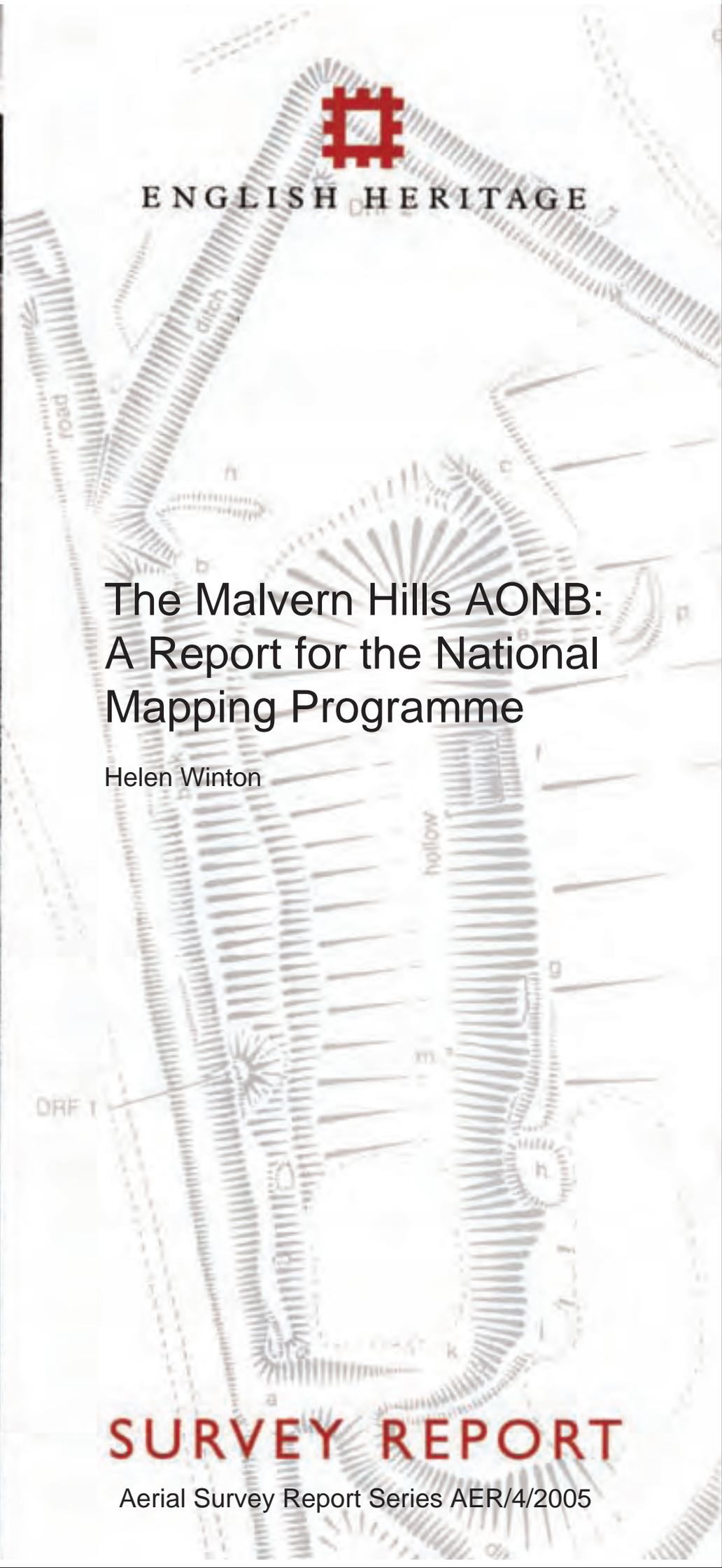




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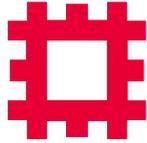
The Malvern Hills AONB: A Report for the National Mapping Programme

Helen Winton



SURVEY REPORT

Aerial Survey Report Series AER/4/2005



ENGLISH HERITAGE



MALVERN HILLS AONB
A report for the National Mapping Programme
Herefordshire and Worcestershire

Event UID: 1317924

Surveyed: July 2000-January 2001
Report by Helen Winton, 2005

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ACKNOWLEDGEMENTS

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The project was carried out in collaboration with Cambridge University's Unit for Landscape Modelling (ULM): their contribution being the loan of material from their Air Photo Library.

1. SUMMARY

The aerial survey of the Malvern Hills was part of an archaeological survey of the Malvern Hills Area of Outstanding Natural Beauty (AONB), carried out by survey staff at English Heritage, Swindon. This report is meant as a guide to the results of the aerial survey to aid further fieldwork, reconnaissance and management in the area. It is not intended as a definitive statement of the archaeology of the Malverns. An overview of the archaeological survey has been published in "The Malvern Hills, An ancient landscape" (Bowden 2005).

The aerial survey comprised aerial reconnaissance plus archaeological survey to English Heritage (formerly RCHME) National Mapping Programme (NMP) standards (Bewley 2001). NMP applies a systematic methodology to the interpretation and mapping of archaeological features visible on aerial photographs.

The reconnaissance and NMP survey have shown that the area in and around the Malvern Hills AONB has a wealth of archaeological remains and that aerial survey can be an effective means of survey in an area dominated by upland and pasture. The NMP survey has resulted in a 92% increase in the number of recorded monuments in the National Monuments Record (NMR) and the NMP data now constitutes 50% of the NMR record of this area.

Archaeological remains ranging in date from the Prehistoric through to the twentieth century were interpreted and mapped as part of the project. These include the well known earthwork monuments in the area as well as cropmarks of Bronze Age round barrows and late prehistoric and/or Roman settlements. The majority of the sites recorded are believed to relate to the medieval and post medieval periods and included ridge and furrow cultivation, quarrying and some evidence for settlement. More recent remains included several World War II camps, a military hospital, and a number of searchlight batteries.

2. INTRODUCTION

2.1 Background to the Project

The Malvern Hills AONB Management Plan (1996) states that all aspects of human history “need to be interpreted in order to understand the modern day landscape of the AONB, to put a value on its place in the overall character of the area today, and to determine its conservation needs” (3.2.9) and that “There is a need for a specially designed fieldwork programme to both identify new sites and to monitor the current condition of existing sites”...to....”allow the formulation and subsequent implementation of an effective strategy for the AONB’s heritage” (3.4.15).

Following discussions between Mark Bowden (EH Archaeological Investigation, formerly RCHME) and David Hancock (Malvern Hills AONB Officer), the Joint Advisory Committee requested from the RCHME a “comprehensive archaeology survey of the Malvern Hills AONB”.

The project design for the Malvern Hills AONB Archaeological Survey identified two survey tasks to be undertaken. The first task was to carry out a field survey of the six Scheduled Ancient Monuments. The second task involved “a survey of the entire AONB landscape by aerial photographic transcription and fieldwork identifying, recording and interpreting the archaeological resource, to supply information to the relevant county Sites and Monuments Records, to act as a guide for management and to inform a strategy for prioritisation of action” (Mark Bowden, January 1999). An independent researcher Valerie Goodbury was also commissioned to carry out a basic assessment of the documentary evidence for the area. This was used to supplement the two main archaeological survey techniques.

The Malvern Hills aerial survey, including reconnaissance and NMP, undertook the majority of the second task.

2.2 Project area

The NMP project area comprised eleven Ordnance Survey quarter sheets, equivalent to 275 square kilometres. This covered the AONB and a buffer zone of varying width. The extra areas mapped are intended to provide context to the archaeology within the AONB and to inform any conservation issues regarding the boundary or archaeological features in the immediate vicinity of the boundary.

2.3 Overview of methodology

The initial stage of the aerial survey involved specialist reconnaissance flights over the AONB carried out by archaeologist and photographer, Damian Grady. An overview of the results can be found in appendix 1. The reconnaissance was carried out in collaboration with the Archaeological Investigation and NMP teams to record landscape views, all Scheduled Ancient Monuments, and to look for previously unrecognised archaeological sites. The reconnaissance identified a number of previously unrecognised earthwork and cropmark sites, in particular around the southern end of the AONB boundary.

The main component of the aerial survey was carried out as part of the National Mapping Programme. Two archaeological investigators, Fiona Small and Helen Winton, carried out the interpretation and mapping. An overview of the methodology can be found in appendix 2.

