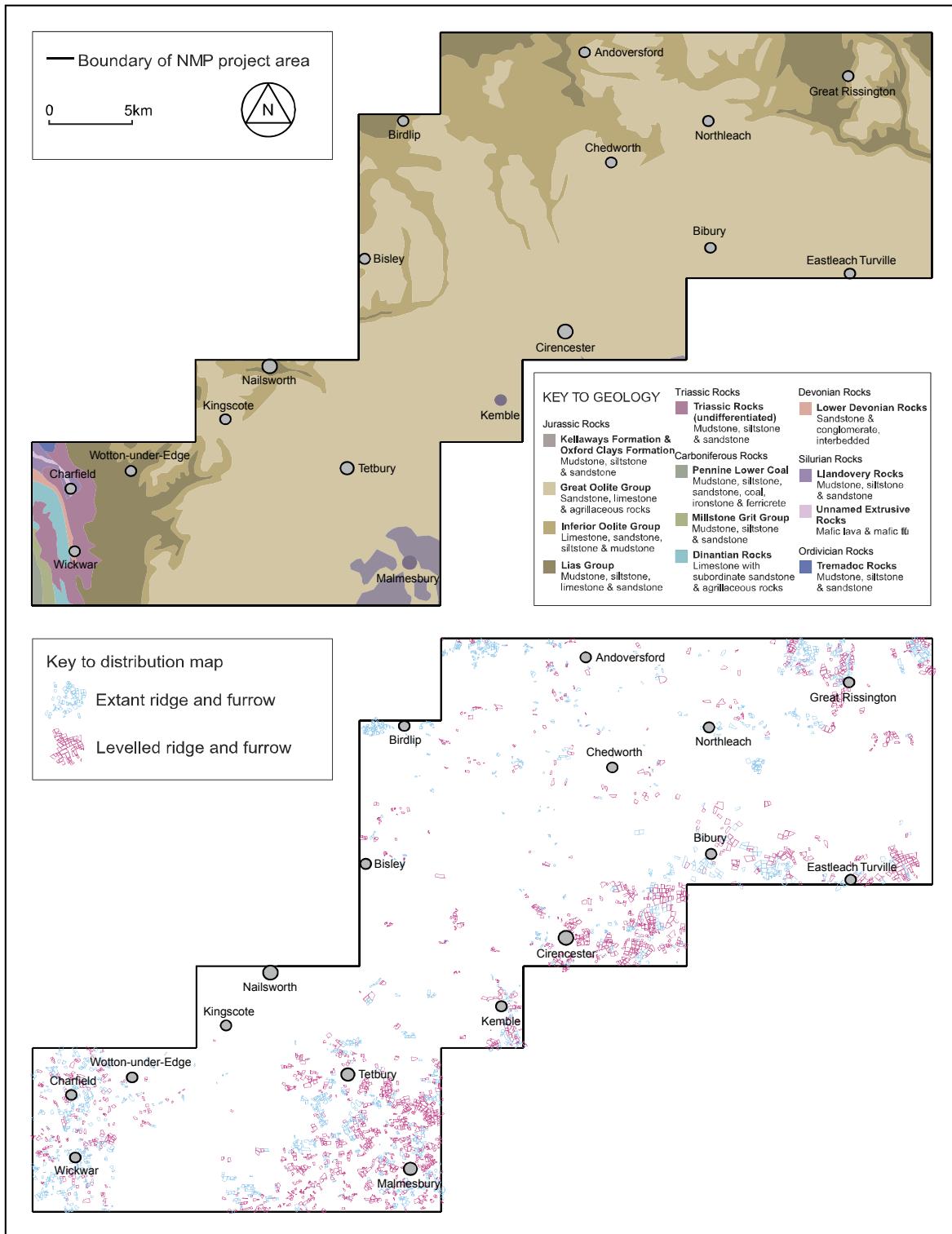


Figure 7.12: The distribution of medieval and/or post-medieval ridge & furrow cultivation across the study area. *Geological mapping is based upon the 1:625,000 scale Digital Geological Map of Great Britain, with the permission of the British Geological Survey © NERC. All rights reserved*

The high occurrence of ridge and furrow cultivation shown along the south-eastern boundary of the NMP project in Figure 7.12 does not appear to coincide with significant changes in the underlying solid geology, such as is the case along the northern and western edges of the survey area. The changes in drift geology (superficial deposits) are also insignificant in this area (BGS 2010) and have not therefore affected the distribution

of medieval and/or post-medieval ridge and furrow. However, the topographical mapping in Figure 2.2 (Character of the Survey Area) and Figure 7.1 show that this particular spread of ridge and furrow occurs towards the lower ground of the dip-slope. Agricultural settlements here may have resisted the pressures of the agrarian crisis of the early 14th century a little longer than those further up on the high Cotswold Plateau; which is likely to have seen an earlier and more widespread conversion to pasture as a consequence of the abandonment of farmland (Dyer 1987, 1995).

A further interesting observation to be made from the topographical mapping is that some of the patches of ridge and furrow which were still extant on the most recently available aerial photographs occur in areas of steeply sloping ground. Examples of this can be seen to the east of Birdlip; at Little Herbert's on the south-eastern edge of Cheltenham; and on the northern side of Fifield, Oxon. This reiterates the point made in the section on lynchets, above, that the high demand for arable land during the medieval period caused less suitable, more steeply sloping areas of farmland to be utilised. Subsequently, the increase in sheep pasture from the 14th century onwards preserved the earthworks of the ridge and furrow cultivation simply through disuse. Additionally, increased efficiency in modern agriculture meant that these areas were not needed, and therefore not plough-levelled, during the boom in cereal production in the late 20th century (Pilbeam 2006: 49-50).

Lodge Park, between Aldsworth and Northleach, was discussed above in the context of medieval and post-medieval designed landscapes. Additionally, it contains an interestingly dense spread of extant ridge and furrow earthworks which do not seem to be characteristic of the surrounding area. As already mentioned, when the park was laid out and extended in the 17th and 18th centuries, it was created from land formerly used for ridge and furrow cultivation as part of the open field system. Once the emparkment was complete, the lack of ploughing carried out within the boundaries ensured the preservation of low-level earthworks extant at that time. As such, as can be seen from the transcription in Figure 7.8, Lodge Park contains extremely well-preserved ridge and furrow earthworks and contemporary field boundary banks and ditches, as well as possibly even earlier field systems. Extant, or even levelled, ridge and furrow cultivation is not visible to such an extent in the vicinity. This suggests that subsequent centuries of agricultural activity have ploughed-out the possible medieval earthworks. If we were to extrapolate the pattern of cultivation preserved at Lodge Park across the surrounding area; this would indicate a much more intensively farmed landscape than presently demonstrated by the aerial photographic evidence and assumptions regarding the economies of the local settlements may need to be reviewed as a result. This concurs with what is known of the high demand for agricultural land in the area in the 12th and 13th centuries (Dyer 1987: 176-178).

It has previously been observed that aerial survey is an especially effective means of conducting wide-ranging landscape survey of ridge and furrow cultivation (Beresford & St Joseph 1979) and therefore of the surviving locations and extent of the open field system used by medieval villages. This has been particularly useful whilst attempting to characterise the spread and distribution of this method of cultivation across a project area of 950 square kilometres. It would be expected that shorter strips or lands would be observed on the heavy clay soils around the edges of the NMP survey area; with longer, narrow strips on the High Wolds, as the length of a strip was determined by the distance oxen could pull the plough before needing a rest (Pilbeam 2006: 51). Such a level of detailed analysis, however, was not within the scope of this project. More in-depth research, for example to ascertain the chronologies of the medieval and post-medieval field systems within the survey area would benefit from the application of a multidisciplinary approach. The precise phasing of different areas of ridge and furrow across the survey area was not apparent from aerial photographic evidence alone. The

extent of ridge and furrow that survived until the mid 20th century has however, been clearly demonstrated by this project and can contribute to future settlement studies in the area by allowing more rapid identification and clearer understanding of the open fields associated with many of the medieval settlements of the region.

7.4.3 Water meadows

Water meadows were created in pastures alongside rivers or streams, with the intention of diverting the flow of water in order to flood the land over the winter. This treatment raised the temperature of the soils sufficiently that when drained in the early spring, the meadows produced healthy and vigorous growth of the grass needed for grazing the flocks. Additionally, silt from the winter flooding would have helped to fertilise the land. The meadows could then be re-irrigated in May to give a good crop of hay in the summer months (Pilbeam 2006: 56, Brown 2005: 85, Cook & Williamson 2007).

The bedwork type of water meadows is the most frequently seen throughout the survey area. Common throughout southern England from the 17th century onwards; they occupied the flat alluvial floodplains of river valleys. The flow of the adjacent river was controlled by a sluice or hatch into a channel known as a main carrier or carriage. From there the water flowed into narrow 'floats' cut into the top of beds or panes laid out right across the meadow. The water level was increased until it overflowed from the floats, and was returned to the river by a 'tail drain' (Cook & Williamson 1999: 161-162). From an aerial viewpoint, this system of beds and drains forms the brickwork pattern characteristic of water meadows.

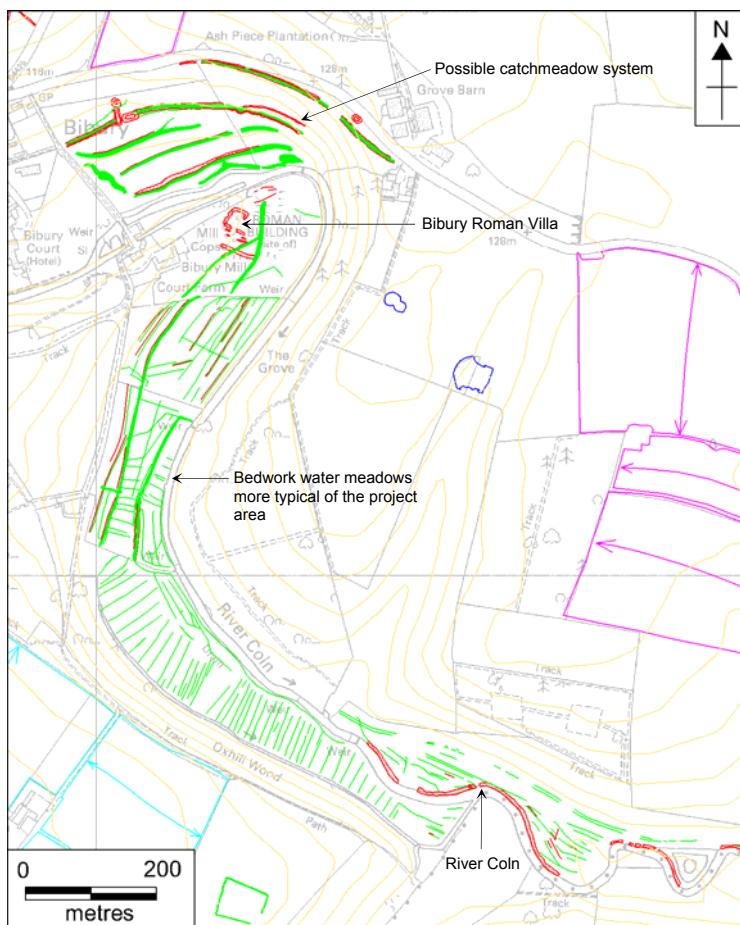


Figure 7.13: Water meadows on the eastern edge of Bibury.