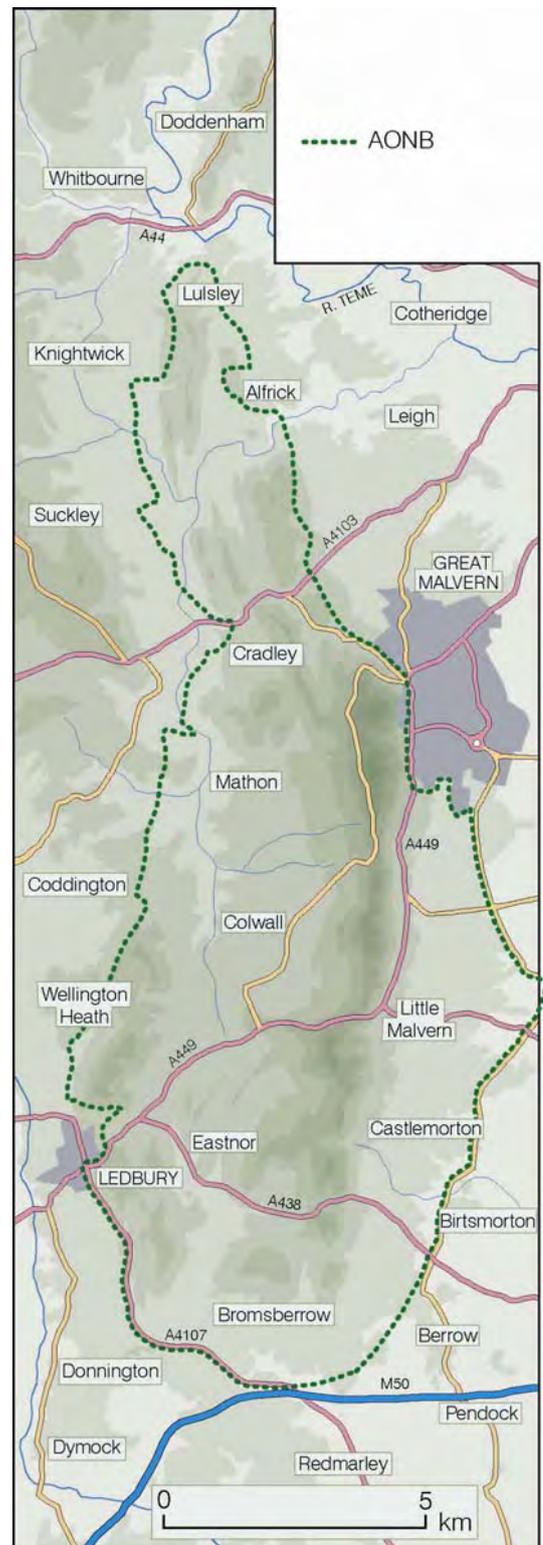


Figure 1 - Topography

The aim of 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 up to 1945. The NMP applies a systematic methodology to the interpretation and mapping of archaeological features visible on aerial photographs. This includes recording sites visible as cropmarks and earthworks but also structures, in particular those relating to early twentieth century military activities. This comprehensive synthesis of the archaeological information available on aerial photographs is intended to assist research, planning, and protection of the historic environment.

The Malverns project followed standard NMP methodology and involved the systematic examination of all aerial photographs available from the national collections at the National Monuments Record (NMR) and The Unit for Landscape Modelling (ULM) at Cambridge University (formerly the Cambridge University Committee for Aerial Photography). Any additional aerial photographs held at the Herefordshire and Worcestershire Historic Environment Records were also consulted. The archaeological features were digitally transcribed using the AERIAL5 rectification programme and AutoCAD. Each archaeological site was recorded in the NMR database AMIE.

For details of the methodology of the reconnaissance, interpretation and mapping, and monument recording carried out as part of the aerial survey, see appendices 1 and 2.

2.4 Conventions used on Malvern Hills AONB NMP maps.

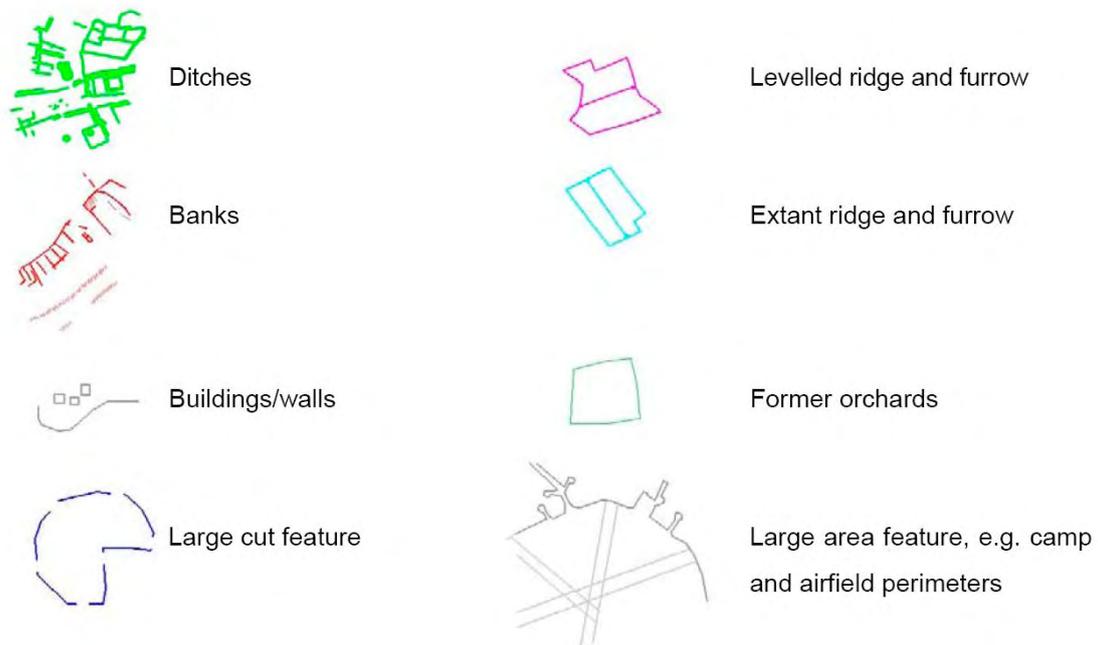


Figure 2 - Conventions used on Malverns AONB NMP maps

3. DESCRIPTION OF THE SURVEY AREA

3.1 Topography

The survey area is dominated by the narrow north-south orientated ridge of the Malvern Hills with areas of low lying pastoral farmland on either side. The solid and drift geology of the area is complex (Geological map Sheets 199, *Worcester* and 216, *Tewkesbury*) and a simplified version is shown in section 3.2.4 of the AONB Management Plan.

The AONB Management Plan (3.2.4) points out that the faults and fissures of the largely impervious crystalline rocks of the top of the main ridge make major water-bearing foundations with water seeping out where the ridge meets the sedimentary rocks. This spring line marks the upper limits of cultivation and settlement. The two main rivers are the Teme and Leadon which respectively flow through the northernmost part and along the along the south western edge of the NMP survey area.

The Malvern Hills take their name from the Welsh for bare hill (*Mol-fryn*) and soils on the top of the main ridge are shallow, dry and acid with vulnerable grassland on the highest ground and bracken and gorse on the slopes.

The thin soils and the exposed location of the higher slopes ensured that it remained common grazing land in contrast to the southern end of the main ridge where parts of the slopes retain natural woodland (Management Plan 3.2.5).

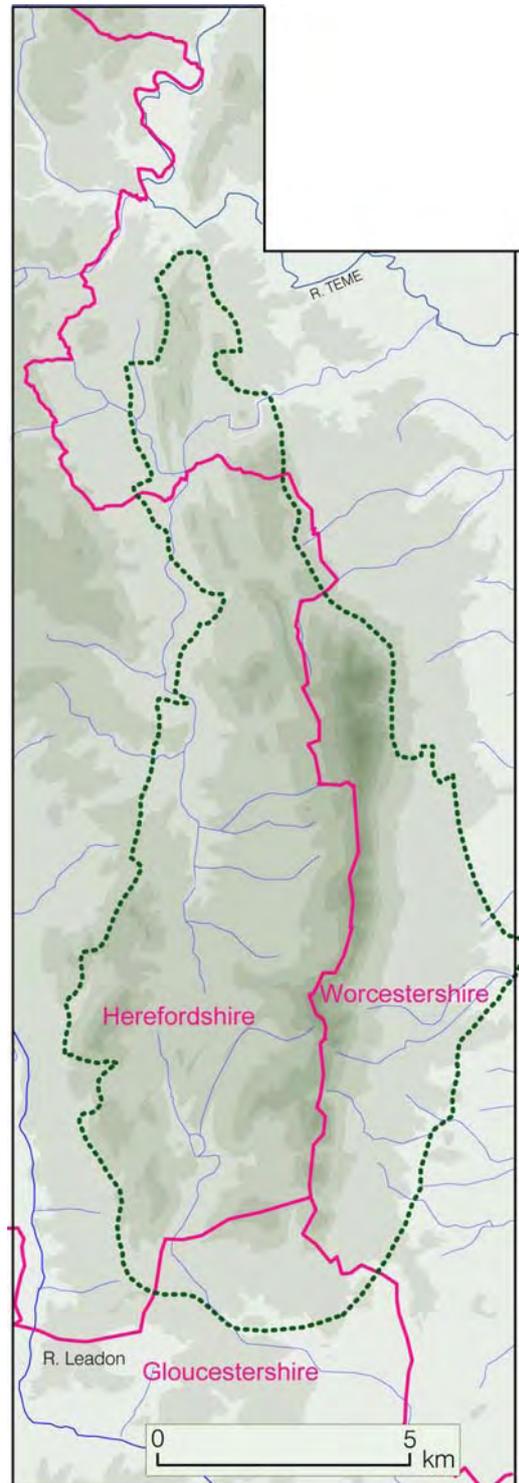


Figure 3 - Relief and Drainage

The southernmost part of the hills comprises a band of Permian Haffield Breccia, which forms a ridge, and Bridgenorth Sandstone and Triassic Bromsgrove Sandstone. Kidderminster Terrace sand has been quarried for construction sand just south of the AONB (Management Plan 3.2.8). To the west of Midsummer Hill, Ragged Stone Hill and Chase End Hill, shales overlie sandstone and quartzite. Here valleys have formed from the soft shales and igneous intrusions provide wooded knolls (Management Plan 3.2.6). As noted in the AONB management Plan (3.2.8), the fan shaped spreads of gravel found in the south eastern part of the survey area give “a poor quality soil and probably explain the continuance of land in this area as common” (p21).

The western and northern parts of the hills to the west of the Precambrian Microdiorite ridge comprise folded Silurian sediments (Coalbrookdale Formation, Much Wenlock Limestone, Aymestry Limestone, Upper Ludlow Shale, Raglan Mudstone Formation, and St Maughans Foundation) and May Hill Sandstone. The AONB Management Plan (3.2.7) describes this landscape as “undulating countryside of scarp and vale” where the limestone ridges are “well wooded with broadleaves” and the “intervening vales, where clay soils cover the shales, are devoted to arable and pasture”.

To the east of the hills are Triassic mudstones of the Eldersfield Mudstone Formation and Mercia Mudstone Group, the northern part of which is largely covered by Head. The eastern areas beyond the AONB boundary have in the past been liable to flooding.

The river Teme is flanked by a 0.5-1km wide band of alluvium and the other two main streams which flow through the survey area, the Cradley Brook and the Leigh Brook, have narrower bands of alluvial deposits. At the southern end of the AONB the Glynch Brook, as it flows off the hills and into the Severn plain, is flanked by a narrow band of alluvium.

3.2 Current land use

The AONB Management Plan sets out the current land use (Map 6 p38) in the AONB. The majority of the land in the AONB, and surrounding areas, is used for agriculture, with common land the next highest land use in the AONB itself, and woodland and parkland making up the rest of the area.

Outwit the boundaries of the AONB the project included the urban conurbation around and to the east of Ledbury and the eastern side of the river Leadon and its flood plain. Similarly the northern part of the survey area was dominated by the flood plains of the river Teme and the Lea Brook. The eastern and south eastern fringes comprise low lying land, some of it former marshland.

In summary, the majority of the soils in the NMP survey area are those predominantly used for mixed farming with an emphasis on long and/or short term grassland with some cereals. The agricultural land is interspersed with woodland, particularly on the slopes of the Malvern ridge and in the north eastern parts of the survey area. Information from the Soils Survey of England and Wales, Sheet 3 *Soils of Midland and Western England*, 1:250,000 scale.

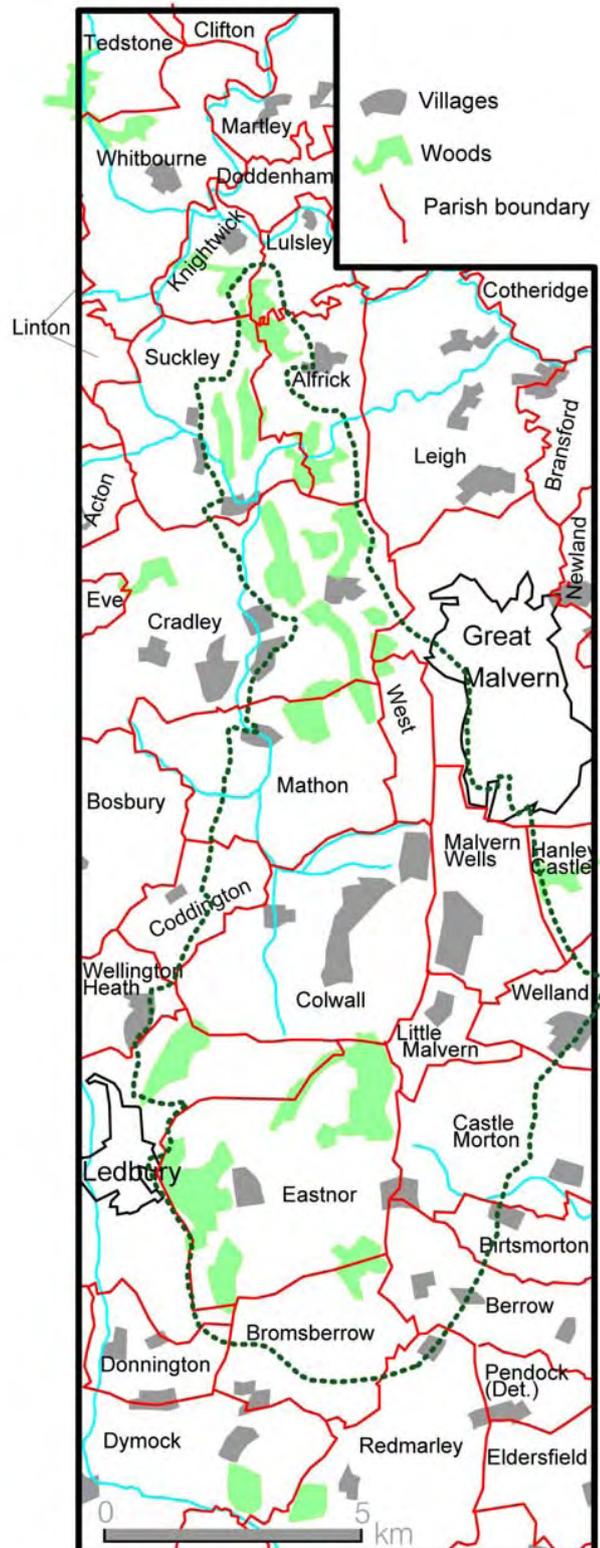


Figure 4 - General topography

The Management Plan identifies five broad areas of distinct agricultural use within the AONB.

1. The Malvern Hills and Commons where the traditional form of management is sheep and cattle grazing on the commons and sheep grazing on the hills.
2. The mid-slopes to the south and west of the hills which comprises areas of “small field patterns of permanent pasture interspersed with varying sized woods, knitted together with a strong framework of mature hedgerows. The field patterns generally follow the undulations of the main hills, with wooded tops to the outcropping hills, diversifying northwards where the foothills are more prominent. Here the better quality soils have traditionally supported a greater number of orchards and hop fields”.
3. The north-west and Suckley Hills which comprise “a small-scale landscape with dense hedgerows and wooded hill-tops, offering a much greater diversity of farming, with the mixture of permanent pasture, older-style standard orchards and (past) hop growing on the more favoured slopes where the soils are of better quality.
4. The eastern side of the Hills where much is taken up with common and small flatter fields, some given over to smallholdings and pony paddocks.
5. The arable land is located mainly on the flatter land to the south west of the AONB, usually bounding the peripheral and minor roads which lead in towards the hills. This is still largely unchanged with relatively small fields and many old-style farm buildings.

4. QUALITY OF THE AERIAL PHOTOGRAPHS FOR ARCHAEOLOGICAL SURVEY

Unrestricted air space combined with almost sixty years of vertical and oblique photography has ensured that there are no physical gaps in the aerial photographic cover of the Malverns. Prior to the English Heritage reconnaissance project the available aerial photographs comprised specialist oblique photography, in particular excellent work carried out by Harold Wingham and Chris Musson, as well as various programmes of vertical photography which were carried out at regular intervals from the 1940's onwards (see appendix 2 for a detailed list of sources).

4.1 Vertical photographs

The runs of vertical photographs provide coverage of all, or parts, of the area at five to ten year intervals from the early 1940's through to the early 1970's. As part of the routine NMP process all the vertical photographs were examined using a stereoscope to provide a three dimensional view of the landscape, including any extant archaeological features. The vertical photographs record landscape change and, in particular, details of earthworks and structures which have been ploughed level or removed. For example the camp in Eastnor Park (Figure 5), supposedly a World War II prisoner of war camp (N. Smith pers. comm), has been largely removed although parts of the footprint of the camp survive as a caravan park.



Figure 5 - On the left, a military camp in Eastnor Park, probably partially dismantled, during or before 1946 (RAF 106G/UK/1652 5236 11-JUL-1946) and, on the right, the site of a caravan park in 1999 (NMR SO7437/11 (18364/06) 29-APR-1999)

4.2 Oblique cover

As there was relatively little oblique coverage of the survey area a programme of reconnaissance was carried out in the summer and winter of 1999 and 2000, at appropriate times for cropmark and earthwork photography (Wilson 2000, 38-87). Flights were initially carried out in the winter months to take advantage of slanting sunlight which highlights earthwork sites. A flight was carried out in summer 2000 when dry weather can cause differential growth of crop over archaeological features. One of the main aims of the reconnaissance stage of the project was to continue to record the preservation and setting of the major sites and monuments in the area. For example, at British Camp on Herefordshire Beacon, the aerial perspective allows the whole of the monument to be seen in its landscape setting as well as details such

as the possible hut scoops in the interior of the fort. Damage to the monument can also be assessed.



Figure 6 - Looking south over British Camp NMR SO 7639/30 (18274/07) 02-FEB-1999

The new aerial survey of the Malvern Hills also looked for new sites and photographed as wide a range of types of sites as possible, instead of concentrating on traditional cropmarks and major earthwork monuments. This included photographing isolated medieval or post medieval house platforms, areas of ridge and furrow, cultivation terraces and quarrying, all of which add to understanding of past settlement and land use.