The water meadows illustrated here flank the River Coln as it flows from Bibury towards Coln St Aldwyns.

A possible catchmeadow system, uncharacteristic of the project area, is visible on a sloping hillside at the top of the picture.

Bedwork water meadows more typical of the Cotswold Hills NMP area occupy the flat base of the small valley to the south.

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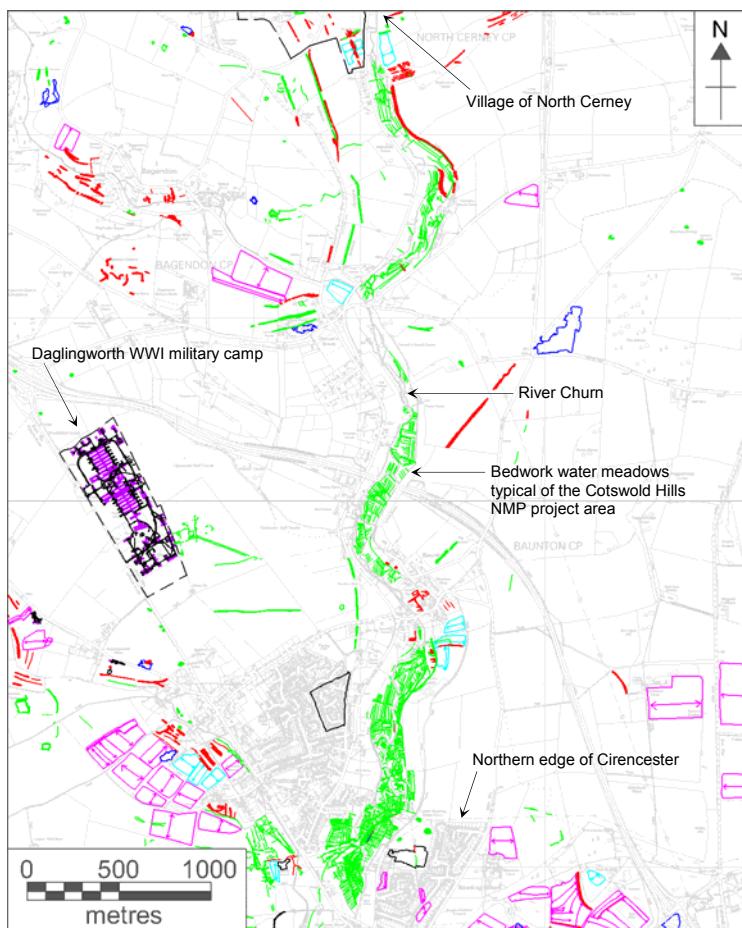


Figure 7.14: Water meadows to the north of Cirencester.

This illustration shows bedwork water meadows to the north of Cirencester, alongside the River Churn.

This form of water meadow was the most common type seen within the project area.

Aerial photographs clearly show the considerable extent of this particular agricultural regime during the post-medieval period.

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Post-medieval water meadows, visible on aerial photographs as extant earthworks, are a common feature of the dip slope (south-eastern) side of the survey area. The water meadows often formed extensive systems visible along the majority of the length of a river valley, as was the case with the Rivers Windrush, Coln, and Churn. Figure 7.14 shows the water meadows of the River Churn meandering southwards across the landscape towards the north of Cirencester. Water meadows are usually visible as extant earthworks on the most recently available aerial photographs, although a few small areas have been recently ploughed level, as is the case for the meadow to the south of Bridge Wood on the River Windrush, to the north-east of the Sherborne estate (NMR: 1508173). A small area of this same system of water meadows has been recently restored to working condition by the National Trust (Pilbeam 2006: 56).

Water meadows were an invaluable part of the agricultural regime of the post-medieval period in the area of the Cotswold Hills, as they greatly increased the early yield of grazing land for sheep. During the 14th and 15th centuries the lucrative wool industry of the Cotswolds was at its peak, and continued to prosper until the 19th century (Pilbeam 2006: 123). Therefore the considerable time and resources invested in the construction and maintenance of the water meadows of the region was worthwhile (Cook & Williamson 1999: 162).

Figure 7.14 shows the distribution of the distinctive bedwork type of water meadow along a 5.2 kilometre stretch of the River Churn between North Cerney and Cirencester. This demonstrates the proliferation of what must therefore have been a particularly successful agricultural method during the post-medieval period in this area. Figure 7.13 shows a short length of the water meadows along the River Coln between Bibury and Coln St

Aldwyns. The meadows to the south of Bibury Roman villa are of the classic bedwork type seen widely throughout the region. The meadow to the north of the Roman villa is extremely unusual for this area, as it is a possible example of the catchwork or catchmeadow type seen more commonly in locations such as the uplands of Exmoor (Hegarty and Toms 2009, Crowther & Dickson 2008: 164; Riley & Wilson-North 2001).

Catchmeadows were also in use from the 17th century, and differed from bedwork meadows in that they were created on sloping fields. Water channels known as flood dykes or gutters followed the contours of the hillside and were flooded to allow the water to flow down the slope of the field. They were more commonly created in narrow river valleys with little or no flat land at their base in which to accommodate a bedwork meadow (Cook & Williamson 1999: 159-160). There are only two other possible small examples of catchmeadows within project area both visible as earthworks on aerial photographs. One of these is located to the east of Rendcomb Park (NMR: 1470028) and the other is on the western edge of the village of Rendcomb itself (NMR: 1472126).

One of the strengths of NMP aerial survey in this context is the landscape-wide approach it enables. 950 square kilometres were surveyed during this project, which has provided a synthesis of this type of agricultural regime in the area. The evidence visible on aerial photographs is sufficiently detailed to allow characterisation of the different possible types of water meadow, whilst also demonstrating their far-reaching extent along entire river valleys.

7.5 Quarrying

Earthwork and cropmark evidence of quarrying, both large and small-scale, is prolific throughout The Cotswold Hills NMP project area. The variable nature of the Cotswolds geological beds means that the evidence of extractive operations is found scattered right across the region. The characteristic Oolitic limestone (see Figure 2.1) has been an invaluable resource for generations; shaping the character of houses and buildings of the area. Pilbeam notes that “at one time almost every Cotswold and scarp foot parish had its quarry both for local building purposes and for roadstone” (2006: 20). In addition, it appears that landowners across the Cotswolds frequently acquired their building stone by hand from their own land (Pilbeam 2006: 20); leaving the remains of literally thousands of small extractive pits visible on aerial photographs. The lower quality stone commonly used for field walls is likely to have been sourced in this way from local fields. This abundance of quarrying activity meant that with regards to NMP methodology, a line had to be drawn somewhere. The project design states that “widespread and common small-scale extraction of resources for immediately local use will not be recorded” (Grubb 2007: 14). At the other end of the scale; large commercial quarries which have been included on older maps, and which may still be in use today, were not mapped as part of the NMP project. Examples include Daglingworth and Wickwar. Quarrying enterprises which fell between these two extremes, such as the examples below, were included.

The Oolitic limestone of The Cotswold Hills has long been favoured as a building material; in particular the ‘Freestone’ of the Great Oolite layer, which contains few fossils and which can be quarried in conveniently large square blocks. Freestone quarries are common along the top of the escarpment, but the most well-known are in the area to the north of A40(T) from Sherborne eastwards; within the northern edge of the NMP survey boundary. This was known as Taynton Stone, and was transported as far away as London (Pilbeam

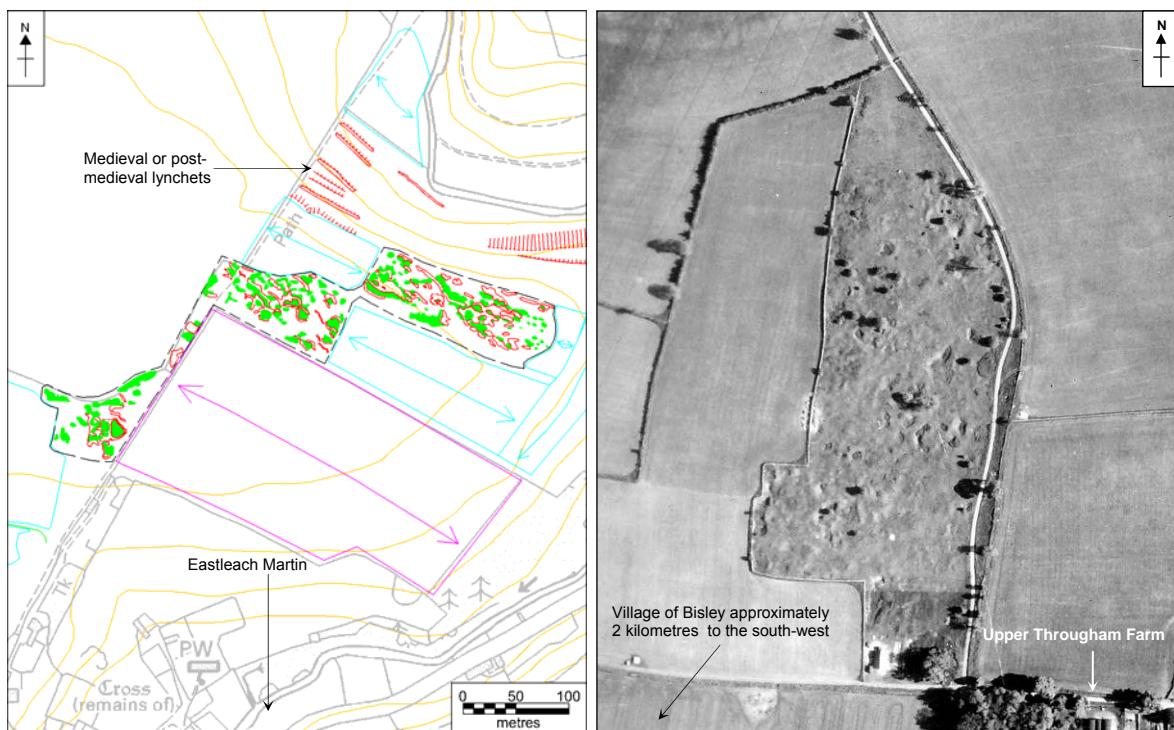


Figure 7.15: Probable post-medieval quarrying at Eastleach Martin and Througham Fields. The transcription on the left shows limestone quarrying to the north of Eastleach Martin and Eastleach Turville. The vertical aerial photograph to the right shows a site of Stonesfield Slate extraction at Througham Fields, near Bisley. OS Map Base © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010. NMR RAF/CPE/UK/2098 4018-4019 28-MAY-1947 English Heritage (NMR) RAF Photography

2006: 18-19). Stonesfield Slate was also extracted from the Great Oolite bed, although there are only a few locations where it occurs closely enough to the surface to be quarried. It was prized for the way it could be split into thin layers, and was used for the traditional Cotswold roof slates seen widely throughout the area.