A potential disadvantage of vertical photographs is that they are not always taken at the most propitious times of day and year to maximise the visibility of archaeological features. Oblique aerial photographs are ideal for earthwork photography and proved a vital adjunct to some of the rather “flat” vertical coverage of the area. For example, near Hillend and Way End Street, only the major boundaries were visible on the vertical photographs taken in the 1940 and 1960's. However photographs taken in February and March 1999 (Figure 7), in slanting sunlight, when the grass was low, show numerous low platforms and finer details of the site.



Figure 7 - Oblique of low earthworks between Hillend and Wayend Street. NMR SO 7436/6 (18364/28) 29-APR-1999

5. NMP RESULTS

The nature of archaeological evidence available from aerial photographs defines the distribution and type of archaeology routinely recorded as part of NMP. This usually comprises relatively large ditched and/or embanked features which are visible above ground as earthworks, or as cropmarks of sub-surface features (Wilson 1982 and 2000). Historic photography provides details of earthworks and structures which have been ploughed away or removed in the last 50 years.

448 new monument records were created during the project, 80 records were amended and no new information was added to 402 records. This constitutes a 92% increase in the record. There are inevitable gaps in the distribution of monuments in wooded areas, towns and villages. The Malverns NMP data is complemented by the field results of the County Council Archaeology Service woodland survey (Worcs Recorder 61, Spring 2000).

There were relatively few cropmarks recorded mainly because of the dominance of pasture, or rather, the relative lack of intensive ploughing around the Malvern Hills. Conversely this has meant that well preserved earthworks were recorded from aerial photographs throughout the whole survey area.

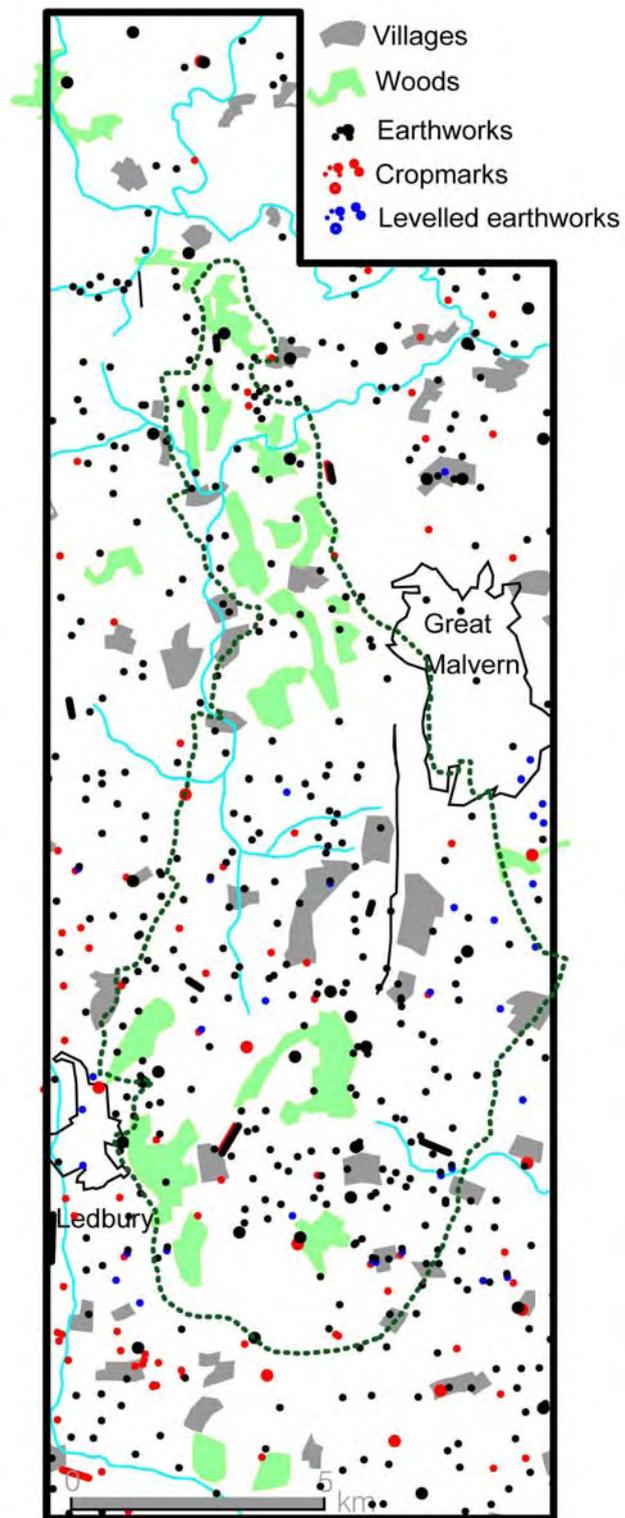


Figure 8 - Distribution of monuments

The current distribution of archaeological features visible as cropmarks suggests that there is potential for further discoveries of sub-surface remains in arable areas everywhere off the upper slopes of the main ridge. There seems to be no link between the distribution of soil types and archaeology visible on aerial photographs. No single soil type dominates across the survey area and none appears particularly favourable to cropmark formation as the cropmarks do not cluster exclusively on the light soils along the streams and rivers. However, it is likely that extremely dry conditions are needed for cropmarks to form on the heavier soils.

Period based distributions of the archaeological remains seem to reflect a combination of topographical and historical factors. Broadly speaking, the prehistoric and/or Roman sites are clustered in the areas where cropmarks are visible with the notable exception of the hillforts on the Malvern ridge.

There is a cluster of medieval and post medieval earthworks on the lower lying land around the southern end of the Malvern ridge where the best preserved evidence for medieval and/or post medieval settlement appears, with a few notable exceptions, to cluster in Eastnor, Bromsberrow and Birtsmorton parishes. Elsewhere the archaeological sites are dominated by the remains of medieval and post medieval cultivation remains. In particular there seems to be a concentration of medieval and/or post medieval cultivation terraces at the southern end of Colwell parish. The evidence for twentieth century structures clusters, not surprisingly, around the former World War II camp at Eastnor, and to the east of the town of Malvern where there were a number of camps and hospitals during World War Two.

Current and future land use in the area is likely to have a greater impact on the potential for new discoveries. An increase in arable land would facilitate the formation of cropmarks and the discovery of sub-surface features, in particular prehistoric or Roman remains. However, an increase in arable will inevitably have implications for preservation of the archaeological remains, both earthworks and sub surface remains. Any major increase in arable is unlikely to happen within the AONB boundaries but minor land use changes could fortuitously reveal some archaeology, for example grazing on the commons and slopes could help to clear much of the denser vegetation which may be masking low or slight earthworks.

The few flights carried out as part of the survey also suggest that there is some further potential for discovery of previously unrecognised earthwork sites. The NMP mapping and recording therefore provides a useful framework to target any further aerial and ground based survey work.

6. PREVIOUS ARCHAEOLOGICAL SURVEY

6.1 Excavation and Survey

Nineteenth century surveys and excavations have been carried out, for the most part on the earthwork monuments on the Malvern ridge (Bowden 2000, 1-2; Field 2000, Arch J 1850, 67-8). A single cropmark enclosure has been excavated by Herefordshire Archaeology at Ridgeway, Cradley in the north of the survey area (T Hoverd, pers. comm). Quarrying unearthed a Bronze Age cremation cemetery at South End Farm in Mathon parish. Apart from these few significant sites there are scattered finds from across the survey area but there are too few to draw any definite conclusions on the general archaeological character of the area.

Parts of the Malverns are often included in general surveys but these tend to concentrate on one county or the other, for example the moated sites of Worcestershire (Bond 1978). Other surveys have covered much smaller areas using a number of survey methods, for example Dyer's examination of the development of settlement in Pendock parish (Dyer 1990) using aerial photographs, ground survey and documentary evidence, and Bond's survey of the marshland in the Chase (Bond 1981) which looked at the natural history as well as the archaeological development of the area. Surveys looking at earthworks and other sites within the woodland in Herefordshire were on-going at the time of the NMP survey (Worcestershire Recorder 61, Spring 2000, p13).

6.2 English Heritage Field Survey

As part of the first phase of the English Heritage archaeological survey of the Malvern Hills, field surveys were carried out on the scheduled monuments within the Malvern Hills AONB. The hillforts on Midsummer Hill and Herefordshire Beacon (British Camp) have been surveyed and accounts of their construction and archaeological context within the region can be found in the accompanying reports (Bowden 2000, Field 2000). The large scale survey of Bronsil Castle found it to be an example of a medieval designed landscape garden (Smith 2000). A field assessment of the Shire Ditch, combined with the findings of the British Camp survey suggest that it probably had prehistoric origins as well as being utilised as a medieval boundary (Bowden 2000, 8-9; Brown 2000). Examination of the supposed barrows adjacent to the Shire Ditch and the grounds of Little Malvern Priory, suggested they did not need a large scale survey. As a result of the aerial survey what proved to be a double moat to the south east of Eastnor was surveyed in detail by the English Heritage Archaeological Investigation team.

7. PREHISTORIC AND ROMAN NMP RESULTS

7.1 Neolithic/Bronze Age

The earliest features recorded as part of the NMP survey are the remains of a handful of probably late Neolithic or Bronze Age round barrows, all of which are visible as cropmarks of ring ditches. Additionally two dubious earthwork barrows are adjacent to the Shire Ditch above Eye Well (Brown 2000). Previously known Bronze Age sites recorded in the NMR and HERs include scattered stray finds, the Bronze Age cremation cemetery at South End Farm in Mathon parish, and the possible Bronze Age features on Herefordshire Beacon (Bowden 2000, 13). There are too few Neolithic or Bronze Age monuments known within the survey area to draw serious conclusions from only their distribution or topographical positions. Manley suggests that the Malvern Hills are situated in a region devoid of large concentrations of round barrows (Manley, Figure 25). The barrows recorded as cropmarks by the NMP survey do, however, suggest that there is more to discover in the vicinity of the Malverns.

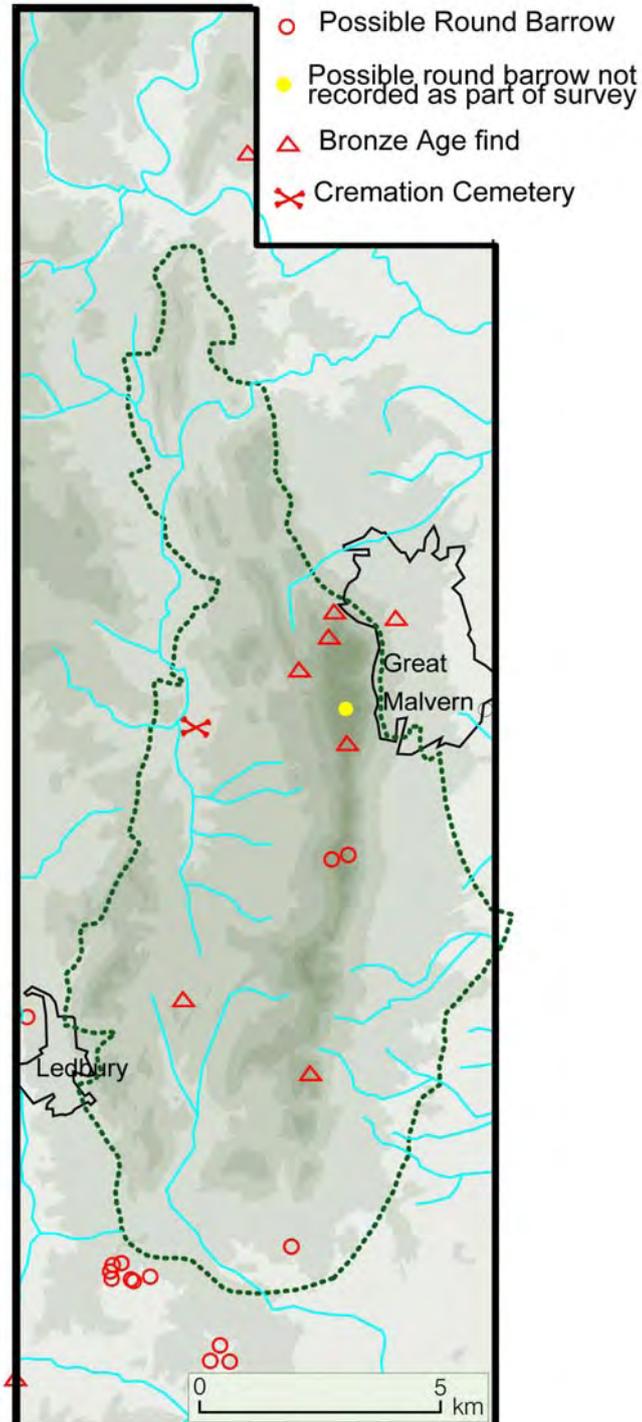
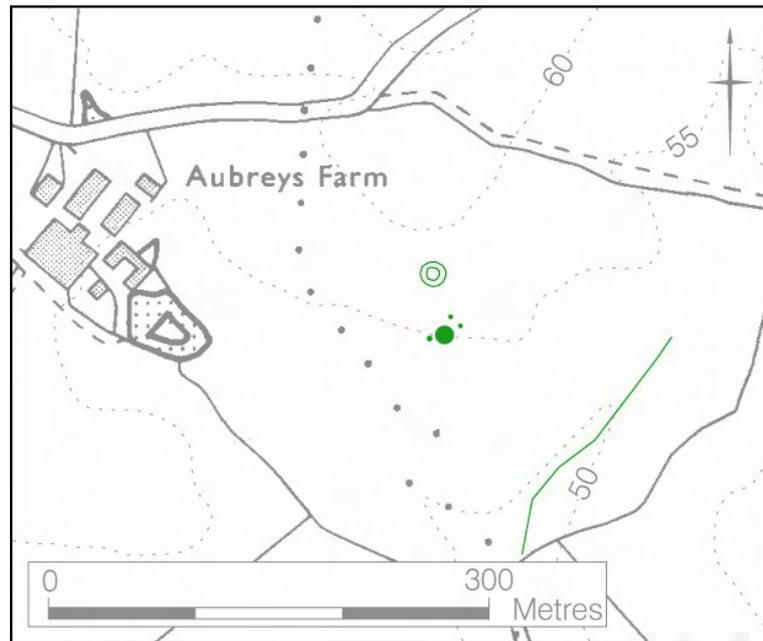


Figure 9 - Distribution of Bronze Age sites

A site of note is the possible multi-phase barrow visible as two concentric ring ditches near Aubrey's Farm (Figure 10). The large pit and three smaller pits to the south of the barrow could be the remains of further Bronze Age, or possibly Neolithic, funerary monuments. The ring ditches in the vicinity of The Vineyard (Figure 14) have some problems of interpretation as some are small enough to be considered as the remains of prehistoric or early Roman round houses. Where a ring ditch appears to relate directly to a settlement enclosure, as at the site immediately south east of The Vineyard, it can be more certainly interpreted as a hut circle but the ring ditches in the midst of the system of boundaries to the South of Great Heath and Little Heath are more isolated features and could be the remains of small round barrows or other round houses.

Figure 10 - Cropmarks of a double ring ditch and pits near Aubreys Farm, Bromsberrow parish, probably represent the remains of late Neolithic or funerary monuments. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved



It is possible that the lack of cropmarks of round barrows throughout the survey area is due to the remains being masked by medieval and/or post medieval cultivation. The barrows at Aubrey's Farm were visible as cropmarks underneath the cropmarks of a block of medieval and/or post medieval ridge and furrow. Further reconnaissance, especially in areas where ridge and furrow is being ploughed level, may identify new sites. This would need to be carefully targeted and systematic as there are less than favourable conditions for formation of cropmarks in much of the survey area, i.e. unresponsive soils and the predominance of pasture.

7.2 Possible Iron Age enclosures

In addition to the prehistoric hillforts on the Malvern ridge, the NMP survey recorded other enclosures which could be classed as small Iron Age, or later prehistoric hillforts. The earthwork enclosures at Gadbury Bank and Haffield Bank are situated on the lower hills to the south of the main ridge and Berrow Hill is to the north of the survey area. The remains identified as the supposed fort called Kilbury Camp near Bradlow to the north-east of Ledbury, appeared on the aerial photographs to be parts of medieval and/or post medieval boundaries or lynchets.

The limited number of the possible Iron Age “small hillforts” combined with the variety of forms and topographical settings make it difficult to generalise or speculate on possible chronologies or social comparisons between the sites.

The evidence for what could be characterised as potential “non-hillfort” settlement comprises a number of rectilinear, and one curvilinear, enclosure. With a few notable exceptions these cluster around the southern end of the main ridge. This distribution seems to correspond to that of arable cultivation in the area and it is highly likely that more enclosures remain to be found.