The vertical aerial photograph on the right-hand-side of Figure 7.15 shows an example of quarrying at one of the few areas from which Stonesfield Slate can be easily accessed from the surface (NMR: 1512103, Pilbeam 2006: 19, Herbert 1976: 20-30). The site is at Througham Fields, to the north-east of the village of Bisley. The pockmarked appearance of the surface of the field has been created by a multitude of small individual extractive pits. Stonesfield Slate is still quarried at Naunton to the north, which is beyond the boundary of the NMP survey area. The transcription on the left-hand-side of Figure 7.15 illustrates the limestone quarrying just to the north of the villages of Eastleach Martin and Eastleach Turville. A text of 1848 describes stone being quarried in the area for the construction of roads and buildings (Lewis 1848: 129-132). Interestingly, this site exhibits the same pitted appearance also seen on the aerial photographs of Througham. These clusters of extractive pits indicate a small-scale, piecemeal approach to quarrying the stone. This was also observed during The Malvern Hills and Forest of Dean NMP projects (Winton 2005: 29; Small *et al* 2006: 101). Elsewhere in England this domestic scale of quarrying has been suggested to be the result of limited digging rights, whereby commoners may have had access to the area for only a day at a time (Winton 2005: 29, Lancaster 1989)

8 THE COTSWOLD 20TH CENTURY MILITARY LANDSCAPE

8.1 Introduction

The aerial survey identified 98 First World War and Second World War sites that had not previously been recorded in the NMR (AMIE database), although this number also includes individual structures identified as part of larger installations, i.e. pillboxes along the anti-tank GHQ Green Line. This is far more than the number of existing NMR records for this period, 68 of which were updated with further information (Figure 8.1).

By far the most striking aspect of the aerial survey of Second World War sites within the project area was the number of RAF airfields. The distance of the region from the front line, combined with an absence of any major strategic bombing targets made it suitable for training and storage airfields. In all 11 airfields (as well as a possible Emergency Landing Ground (ELG) at Burford (N Jedrzejewski pers comm 2010)) were identified and mapped from the aerial photographs, in most cases adding new information regarding their defensive structures and dispersed sites.

It has been clearly demonstrated (Hegarty & Newsome 2007; Dickson & Crowther 2008) that, as stated by Croxford (2009: 19), “aerial survey is one of the most effective methods for locating former military sites and structures”. Compared to most of the other forms of archaeology encountered during this survey, military sites and structures are usually already extremely well documented by other means; with documentary sources and personal accounts forming a significant part of that record. However, these sources may not always be wholly relied upon or may not be complete. For example, military sites and structures often differed from the original drawing plans. One therefore must be aware of the limitations and bias within primary and secondary sources (Lynch & Cooksey 2007: 61-71).

For instance, the existing plans of RAF Aston Down did not provide locations for the numerous defensive structures surrounding the airfield, such as pillboxes, barbed wire entanglements, or the location of the D/F (direction finding) tower; which were all clearly visible on the aerial photographs. These peripheral elements of a military site can sometimes be the very structures which do not survive within the modern landscape, having been subsequently cleared or demolished.

The aerial photographs taken by the RAF during and after the Second World War are therefore sometimes the only evidence of the true extent, form, and exact location of a former military site. They also provide a visual snapshot of an agricultural landscape altered by war. The aerial photographs in some cases can also provide significant information on the condition of sites that survive into the 21st century, and can be used to inform future management, designation and recording on historically important sites (Lake 2000).

8.2 First World War

Buildings remaining from three First World War airfields were mapped at Leighterton (NMR: 1487396), Rendcomb (NMR: 1464267) and Minchinhampton (NMR: 1383478).

The South West region was not directly involved with the major air campaign over France and the Low Countries, but the airfields constructed there were vital in training aircrew

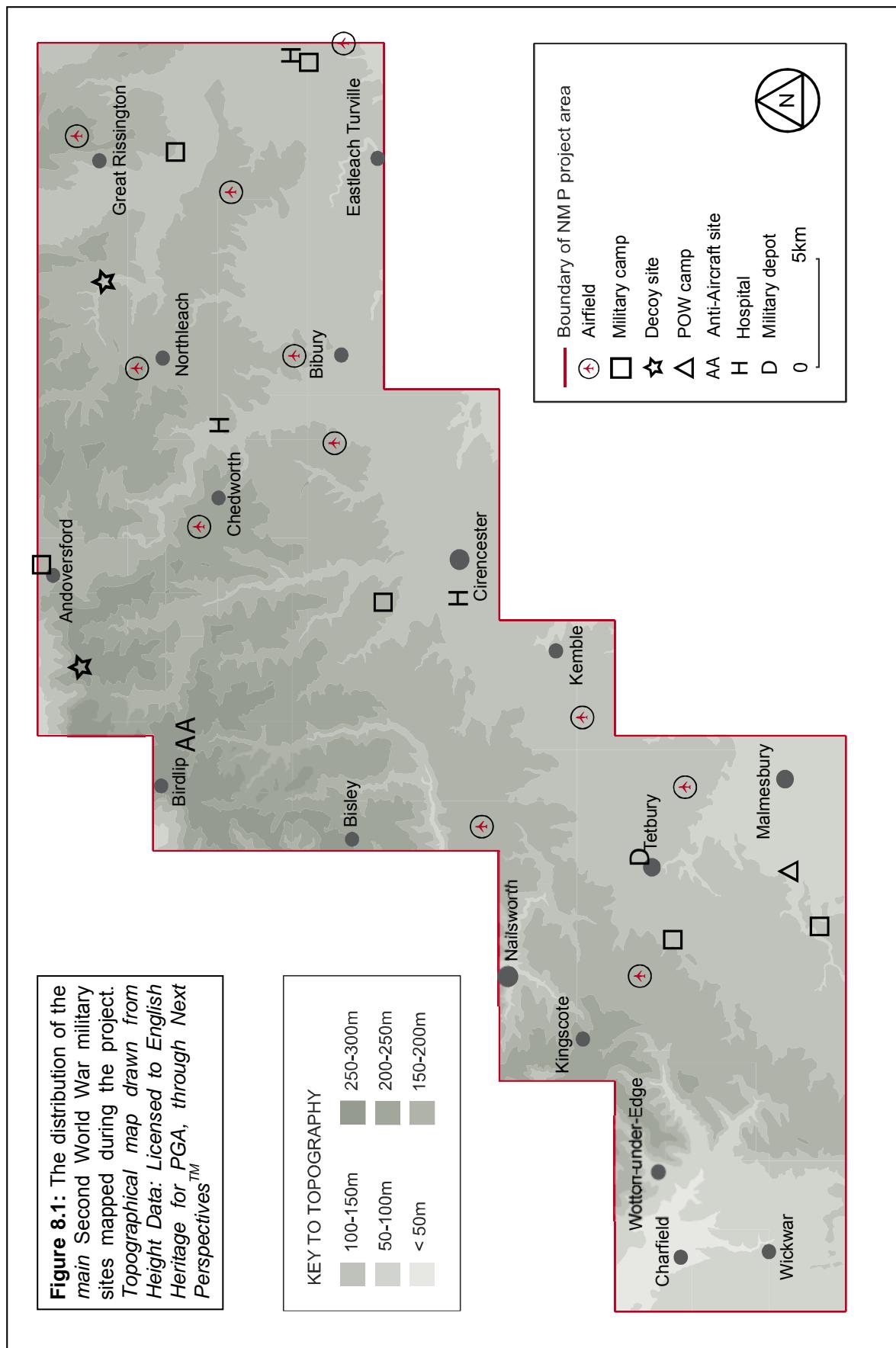


Figure 8.1: The distribution of the main Second World War military sites mapped during the project. Topographical map drawn from Height Data: Licensed to English Heritage for PGA, through Next Perspectives™

before they were sent to front line squadrons (Delve 2006:14). Both Leighterton and Minchinhampton were main bases for the training of the Australian Flying Corps (AFC) (ibid: 315).

The airfields at this time were little more than grass fields with some adjacent temporary hangars and domestic buildings; and little is visible of them on the earliest available aerial photographs taken in 1946 and 1947. After the First World War most of the South West's airfields were closed, demolished, and returned to agricultural use in line with the mass abandonment seen in the rest of the country (ibid: 15). Despite this, some airfield buildings still survive at Leighterton and Minchinhampton, now being used as a garage and farm buildings respectively; the names of Aerodrome Garage at Leighterton and Old Aerodrome Farm at Minchinhampton ensure the historical association remains.

Minchinhampton was reopened during the Second World War as RAF Aston Down, but it seems that only three domestic buildings were reused as part of the new airfield, all of which have now been demolished. Rendcomb continues as a private airfield, home to AeroSuperBatics Ltd, a wingwalking display team, but only two buildings remain from its initial use during the First World War.

8.3 The Second World War airfields of the Cotswold Hills

The initial phase of the RAF's expansion from 1920 until the outbreak of war in 1939 was focused on operational airfields in the east of the country. However, some were constructed or redeveloped in the South West region during this period, with the primary role of training. There are three airfields of this date within the project area, at Little Rissington, Kemble and Aston Down; the latter involving the redevelopment of a First World War facility.

There are two main reasons for the concentrated distribution of airfields (Figure 8.2) within the project boundary and outlying areas. The main functions of these airfields, centred on Cirencester, were RAF training and aircraft storage; either as Relief Landing Grounds or Satellite Stations to a parent airfield (Delve 2006: 15). Those airfields involved with aircraft storage needed to receive new aircraft quickly from the aircraft factories to replenish lost stock and were therefore designed to receive aircraft directly from the manufacturers. They were located to be close enough to the aircraft factories in and around Bristol, but not so close that they became a direct target (Clarke 2008: 90). Clearly, any airfield with a significant accumulation of reserve aircraft would be a prime target and as attacks would come from Continental Europe, major aircraft stocks were based in the southwest and northwest regions, largely out of harms way (ibid: 87). It also made sense to locate airfields necessary for air-crew training in the west of the country and away from the front line airfields which were subject to frequent bombing raids.

Down Farm (NMR: 1519998) and Barnsley Park (NMR: 1419390) were used for dispersed aircraft storage by making good use of the landscaped woodland parks, giving natural tree cover under which to hide the planes from enemy attack (Delve 2006: 30 and 94). Due to their temporary nature and almost sole function as dispersed aircraft storage units, the airfields were provided with few facilities, and at the end of the war both sites were quickly returned to their owners and cleared. Although no evidence of the airstrip at Barnsley Park survives, at Down Farm the Headquarters (HQ) building remains and is now in use as a cottage.