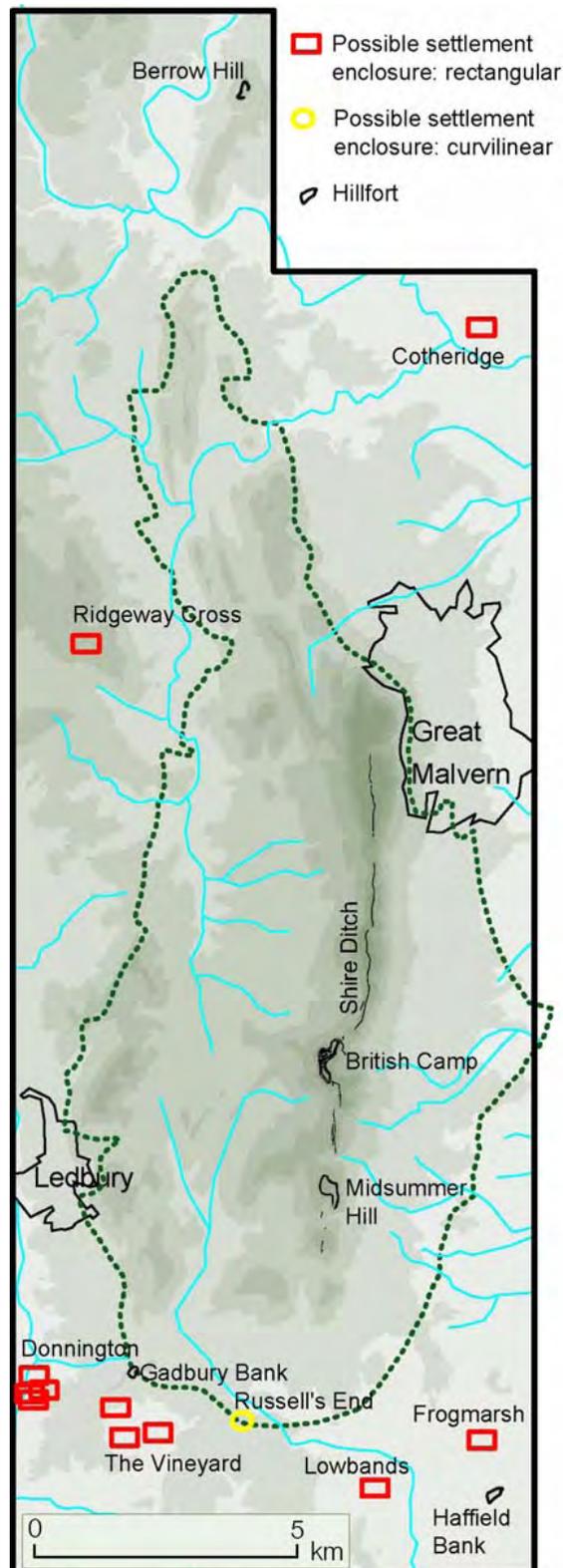


Figure 11 - Prehistoric and/or Roman monuments

Of particular note is a double-ditched enclosure, with a possible internal palisade, situated on a knoll between Russell's End Farm and The Vinning (Figure 12). On comparison with other enclosures in England this enclosure could be of Bronze Age and/or Iron Age date. Its position suggests that it may have been a small "hillfort" or defended enclosure.

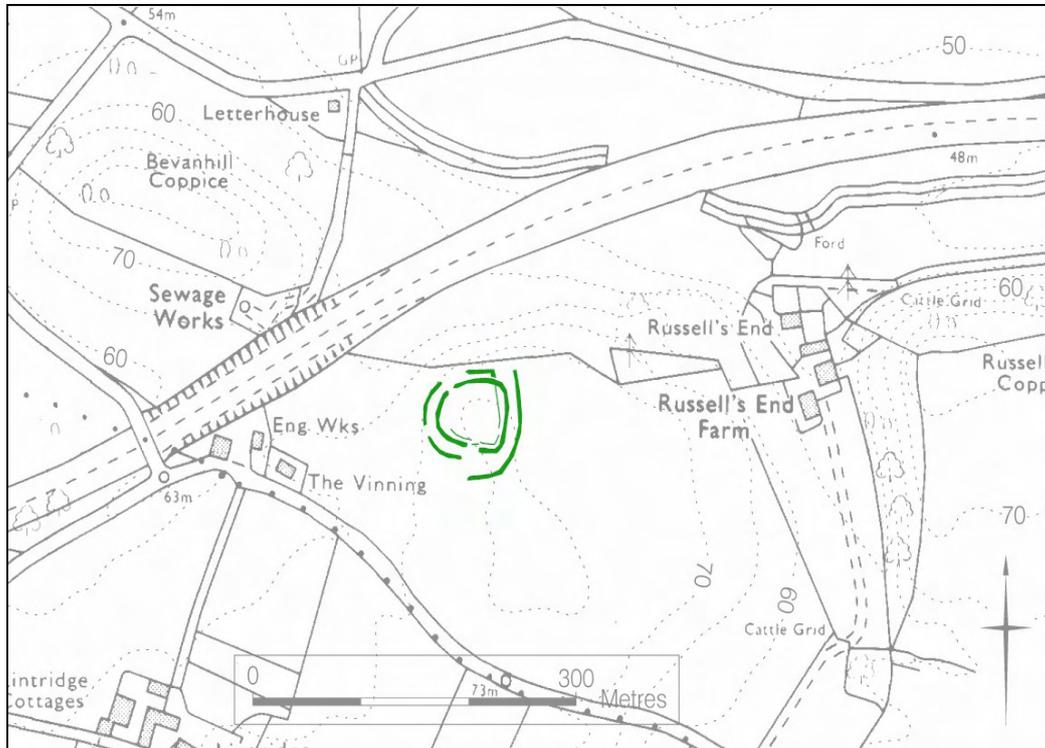


Figure 12 - Possible late prehistoric enclosure at Russell's End, Bromsberrow. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved

7.3 Possible later Iron Age and/or Roman enclosures

The evidence for other, "non-hillfort", late prehistoric enclosures was exclusively visible as cropmarks (Figures 13-15). The dating of settlement sites visible as cropmarks can be problematic but comparison with excavated evidence elsewhere in England, suggests it is likely that many of the cropmark sites recorded in the Malverns NMP survey were established in the late prehistoric, probably Iron Age period, or the Roman period.

There were no sites mapped which could be definitely identified as a Roman settlement despite considerable excavated evidence from the west midlands of a thriving local pottery industry producing Malvern Ware throughout the Roman period, and the presence of a possible Roman small town at Dymock (Leech 1981, 30-34) on the edge of the survey area.

The only definite Roman feature mapped during the NMP survey is the agger of the Roman road as it approaches the site of the Roman settlement in the vicinity of Dymock.

The enclosure at Ridgeway Cross is the only the site in the project area which has been excavated and there is no record of field walking at any of the other sites. The Ridgeway Cross enclosure proved to be part of a complex site with evidence of shifting occupation and industrial activity from the late Iron Age through to the early Roman period.



Figure 13 - Late Iron Age enclosure at Ridgeway Cross, Cradley. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved

The function and date of the other enclosures recorded as part of this survey can be suggested on the basis of superficial similarities to excavated examples elsewhere in southern England. The enclosure situated adjacent to The Vineyard is almost certainly a settlement and is typical of late Iron Age or Roman settlement enclosures found in the England (Hingley 1989a, 1989b). It is defined by a broad ditch, which encloses a roughly rectangular area, and has a possible hut circle in the interior (top left, Figure 14). The numerous modern and post medieval drains (not plotted) which criss-cross the area to the south suggest that this is, or was, relatively water logged

ground. This and the heath place-names suggest that the area may have been relatively un-cultivated land in the medieval period. The result of this could be that the cropmarks may represent parts of sites with well preserved, possibly even some water logged, remains with a potential for environmental sampling.



Figure 14 - Late Iron Age or Roman enclosures near The Vineyard, in Donnington and Dymock parishes. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved

Lack of evidence of hut circles does not preclude cropmark enclosures being settlements or associated with settlement. The cropmarks probably represent only the most substantial features of each site (Figure 15). Excavation of only part of the ditch of the site at Ridgeway (Figure 13 above) showed that this seemingly simple enclosure was in fact the site of intensive occupation and metal working (T Hoverd, pers. comm.). Therefore it is probable that the cropmarks in Figure 15 represent only part of a complex site.

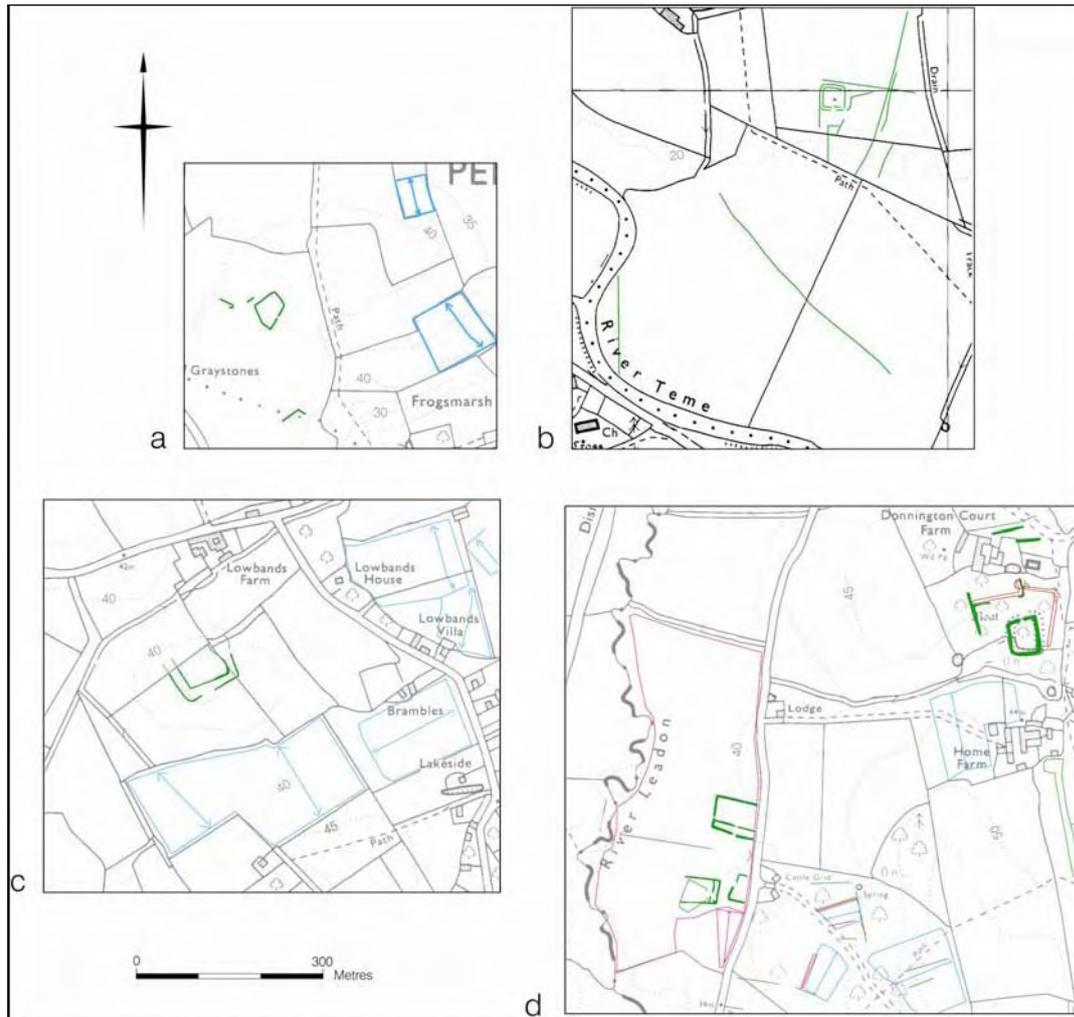


Figure 15 - Possible Iron Age or Roman enclosures, possibly settlements, visible as cropmarks at: a) by Frogmarsh in Pendock (detached), b) by the river Teme in Cotheridge Parish, c) by Lowbands in Redmarley D'Abitot parish, d) by the river Leaddon in Donnington parish. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved.