The chronology of airfields within the project area can largely be ascertained from their layout and standard building designs. Those constructed in the late 1930s were built as

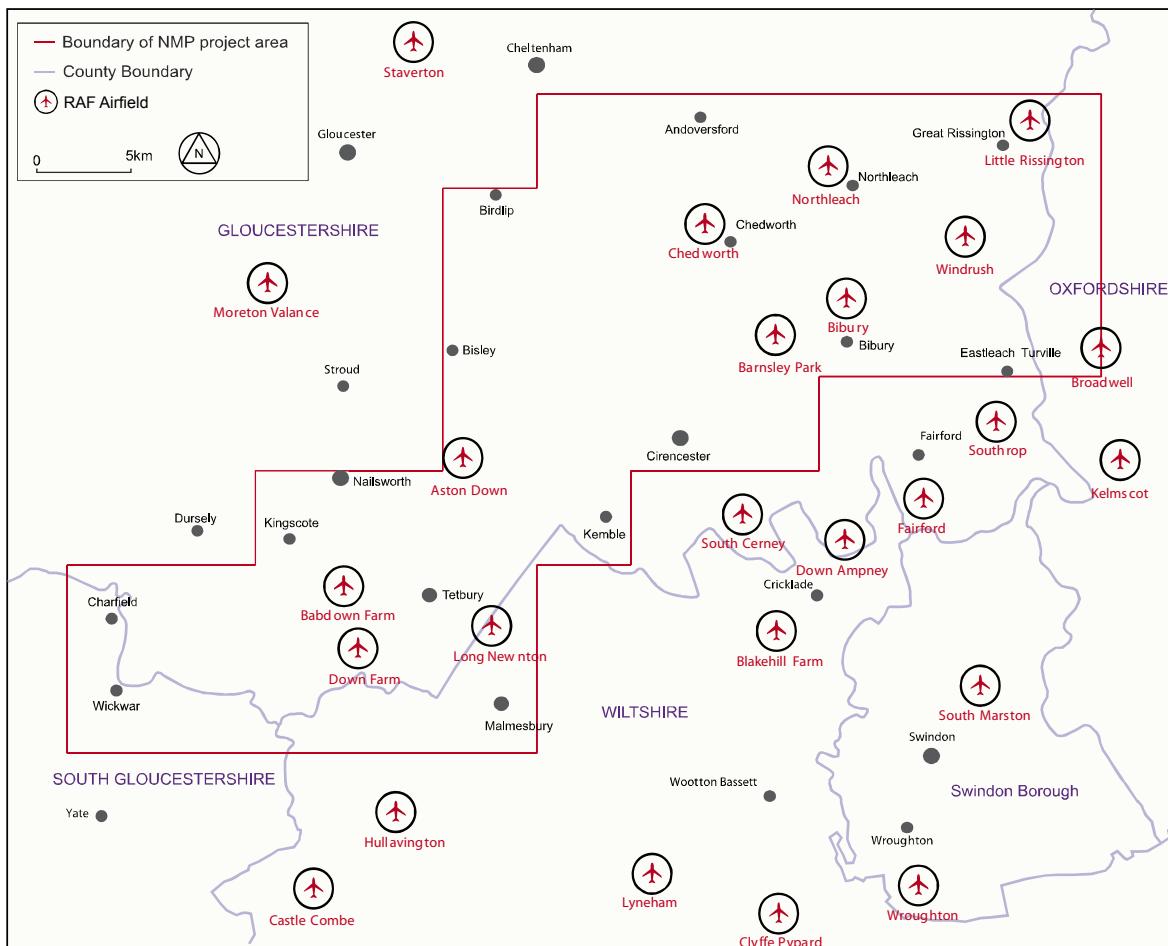


Figure 8.2: The distribution of RAF airfields between 1939-1945. *Illustration based on information from OS mapping © Crown Copyright. All rights reserved. Gloucestershire County Council 100019134 2010*

stations of 'Standard Function' and nearly all of the Expansion Period airfields were built to a standard plan, deviating only where local topographical or geological conditions dictated it (Delve 2006: 77-78). At the outbreak of War, the need for a greater number of airfields and material shortages resulted in a greater variety of building designs (*ibid*: 100). The years 1940-41 saw the development of the 'Standard Operational Airfield' with three 'paved' runways (*ibid*: 113) and dispersed sites, as the vulnerability of a compact airfield layout to heavy bombers was soon realised (*ibid*: 113 & 115). Many of the airfields within the project area date to this period (Figure 8.3) and are built to this dispersed design, though not all had three runways. The domestic and communal sites were in some cases located over a kilometre away from the airfield.

Although some airfields were used after the Second World War and remain in use still, such as Little Rissington, Aston Down and Kemble; many were returned to their original agricultural use, and others have now been reused as modern business parks. Some airfields are identifiable on Ordnance Survey maps from their distinctive curving perimeter tracks; or from the air where their former runways show as cropmarks. Some can be identified on the ground from still extant but derelict buildings, or reused hangars. However, using the early aerial photographs, the large number of airfields located within the project area becomes obvious, as does the region's importance in the RAF's fight to gain supremacy in the air.

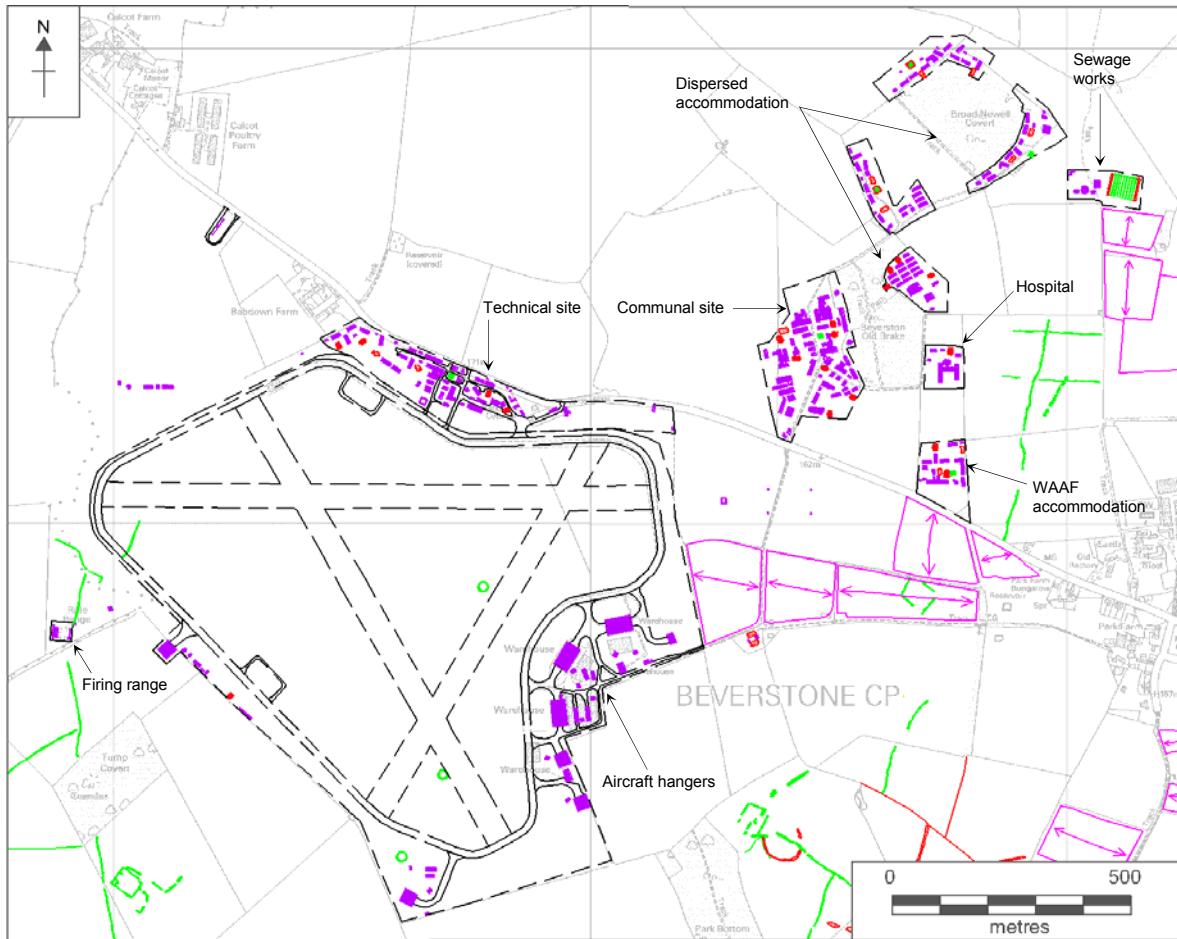


Figure 8.3: Babdown Farm RAF airfield. Each dispersed site was constructed with an emergency water supply and air raid shelters; blast shelters were used in technical areas and communal areas. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

8.4 The GHQ Green Line

The Second World War GHQ (General Headquarters) lines were static inland linear defences constructed under General Ironside in preparation for the expected German invasion. The GHQ Green Line extended from Highbridge in Somerset to Upper Framilode around outer Bristol (NMR: 1517269, see Figure 8.5). As with other stop lines it comprised of primarily anti-tank obstacles and was mostly based on existing waterways and other natural obstacles. Where this was not possible the line was continued by the creation of an artificial ditch or concrete obstacles (Foot 2009: 9; Osbourne 2004: 47). About 13 kilometres of artificial ditch was constructed between Avening and Malmesbury, where no waterways or canals were available (Figure 8.4).

Figure 8.5 shows the planned extent of the Green Line and how it formed the Outer Bristol Defence Line. The short stretch from east of Avening and Tetbury, mapped by the aerial survey, was the only stretch built to any strength (Osbourne 2004: 47). This explains why the anti-tank ditch was clearly visible on the aerial photographs, even though the majority was in-filled before 1946.

Interestingly this stretch of anti-tank ditch was primarily visible as a raised bank, particularly between Long Newton and Malmesbury, not a ditch. Foot (2009: 294)

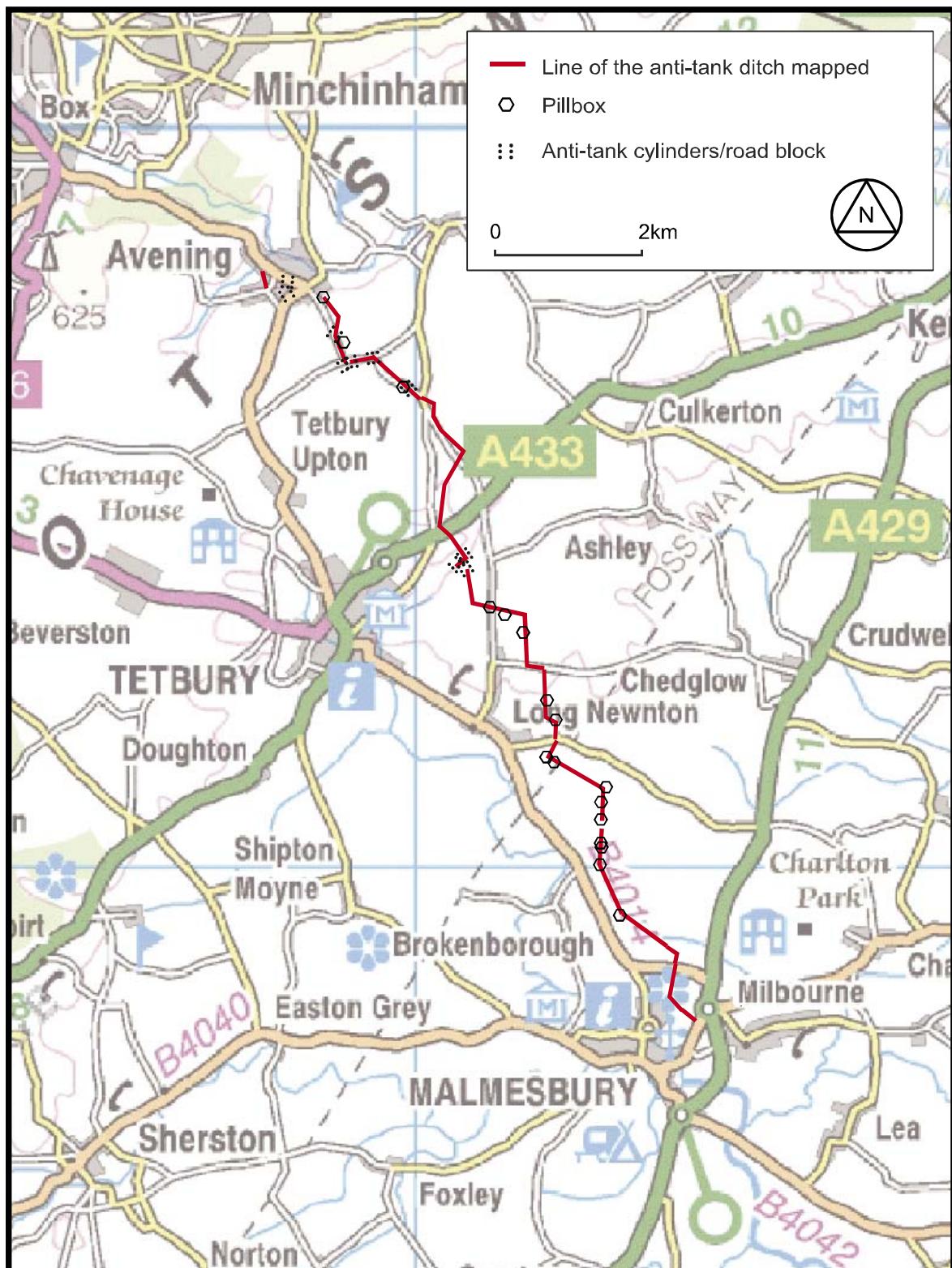


Figure 8.4: The section of GHQ Green Line mapped as part of the aerial survey. The line in red marks the artificial anti-tank ditch with anti-tank obstacles and pillboxes constructed along its length. OS Map Base © Crown copyright. All rights reserved. Gloucestershire County Council 100019134 2010

suggests this results from the backfilling of the ditch with a large amount of excavated rock that could not be consolidated adequately under a thin top soil. Most of these ridges were subsequently plough-levelled, but many sections are still visible as cropmarks marking the line of the ditch.

The line is also marked by numerous pillboxes, many of which still survive in good condition. The pillboxes added extra defence at strategic points along the line. All the pillboxes on this stretch of the GHQ Green Line faced eastwards, so that in the event of invasion they could prevent an advance on Bristol (*ibid*: 291).

Perhaps more surprising was the visibility of anti-tank cylinders around Avoning and Little Larkhill Farm (Figure 8.6). Although these only measured about a metre across, they were clearly visible on the aerial photographs. Many anti-tank obstacles, such as the

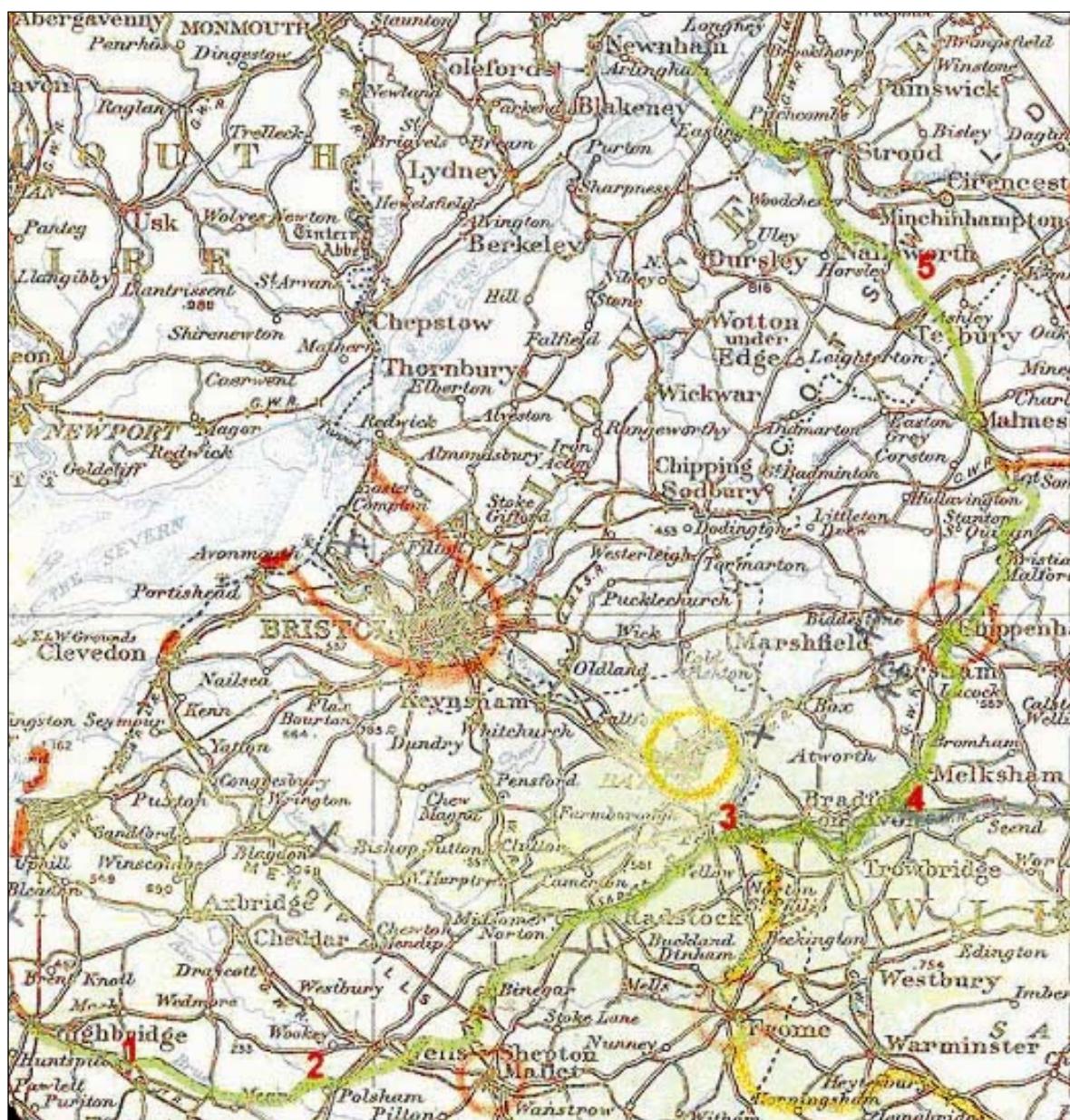


Figure 8.5: The planned GHQ Green Line (in green), also forming the Outer Bristol Defence. The red and yellow lines around Bristol, Bath and Chippenham, Shepton Mallett and Frome mark defended localities. Map source TNA: PRO 199/48 taken from Foot's addition of the map (2009: Figure 2)

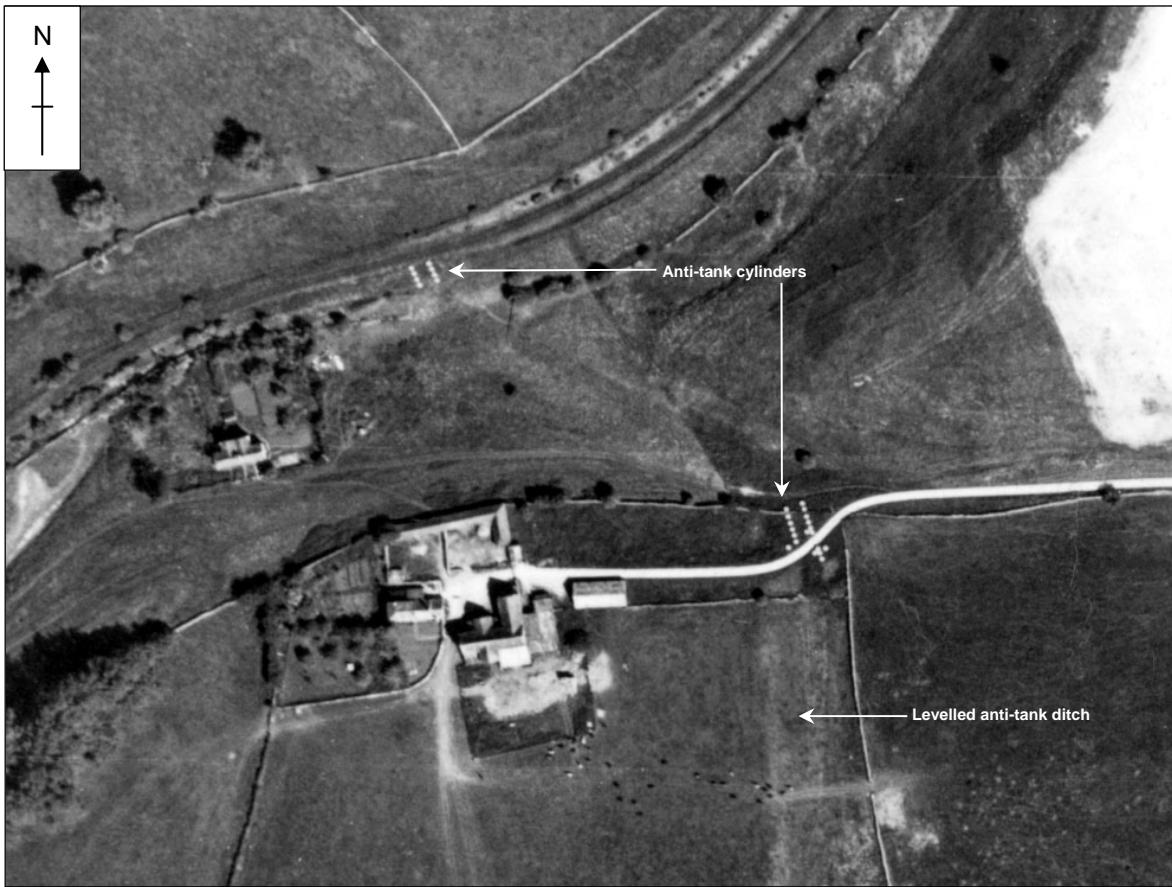


Figure 8.6: Two groups of anti tank cylinders at Little Larkhill Farm, Tetbury with the levelled anti-tank ditch just visible extending south to north. *NMR RAF/CPE/UK/2110 3078 28-MAY-1947 English Heritage (NMR) RAF Photography*

cylinders and other roadblocks, were cleared at the end of the war, so to be able to identify and map these structures from the historic aerial photographs adds further detail to our understanding of the GHQ Green Line.

The aerial survey has been able to map the nature and extent of this section of the GHQ Green Line in great detail, as the in-filled anti-tank ditch was still clearly visible on the early RAF aerial photographs. This mapping complements the work of the Defence Areas Project, which looked at the anti-invasion landscape of England during the Second World War and was synthesised in Foot 2009.

8.5 Military camps and hospitals

The distance of the project area from the front line combined with an absence of any major strategic bombing targets, which made it suitable for training and storage airfields (although some airfields were attacked), is also demonstrated in the nature of the other military sites recorded by the aerial survey. There is only one 'heavy' defensive site, at Birdlip (NMR: 1397877), where a standard anti-aircraft battery was visible on the aerial photographs. This anti-aircraft battery was one of many protecting the city of Gloucester to the northwest, outside the project area.

After airfields, hospitals and camps were the most numerous type of military site on the aerial photographs (see Figure 8.1). They appear to be evenly distributed throughout the



Figure 8.7: The 15th Hospital Centre, in charge of up to seven different General Hospitals (two separate general hospitals were located here in Cirencester Park), set up in advance of Operation Overlord, and staffed by Americans. NMR/RAF/CPE/UK/2098 4461 28-MAY-1947 English Heritage (NMR) RAF Photography

south-east of the project area and were often located within the grounds of parkland estates which were requisitioned during the war. The Cotswold Hills area contains many large-scale parks and gardens, such as Stowell Park, Barrington Park, Cirencester Park and Pinkney Park and these were therefore valuable areas for large temporary camps and hospitals.