With relatively few possible later prehistoric and/or Roman enclosures sites recorded in the survey area it is difficult to characterise their landscape setting. Generally speaking the enclosures tend to be situated in areas conducive to cropmark formation suggesting that there is no particular archaeological significance to be drawn from comparison of the locations of each site.

7.4 Shire Ditch or Red Earl's Dyke and possible prehistoric boundaries

Rapid field survey of the Shire Ditch and the results of the British Camp survey suggest that it probably had prehistoric origins as well as being utilised as a medieval boundary (Bowden 2000, 8-9; Brown 2000, 6). The course of the bank and ditch has been mapped as accurately as the available photographs allow as, even on the earliest photographs from the 1940s, it is obscured by the numerous tracks which run on or around the bank and ditch. The southern parts of the ditch at the southern end of Chase End Hill (Brown 2000, 2) were completely obscured by trees. A bank which follows parts of the line of the current county boundary on Ragged Stone Hill is probably a medieval and/or post medieval field boundary and does not seem convincing as a continuation of the Shire Ditch. Another bank extends parallel to the west of the Shire Ditch on Swineyard Hill. The date of this feature is also unclear and

may be the upper boundary associated with a potential area of ridge and furrow down slope. Other earthworks which were mapped on the summit of Chase End Hill and comprised two small quarries and two broad ditches which extend east from the summit of the ridge. The ditches are probably post medieval boundaries or trackways possibly associated with the quarries on the hilltop rather than features associated with the Shire Ditch.

No other comparable boundary features were identified during the survey mainly because of the difficulty in distinguishing shorter lengths of prehistoric boundary from the numerous medieval and/or post medieval lynchets mapped as part of the survey. There is the potential for discovery of more prehistoric boundaries as possible examples have been identified during a woodland survey in the vicinity of Ledbury Wood (Worcester Recorder 61, Spring 2000).

7.5 Discussion of prehistoric and Roman features

The mapping carried out as part of this project has identified and broadly categorised the prehistoric and Roman sites, visible on aerial photographs, in and around the Malvern Hills.

The nature of aerial survey means that these were generally, but not exclusively, large funerary monuments and possible enclosed settlements. Although the Malvern range of hills is a major topographical feature in the survey area, the number of known sites is still too small to say how, or if the hills form a real focus for Bronze Age funerary monuments or Prehistoric and Roman settlement in the vicinity.

Because of the lack of sites it is also difficult to identify any relationships between the various types of site. However the co-location of the possible Bronze Age round barrows, settlements and boundaries on Bromsberrow Heath to the east and south east of the Vineyard (Figure 14) could provide an opportunity to explore the development of this small landscape from the Bronze Age period through to the Late Iron Age and Romano-British periods. There is a strong possibility that unenclosed settlement may also be found, possibly associated with some of the smaller isolated ring ditches.

The majority of the features identified as prehistoric and/or Roman are visible as cropmarks and these are increasingly under threat from plough damage. It is possible that some sites have already been destroyed or seriously denuded. The potential Bronze Age features near Aubrey's Farm only show clearly on a photograph taken over fifty years ago and the possibility that it has since been ploughed away should be borne in mind, as at all the cropmarks sites, when planning excavation strategies.

Excavations have shown that cropmark sites can be remarkably well preserved and comprise only a small portion of the surviving features of a site. Within the survey area the excavation at Ridgeway Cross was carried out partly in response to potential plough damage and although the ditch of the enclosure was better preserved than was hoped, this may have been due to the fact that it was deliberately back filled and sealed when the metal working floor was constructed (T Hoverd, pers. comm.).

Only further fieldwork will begin to answer some of the questions of date, function and preservation of each type of site and then it may be possible to see if there is any pattern in the setting of the different sites within the landscape. At this stage further study of individual sites within a local context, or a concerted effort, through further aerial reconnaissance or fieldwork, is needed to expand the known distribution of settlement sites.

8. MEDIEVAL AND POST MEDIEVAL NMP RESULTS

8.1 The early medieval period

The early medieval period is defined, for the purposes of this report and the NMR monuments database, as the period from the withdrawal of centralised Roman power in Britain, in the 5th century, up to the Norman Conquest in 1066. There were no features which could be positively identified as originating in the early medieval period recorded by the NMP project. Bowden tentatively identifies the enclosure at Russell's End (see Figure 12 above and Bowden 2005, 32) as a potential early medieval site; however, this is on the grounds that its morphology cannot easily be assigned to any particular period. Bowden provides a good summary of the evidence and recent research which identifies possible early medieval churches and routes in and around the Malverns (Bowden 2005 31-32). However there remains, to date, no field or aerial evidence for pre-conquest settlement.

8.2 The medieval and post medieval periods

The medieval and post medieval periods are here defined as 1066-1540 and 1540-1901 respectively. The nature of much of the evidence recorded as part of the NMP survey means that it is difficult to ascertain a more precise date than medieval and/or post medieval for many sites. A discussion of the dating of particular monument types is discussed in the following sections. There was no documentary evidence readily available, for example through Goodbury's research, or from the NMR and HERs, which could be tied specifically to any of the remains, thought to be medieval and/or post medieval, recorded as part of the survey. The following sections will therefore examine the NMP evidence for the medieval and/or post medieval periods thematically and make suggestions for further research.

8.3 Characterising medieval and post medieval Settlement

Identification of possible medieval settlement was on the basis of the topographical context of the remains and similarities to recognised settlement elements i.e. tofts, crofts and building platforms. Therefore enclosures with comparable alignment and size to "fossilised" tofts and crofts were recorded where associated with existing villages and farms which are thought to have medieval or later origins, and also in more isolated contexts. The positive identification of some of the smaller enclosures as tofts proved difficult where no house or building platforms could be seen. For example the embanked enclosures on the south west edge of Coombegreen Common (Figure 16) could be characterised as possible settlement remains but there is no evidence of buildings and their alignment appears to be different to that of the present village.

There has been much discussion on the characterisation of medieval and post medieval rural settlement remains (for example Roberts 1977, Taylor 1983, Roberts and Wrathmell 2000, 2002). It has become clear that assumptions about the character of pre and immediate post conquest settlement forms cannot be made from Domesday alone. Therefore a reference to a named settlement in Domesday does not necessarily refer to a nucleated settlement established in that period. The current settlement pattern around the Malverns seems to suggest that there was a mix of nucleated and dispersed settlement from at least the later medieval period onwards and this reflects a general regional trend (Roberts and Wrathmell 2000, 2002).

It is difficult to accurately characterise the development of medieval and post medieval settlement by looking at the current plan, including earthwork and cropmark evidence, which is essentially an accumulation of occupied and abandoned plots

where the boundaries may have developed, and shifted over a period of up to 800 years. Nineteenth century or earlier maps can be used to strip away the last 200 years of development but in the case of the Malverns NMP survey area, with a few notable exceptions, there has been relatively little development, certainly in the more rural areas, since the Ordnance Survey First Edition maps of the 1850s.

Roberts amongst others, however, has shown that the field evidence and an analysis of the general form of settlement is a good place to start and can confirm uncertainty or fill in gaps from the information provided by the documentary sources which more often than not does not include information on the development of the plan of settlement (Roberts 1977, Taylor 1983). The large volume of data provided by surveys such as NMP is ideal for looking at local or regional trends where evidence of general expansion, decline or changes to the overall settlement pattern may occur. The NMP survey can therefore be used to target possible areas where a smaller area can be looked at more intensively with, ideally, a multidisciplinary survey. Local considerations are, of course also of particular importance when studying the local settlement pattern and this is certainly the case in the Malverns.

8.4 Characterising medieval and post medieval settlement in the Malverns

Research into the medieval and post medieval period in the vicinity of The Malvern Hills (Dyer 1990, Bond 1981, Weaver 1998) has shown that the factors governing the development of medieval and post medieval settlement in the survey area were complex.