The hospitals and camps identified in the aerial survey were largely for the use of American forces, based here before being posted to other bases or frontline positions. Tent cities like that at Pinkney Park were used as 'casual' transit camps and saw many American units pass through in the build-up to the Normandy landings in 1944 (Willis 2010). Hospitals were also created to receive the many wounded soldiers coming back from the front line, for example those visible in Cirencester Park (Figure 8.7) and Broadwell Grove Park (Shiner Montbertrand 2010). Their tranquil rural locations would have had benefits for the rehabilitation of servicemen, and may therefore also be an important reason for many hospitals being sited in this region.

Those camps that comprised more permanent structures had other uses after the war; Daglingworth and Stowell Park were used for the resettlement and education of displaced Polish people (Anon), and Broadwell Grove Park was used as a music school and then later as a mental health hospital (VCH 2005). All of these sites were subsequently demolished in the later half of the 20th century and very little evidence remains on the ground of their former existence.

9 FURTHER RESEARCH AND RECONNAISSANCE

9.1 Further research

Any further archaeological aerial survey carried out within the project area would benefit from the use of lidar imagery as this has proved very useful in other NMP projects, such as the Savernake Forest NMP survey (Crutchley *et al* 2009). The lidar may show earthworks not readily visible on conventional aerial photographs, for example the many long barrows and round barrows which are recorded in the NMR database, but which weren't visible on aerial photographs when the direction of light wasn't ideal for highlighting particularly subtle earthworks. It would also potentially provide useful images where earthworks are covered in dense vegetation or woodland, as long as the lidar images were taken at the optimum time of year. In the area to the south of Shagborough Copse, south-west of Bibury, a run of 1952 aerial photographs taken in snowy conditions highlighted a strikingly dense area of strip lynchets, which were not visible to the same extent on any of the other available photographs (see Figure 7.11). This demonstrates that other similar earthworks may not be visible on aerial photographs taken under normal (non-snowy) conditions. Aerial photographs taken while thick snow lay on the ground are only available for a fraction of the project area; however, an alternative method of revealing these remains may well be lidar imagery.

The results of the aerial survey have highlighted some intriguing remains of the prehistoric landscape, which merit further investigation on the ground. Perhaps one of the most surprising cropmark features visible on the aerial photographs are the possibly interconnected Iron Age banjo enclosures, field boundaries, and trackways to the south of Northleach (see Figures 6.6 & 6.11). Part of this site was previously known, but its extent and possible cohesiveness were unexpected. Further aerial reconnaissance as well as geophysical and excavation projects may prove useful in filling in the gaps in our understanding of these enigmatic and poorly understood enclosures. The vicinity of the Northleach banjo enclosures may also be a good candidate for a fieldwalking programme.

Further documentary and archaeological investigations may prove useful on the possible location of the Green Ditches Iron Age hillfort, described as being levelled in about 1845. The exact location has since been lost; but two curving parallel banks were identified as cropmarks on aerial photographs as part of our survey, which may be the remains of this 'missing' site. The banks lie to the west of Frampton Mansell, cutting off a spur of land above the River Frome, abutting the steep north-facing valley side. This appears to fit the description made by Playne in 1871-4 (page 214). An examination of lidar data for this location may help to indicate whether any slight earthworks of the hillfort are still extant.

The long barrow near Miserden (NMR: 117204) would also benefit from further investigation. It appears to either overlie the earlier remains of a rotunda burial; or alternatively be overlain by a later Bronze Age round barrow. The definitive stratigraphic relationship between these two possibly separate features is unclear from aerial photographs alone. It may in fact be that the circular feature is the result of modern agricultural activities. Field investigation may prove whether or not it is a genuine archaeological feature, as well as determine the nature of any association with the long barrow.

A multidisciplinary approach would be useful in ascertaining the chronologies of the medieval and/or post-medieval field systems, and therefore part of the history of landscape change, within the Cotswold Hills NMP area. The precise phasing of different areas of ridge and furrow was not apparent from aerial photographic evidence alone.

Targeted field survey along with historical and cartographic research should be combined for detailed investigation of any particular areas of interest identified during the NMP project.

The technical site and large hangers at the former RAF Aston Down airfield were potentially threatened recently when a public enquiry was conducted into the use of the site. It was claimed by some that the natural environment of the Cotswold Hills AONB, within which the airfield is located, was being adversely affected by the current light industrial use (Clare 2009). In areas where military sites like Aston Down airfield remain, but are threatened by change, they would benefit from a detailed archaeological and architectural survey, as has been carried out on other former RAF airfields (Fletcher & Newman 2002). This would also complement the evidence identified from the aerial survey of the RAF airfield which illustrates the site as it was immediately after the Second World War.

9.2 Further aerial reconnaissance

Areas where only faint cropmarks were visible or where none were found at all, but which have the potential to reveal buried archaeological remains, have been listed below to aid future reconnaissance by English Heritage or other aerial photographers. Previous aerial reconnaissance has tended to favour sites and areas which are known to show clearly from the air in optimum conditions. By highlighting areas that would benefit from repeat photography, as well as blank areas in the cropmark record, we hope to facilitate the discovery of new cropmark sites and add to the interpretation of poorly understood ones.

Sites/locations which would benefit from further aerial reconnaissance include:

- Sherborne Roman Settlement (NMR: 330024), which has not been photographed from the air since 1984.
- Areas surrounding Kingscote. This area, especially to the east and south-east of Kingscote, shows some evidence of prehistoric or Roman activity, yet many of the cropmark features visible have not been photographed from the air since the 1970s and 1980s. There may therefore be the potential for the discovery of further cropmark features.
- Great Rissington Prehistoric Settlement and possible pit alignment (NMR: 329878), which has had limited excavation in the northern part of the site. The southern part of this Scheduled site (see Figure 6.3) has not been photographed from the air since 1969.
- The upper terrace of Wiggold Farm (NMR: 1483196). There are indications of Roman settlement, in the form of a partially defined enclosure on one sortie of aerial photographs from the 1970s.
- The eastern extension of Wycomb Roman town, (NMR: 327986) around SP 0300 1995.

Areas where the relict medieval and/or post-medieval ridge and furrow has recently been plough-levelled, such as the area around Malmesbury and Cirencester which was recently re-surveyed from the air in 2006, should be a target for any future aerial reconnaissance. This may reveal earlier buried archaeological features beneath the former ridge and furrow. This also holds true for those areas where extant blocks of ridge and furrow are given over to arable cultivation in the future.

Further aerial reconnaissance over known archaeological features which are threatened by ploughing, urban expansion, or other man-made or natural actions would be beneficial for monument protection and site management. For archaeological sites with monument protection issues; the historical perspective of aerial photographs dating from as far back as the 1940s can be useful in indicating the duration, extent and consequences of any damage. In addition repeat flying and photography even over supposedly well known and understood areas can identify new and significant archaeology. A prime example of this is the discovery in 2005 of a substantial Roman ceremonial centre around Tar Barrows, Cirencester, as a result of an English Heritage training flight (Holbrook 2008).

The Environmental Stewardship scheme, run through Natural England, is an agri-environment scheme which gives funding to enable farmers and landowners to provide effective environmental management of their land. The Higher Level Stewardship (HLS) aims to deliver significant environmental benefits, including to the historic environment, in high-priority areas such as the Cotswold Hills. These benefits can include arable reversion (Natural England 2010, 47-49) as well as specific capital works, such as scrub clearance, consolidation works, the production of management plans and/or interpretation panels (Natural England 2010, 91-92). The data-set provided by the Cotswold Hills NMP programme may be useful in this context by identifying archaeological sites of interest or concern; which may then be targeted with more in-depth aerial reconnaissance or other investigations.

Repeat aerial reconnaissance of sites also aids continual monitoring of those Scheduled Monuments listed on English Heritage's Heritage At Risk register. There are currently 31 of these 'at risk' sites within the project area (English Heritage, 2010).

10 CONCLUSION

The Cotswold Hills NMP aerial survey has added significantly to the present state of knowledge of the archaeology of the area. Records relating to most archaeological periods have been added and updated within the National Monuments Record and Gloucestershire County Council Historic Environment Record. Before the project the NMR database for the study area contained 2826 monument records, 40% of which were improved by the project and the total number of monuments increased by 59%. In total 62% of the current monument record for the study area was produced or improved by this project. This report discusses the highlights of the archaeological landscapes that were mapped during the course of the project; but it is by no means an exhaustive account of what was found. The results of this project have demonstrated that the use of aerial photographs is an excellent technique for archaeological prospection and for understanding the form and extent of ancient and historic landscapes; but based on aerial photographic evidence alone, only broad dates can be assigned to monuments. Therefore the potential for further investigation of specific sites and themes has been noted for future consideration (Chapter 9).

The use of aerial photographs taken from the 1940s onwards provides information on the condition of sites throughout the second half of the 20th century and it is therefore useful in assessing the impact of particular types of land use on the historic environment. In this context, archaeological aerial survey can help to inform management decisions under Natural England's Higher Level Stewardship Scheme, as much of the project area is also designated as HLS target areas.

Wider landscape analysis and greater interpretation of the results is now possible over most of the Cotswold Hills and their fringes, as this project fills in the gap between the North Gloucestershire Cotswolds NMP and the Thames Valley NMP.

The results of the survey from the prehistoric and Roman period showed that the Cotswold Hills were intensively settled during this time-span. One noteworthy and unexpected result was the discovery of 13 previously unknown possible Neolithic monuments, including a doubling of the number of potential henge monuments within the project area. Whilst these sites remain to be verified on the ground, such additions to supposedly well known monument distributions will allow for more fully informed management regimes to be recommended at these, as for all other, sites recorded by the project. As a result of the aerial survey, knowledge of the distribution and morphology of later prehistoric and Romano-British settlements has been much improved, for example by the identification of new sites, such as three new possible Roman villas, and by significantly increasing the extent of previously known sites, such as Wycomb Roman town and the Northleach banjo groups. Results from the medieval and post-medieval landscape appear to fit the pattern of settlement development and agricultural land use also visible during the North Gloucestershire Cotswolds NMP, but the modern notion of the Cotswold Hills consisting mainly of sheep pastures in the medieval period is a misapprehension, as the agricultural economy was not predominately ovine here until the 15th century onwards.

Second World War airfields, army camps, and hospitals dominate military archaeology in the Cotswold Hills. The level of detail available from the aerial photographs taken during and after the war is important in defining the extent, form, and location of these sites, which are sometimes only partially described or recorded in written documents, if at all; and which have often subsequently been removed.

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APPENDIX 1: NMP MAPPING STANDARDS

Introduction

The aim of National Mapping Programme (NMP) is to enhance the understanding of past human settlement, by providing primary information and synthesis for all archaeological sites and landscapes from the Neolithic period to the 20th century. The NMP aims to do this to a consistent standard by interpretation, mapping, classification and description of all archaeological sites and landscapes in England which are visible on aerial photographs. This comprehensive synthesis of the information available on aerial photographs is intended to assist research, as well as and planning and protection of the historic environment.

The specific aims of the NMP are:

To produce a georeferenced digital transcription of the form and extent of all archaeological features visible on aerial photographs for the whole of England.

To record the location, indexed classification, archaeological description and analysis, and main sources of all archaeological sites visible on aerial photographs. Additional morphological recording is to be included for sites for which meaningful morphological comparisons can be made.

To provide a synthesis of the archaeology in each project area in the form of a report on the character, diversity, association and distribution of archaeological sites and landscapes.

Archaeological scope of the survey

The NMP applies a systematic methodology to the interpretation and mapping of all archaeological features visible on aerial photographs. This includes recording sites visible as cropmarks and earthworks but also structures, in particular those relating to early 20th century military activities. The NMP typically records all archaeological features dating from the Neolithic up to the 20th century. The following list summarises which classes of monument are depicted and how to record them.

Earthworks, plough-levelled features and buried remains

All cropmarks and soil marks which represent sub-surface features of archaeological origin have been recorded. Some earthworks, for example field boundaries, have not been mapped where they are clearly marked on the first edition Ordnance Survey maps unless they are associated with other mapped features. Features which have an uncertain date or which are thought to be possible geological marks have been recorded where they are associated with or may be confused with other archaeological features.

Post-medieval field boundaries

These have not been mapped, except where they are part of larger field systems and are not depicted by the Ordnance Survey. They may be mapped where they have been considered to be regionally or nationally archaeologically significant.

Military remains

Military buildings and structures from the Second World War (pre-1945) were recorded and mapped according to the form and extent of the remains. Some airfield features, i.e. runways, perimeter tracks, and still extant buildings were not mapped where they are clearly visible on the Ordnance Survey maps.

Ridge and furrow

Medieval and/or post-medieval ridge and furrow was also recorded. Levelled and extant fields of ridge and furrow were depicted using different conventions, and furrow directions were indicated by arrows.

Industrial archaeology

Areas of industrial archaeology have been recorded where the features can be recognised to predate 1945 and where their industrial buildings are no longer extant or not clearly marked on the first edition Ordnance Survey maps. Small local extractive sites were not mapped, except where they formed part of a significant, i.e. particularly extensive, area of extraction.

Buildings and structures

Buildings and structures were not generally mapped if first edition or later Ordnance Survey maps depict them. However, in specific contexts (e.g. industrial and military complexes, or country houses) and when in association with other features, they were sometimes mapped.

Transport

Major transport features (e.g. canals and railways) have not been mapped except where they are considered to be archaeologically significant.

Parks and gardens

Only vestigial features, not botanical features, were mapped. In urban areas only significant parks and gardens were recorded. 20th century features were not mapped.

Digital transcription

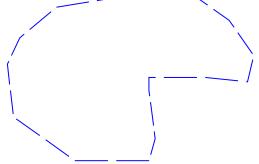
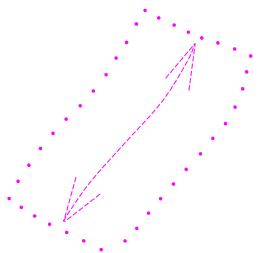
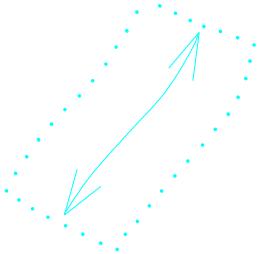
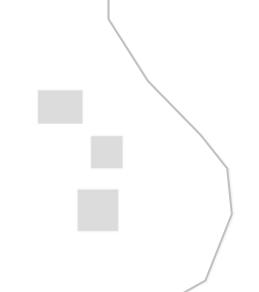
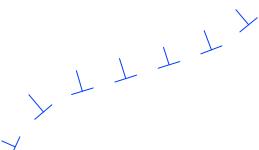
The aerial photographs were rectified using a specialist rectification software package (Aerial 5.29) with Ordnance Survey MasterMap 1:2,500 scale base mapping. A digital

terrain model function was also used to compensate for steep or undulating topography. Due to the nature of some of the photographs, control points were sometimes hard to obtain and some control points were taken from soft boundaries i.e. hedges, and diffuse field boundaries. However, all control points typically had an average error of less than two metres; meaning that each photograph was rectified to an average level of accuracy of less than two metres to the 1:2,500 scale base map.

Archaeological features were then traced, using standard NMP drawing conventions (see below), from rectified photographs and lidar tiles in AutoCAD Map 3D 2008. The Ordnance Survey advise that their 1:2,500 scale map data has an accuracy of ± 0.4 metres for rural towns, and ± 1.1 metres in all other rural areas. Therefore the archaeological features transcribed for the National Mapping Programme will on average be accurate to within two to three metres of true ground position.

AutoCAD NMP conventions and layers

Layer name	Depiction
BANK (red) The outline of all features seen as banks or positive features, e.g. platforms, mounds and banks; also to be used for the agger of Roman Roads. Thin banks will appear on this layer as a single line.	
BANKFILL (red) A stipple that fills the bank outline.	
DITCH (green) All features seen as ditches; also excavated features, e.g. ponds and pits.	
DITCHFILL (green) A solid line that fills the ditch outline	
EXTENT OF AREA (grey) The extent of large area features such as the perimeters of airfields and military camps	

Layer name	Depiction
<p>LARGE CUT FEATURE (blue) Formerly the 'T-hachure', now represented by a dashed line. To be used for large cut features such as quarries, ponds, and perhaps scarps that cannot easily be depicted with the use of either bank or ditch.</p>	
<p>RIGARLEVEL (magenta) Arrow depicting direction of rig in a single block ridge and furrow, seen as earthworks or cropmarks, but known to have been ploughed level.</p> <p>RIGDOTSLEVEL (magenta) Outline of a block of ridge and furrow, seen as earthworks or cropmarks, but known to have been ploughed level.</p>	
<p>RIGARREWK (cyan) Arrow depicting direction of rig in a single block of ridge and furrow seen as earthworks on the latest available aerial photographs.</p> <p>RIGDOTSEWK (cyan) Outline of a block of ridge and furrow still surviving as earthworks on the latest available aerial photographs.</p>	
<p>STRUCTURE (grey*) Used for buildings, walls and features that do not easily fit into other categories because of their form, e.g. tents, radio masts, painted areas (camouflaged airfields).</p> <p>STRUCTUREFILL (grey*) A solid fill within the structure outline. In this report, structure and structure fill are depicted as magenta to improve the clarity of the figures.</p>	
<p>SLOPE (blue**) T Hachures used to indicate the direction of a scarp or slope.</p>	

* grey is the colour used as part of the standard NMP conventions. For the purpose of clarity in this report, this colour was replaced with purple (see Mapping Conventions on page 3)

** blue is the colour used as part of the standard NMP conventions. For the purpose of clarity in this report, this was replaced with red (see Mapping Conventions on page 3)

The NMR database (AMIE)

As a result of the aerial survey of The Cotswold Hills, a total of 1692 new monument records have been identified and created in the NMR's database (AMIE) and 1136 records were revised. The existing records were updated and/or revised where the form or extent of the site could be clarified or where the addition of more detailed information could improve the understanding of the site. In a few cases, a record was updated to state that a particular site could not be seen on the available aerial photographs.

Newly recorded monuments were indexed and given a textual description, and a point identifying their location was translated onto the English Heritage in-house Geographic Information System (WebGIS). At a later stage, the digital mapping will itself be imported onto this system. Copies of the written records and digital mapping were supplied electronically to the relevant HERs. All Monument Records were given a unique identifying number, known as a HOB UID (Heritage Object Unique Identifier) as well as the older NMR reference numbering system relating to the relevant Ordnance Survey map sheet e.g. SP 00 SE X4 / HOB UID 197270. For clarity, NMR records have been referred to as NMR: 1234567 throughout this report. Each monument record provides a textual description of the site, as well as information on sources such as the best aerial photographs of the site and other indexed information.

Within the NMR catalogue of archive items; a Measured Drawing Record was created for the digital NMP transcription for each Ordnance Survey 1:10,000 scale quarter sheet, e.g. MD002220 (see table below). This record is linked to all relevant monument records. An overall Event Record provides information on the project as a whole; for example why, when and who carried it out. This is linked to all monument records created or amended during the project.

The official title of the project on the NMR database is: "Gloucestershire County Council: The Cotswold Hills NMP". The Event Record for this project is: 1460290; and the Archive Numbers are: EHC01/113 and AF00242.

Ordnance Survey 1:10,000 scale quarter sheet	Measured Drawing Record (within the NMR catalogue)
SP 10 NW	MD002494
SP 10 NE	MD002495
SP 20 NW	MD002496
SP 11 NW	MD002497
SP 11 NE	MD002498
SP 11 SW	MD002499
SP 11 SE	MD002500
SP 21 NW	MD002501
SP 21 SW	MD002502
SO 91 NE	MD002503
SO 91 SE	MD002504
SP 01 NW	MD002505
SP 01 NE	MD002506
SP 01 SW	MD002507
ST 90 NW	MD002509
SO 90 NE	MD002510
ST 90 SW	MD002511
SO 90 SE	MD002512
ST 99 NW	MD002513
ST 99 NE	MD002514

Ordnance Survey 1:10,000 scale quarter sheet

	Measured Drawing Record (within the NMR catalogue)
ST 89 NW	MD002515
ST 79 SW	MD002516
ST 79 SE	MD002517
ST 89 SW	MD002518
ST 89 SE	MD002519
ST 99 SW	MD002520
ST 78 NW	MD002521
ST 78 NE	MD002522
ST 88 NW	MD002523
SP 10 NW	MD002524
SP 10 NE	MD002525
SP 20 NW	MD002219
SP 11 NW	MD002220
SP 11 NE	MD002221
SP 11 SW	MD002222

APPENDIX 2: SOURCES

Aerial photographic sources

The main photograph sources consulted were:

National Monuments Record

Enquiry & Research Services

English Heritage

The Engine House

Fire Fly Avenue

Swindon

SN2 2EH

Tel: 01793 414 600

nmrinfo@english-heritage.org.uk

The collection of aerial photographs viewed comprised vertical sorties from the RAF, Ordnance Survey and Meridian Airmap Ltd, taken from 1941-2006; as well as specialist oblique photography taken between the 1930s and 2007. The most recent oblique photography was taken by English Heritage's in-house aerial photographer, Damian Grady.

Unit for landscape Modelling (ULM) (formerly Cambridge University Committee for Aerial Photography, CUCAP)

Sir William Hardy Building

Tennis Court Road

Cambridge, CB2 1QB

Tel: 01223 764377

During the course of the project, all available vertical and oblique aerial photographic prints listed in the ULM online catalogue were consulted (<http://venus.uflm.cam.ac.uk>). This was not possible for the final part of the project due to the unforeseen closure of the collection. This applied to the following Ordnance Survey quarter sheets within the project area: ST99SW, ST98NW, ST89SE, ST88NE, ST88NW, ST89SW, ST89NW, ST78NE, ST79SE, ST78NW, and ST79SW.

Other photographic sources viewed were the limited but recent colour vertical photographs and infrared aerial photographs supplied digitally through the Pan-Government Agreement by Next Perspectives, as well as recent online aerial imagery from Google Earth (<http://earth.google.com/>) and Bing (<http://www.bing.com/maps/>) which provided georeferenced vertical aerial photographs.

Monument sources

Monument information was consulted from the following:

- **National Monuments Record database (AMIE)**

Monument records can be viewed online at: <http://www.pastscape.org.uk/>

- **Gloucestershire County Council Historic Environment Record**

Further details can be found online at:

<http://www.goucestershire.gov.uk/index.cfm?articleid=2277>

- **Wiltshire Council Historic Environment Record**

Further details can be found online at: <http://history.wiltshire.gov.uk/smr/>

- **South Gloucestershire Council Historic Environment Record**

Further details can be found online at:

<http://www.southglos.gov.uk/Environment/HistoricEnvironmentHeritage/>

- **Oxfordshire County Council Historic Environment Record**

Further details can be found online at:

<http://www.oxfordshire.gov.uk/wps/portal/publicsite/doitonline/finditonline/heritage>

Other sources

Historic Ordnance Survey maps were also consulted as an additional source to aid interpretation, including the first edition and current Ordnance Survey maps. Geological information was obtained from maps produced by the British Geological Survey (BGS) and soil maps via the 'Soilscapes' website of the National Soil Resources Institute (<http://www.landis.org.uk/soilscapes/>) developed at Cranfield University. Books and journal articles were also referred to as well as some internet resources (see References section).

APPENDIX 3: PROJECT STATISTICS

NMR Statistics

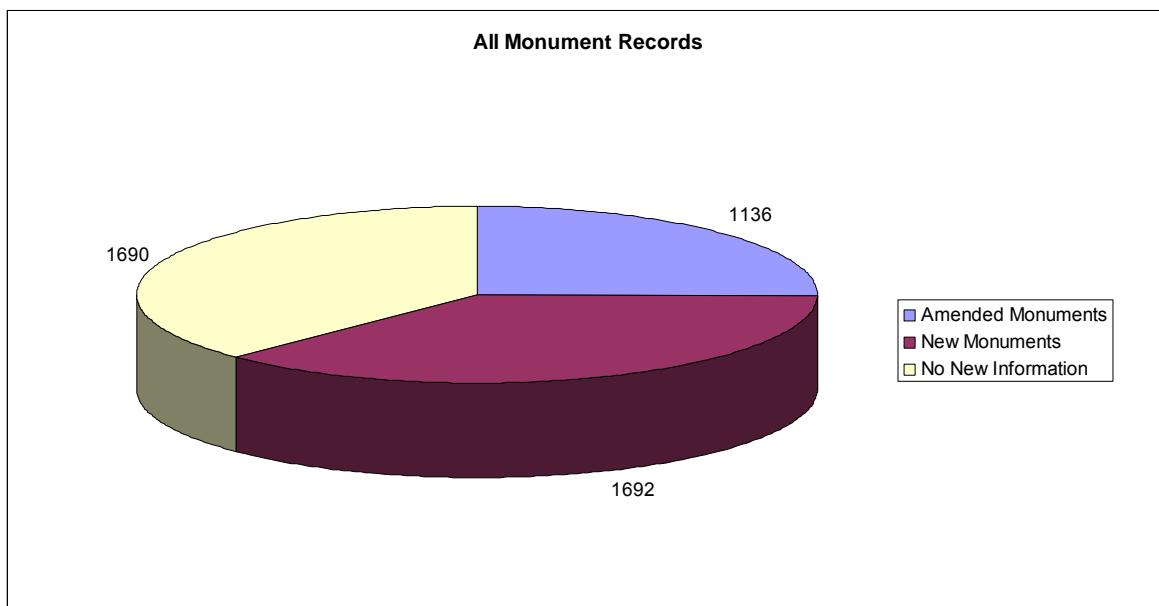


Figure i: Pie chart of all the NMR monument records within the boundary of the Cotswold Hills NMP project area (including the three pilot sheets)

As a result of the aerial survey of The Cotswold Hills, a total of 1692 new monument records have been identified and created in the NMR's database (AMIE) and 1136 records were revised. All NMR figures given here include the three pilot sheets.

Figure i (above) illustrates that the NMR database has been greatly enhanced as a result of the Cotswold Hills NMP aerial survey; with a 59% increase in total sites and a further 40% of existing sites amended or updated as part of the project. The nature of archaeological aerial survey, generally speaking, means that only relatively large earthworks, cropmarks, and structures are recorded. Usually no new information is added to monument records which describe buildings, finds, or other archaeological structures not visible from the air. This accounts for the relatively high percentage of records where no new information was added (see Archaeological scope of the survey, Appendix 1 for further details).

The illustrations below show the number of monuments recorded by period, and the nature of those monuments. It must be noted that most records were double-indexed with more than one period term where the date is uncertain from aerial survey. Sites for instance which are indexed as Bronze Age/Iron Age, will appear twice in the statistics.

Figure ii indicates the number of new and amended monuments recorded by period during the aerial survey. It shows that most sites relate to the medieval and post-medieval periods; a pattern also seen in many other National Mapping Programme projects (Winton 2005; Dickson & Priest 2009).

Perhaps more interesting is the *nature* of the archaeological features mapped and recorded for each period, as shown in Figure iii. As mentioned above; although some

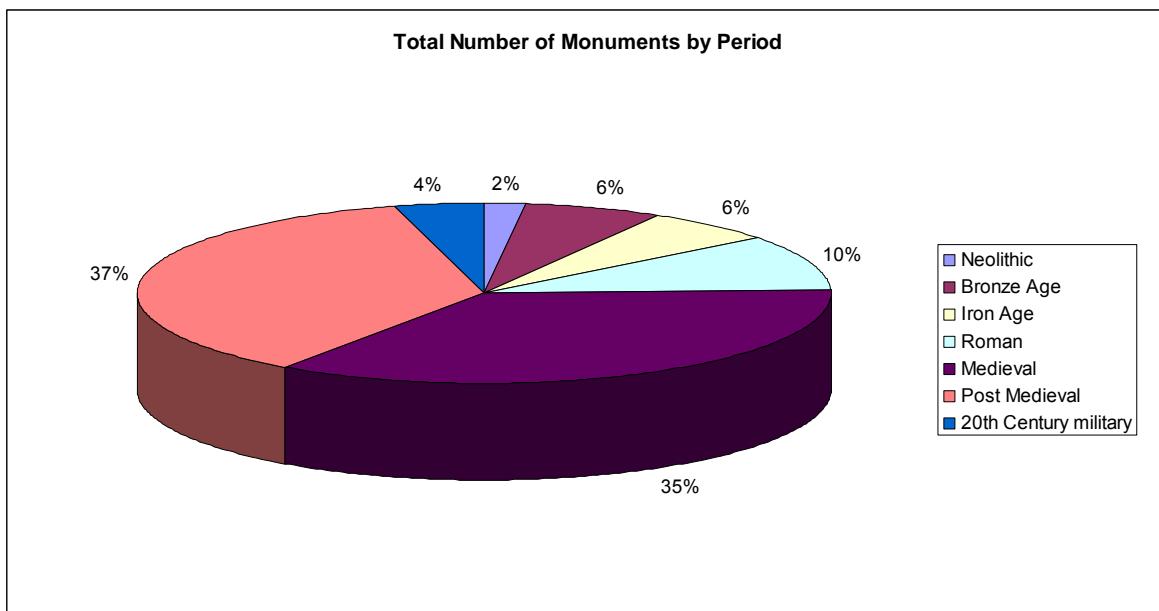


Figure ii: Pie chart showing the number of monuments recorded for each period. (Sites recorded as prehistoric or later prehistoric were not included, as they were double-indexed with other period types)

sites have been double-indexed by period, causing a degree of overlap, the statistics still give a general indication of the nature of the archaeological evidence identified for each period. For instance, it is interesting to note that there is little difference in the overall

percentage occurrence of cropmark features by period, except Neolithic monuments; whereas there is a huge difference in the percentage of earthworks and levelled earthworks per period visible on aerial photographs, with medieval and post-medieval features being the least likely to be seen as cropmarks (see the introduction of Chapter 7).

The records for 20th century sites, including those dating to World War Two and World War One (which make up the majority of the 20th century sites) have been left off the graph due to the majority of these features being visible as structures, demolished buildings, or extant buildings. As with Figure ii above, a small minority of records referenced as prehistoric or later prehistoric have also not been included, therefore the graph should be only be considered to be indicative of general trends.

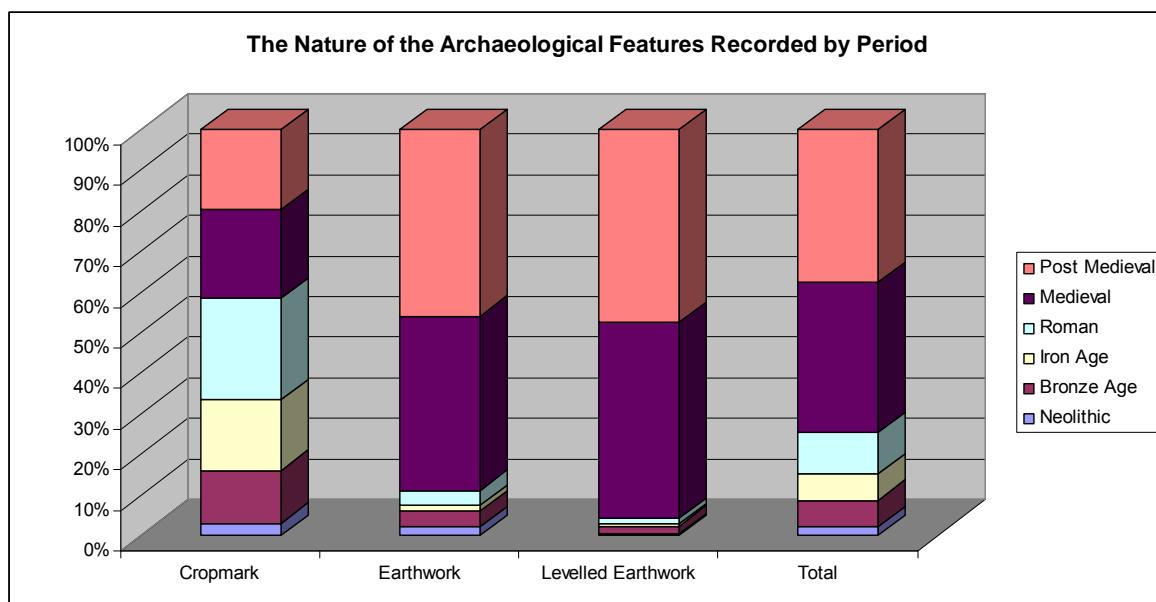


Figure iii: Graph showing the nature of the archaeological features recorded by period.

HER Statistics

The updating of the Gloucestershire HER with results from the Cotswold Hills NMP was completed in June 2011. Due to different recording methodologies and database structures (including the use of areas containing multiple monuments) the numbers of records differs greatly from the NMR AMIE database statistics.

In total 467 new records were added and 907 existing records edited. The following table indicates HER records amended by period, in many cases one amended area record will have produced more than one period record included in the totals below.

Period	New & amended records in Glos HER
Prehistoric	97
Neolithic	50
Bronze Age	65
Iron Age	214
Iron Age – Romano-British	164
Later Prehistoric	64
Roman	372
Early Medieval	28
Medieval	1173
Post Medieval	261
Modern	354
Unknown	268

The relevant records were also passed to South Gloucestershire, Wiltshire and Oxfordshire for incorporation in their HERs.