Possibly the greatest influence on the settlement pattern in the area is the presence of the Royal Forest or Chase. The Chase is almost certainly a pre-conquest feature and so any activities within its boundaries, such as settlement and agriculture, will have been limited or closely controlled at least since then. Complex arrangements between the various parishes for commoner's rights and the disputes, in particular around squatting rights, arose during the enclosure of parts of the Chase in the post medieval period. Therefore it is likely that a complicated system of land ownership and settlement existed in the vicinity of the Chase from at least the later medieval period (Weaver 1998).

In and around the former marshland on the eastern fringes of the survey area a combination of topographical and economic factors affected the development of medieval and post medieval settlement resulting in a mix of nucleated and dispersed settlement types (Bond 1981, fig 3). In Pendock parish, of which only the western detached part is situated in the survey area, a distinctive settlement pattern, characterised as the 'interrupted row' by Dyer (1990), developed in relation to assarting and intensive cultivation, from the early Middle Ages.

The high proportion of Late medieval and post medieval buildings which are still inhabited in throughout the survey area suggests that the settlement pattern may have been relatively static at least since the late medieval period. This may partly account for the relatively few examples of settlement shrinkage or desertion recorded as part of the survey.

This report is intended to highlight the remains recorded as part of the NMP survey and a general overview of the medieval and post medieval periods in the Malverns can be found in Bowden (2005). The following sections will give an indication of the basic situation and form of medieval and post medieval remains recorded on aerial photographs in the vicinity of the Malverns Hills. This should help to target further research into the development of the settlement pattern in the area.

8.5 Clusters of settlement remains

Little evidence of shrinkage was recorded around the villages in the survey area. At the villages of Birts Street and Rye Street, abandoned property boundaries and gaps in the pattern of ridge and furrow perhaps indicate the sites of former properties. However it is possible that a settlement pattern similar to the "interrupted row" at Pendock (Dyer 1990) may have developed and many of the gaps between the present properties could be former pasture or areas where the ridge and furrow has been ploughed level. At Castle Morton ditched boundaries, between the present house plots, and the hollow way which extends behind these possible properties may also indicate that there has been some settlement shrinkage.

On the edge of Coombegreen Common earthwork remains of some enclosures, a system of ridge and furrow cultivation can be seen in what is now grazing land on the slopes to the south west of Birts Street (Figure 16).

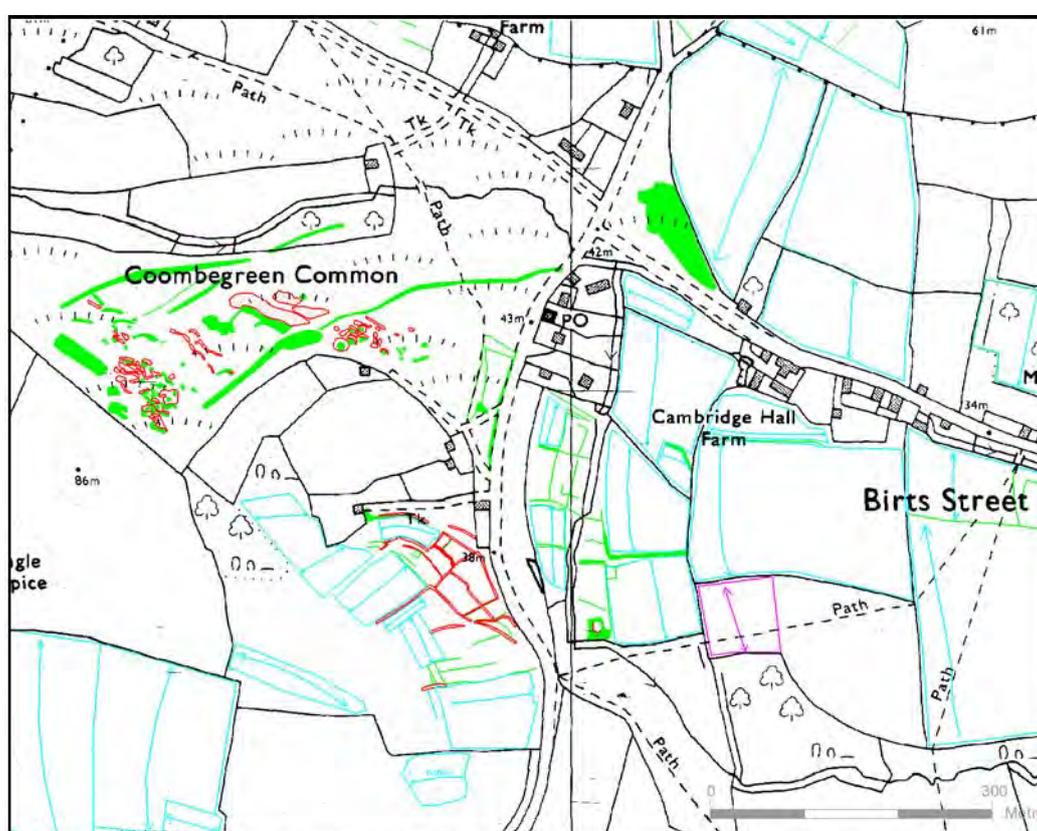


Figure 16 - Possible settlement at Coombegreen Common, Birtsmorton parish. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved.

The quarrying on the common itself is probably for Arden Sandstone which outcrops on the hill (British Geological Survey, Solid and drift Geology, 1:50,000 series, England and Wales Sheet 216, Tewkesbury). The quarrying appears to have taken place in a piece-meal fashion with numerous pits of varying sizes. This could be a result of digging rights held by commoners, perhaps limited to a day at a time as is found elsewhere in England (Lancaster 1989). It is not certain that the enclosures to the south west of the present village do actually represent settlement remains as no traces of buildings can be seen. Further research could be carried out to try to determine if there has been shrinkage of the village and why this may have occurred

Two possible areas of clustered or nucleated settlement occur around Massington Farm at the east end of Ledbury parish boundary (Figure 17). To the south-west of the farm, building platforms cluster around the edges of a series of enclosed areas formed by deep and broad hollow ways or boundaries. The field in which they are situated is called "Pigeon House Close" on a 1726 map of the area (Goodbury 1999) but it is unclear how, or if, this relates to the earthworks. Pigeon House Close has been ploughed level and parts of the site have only been seen as cropmarks on later photographs. More buildings platforms, boundaries, ridge and furrow and lynchets, are situated immediately around Massington Farm. It is unclear what the two clusters of abandoned settlement represent as they could be a small hamlet or the cumulative remains of settlement shift comprising groups of small farms.

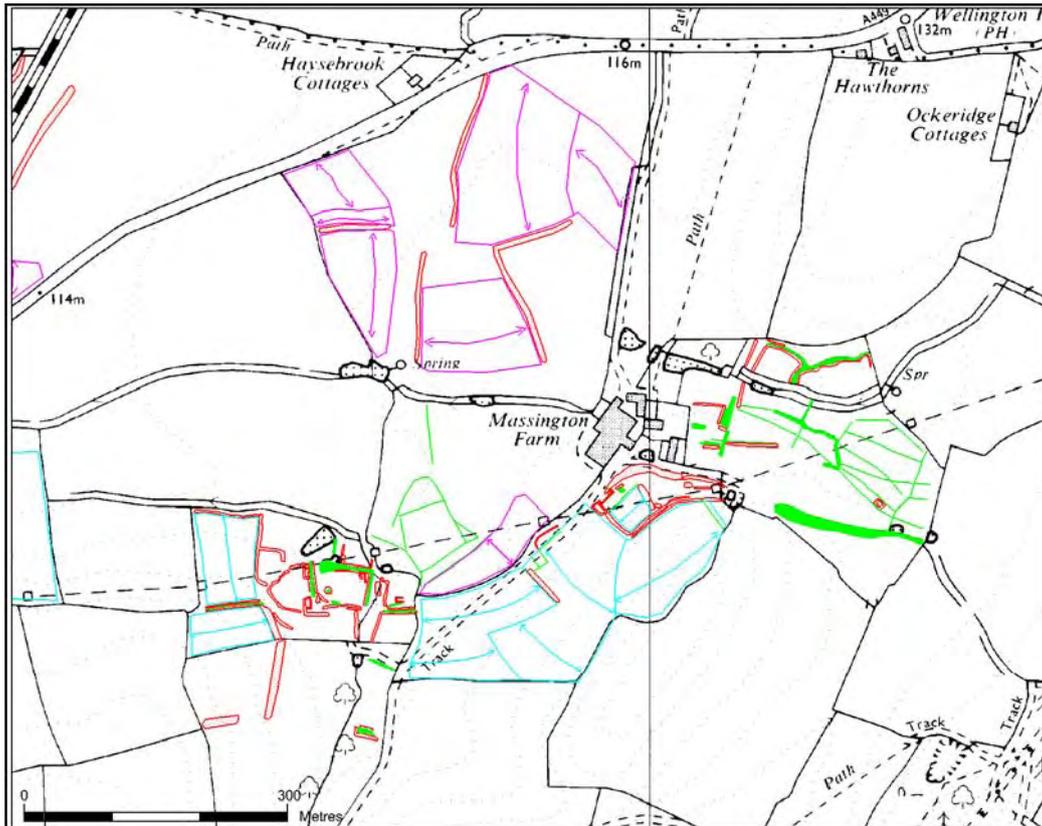


Figure 17 - Settlement remains near Massington Farm, at the east end of Ledbury parish. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved.

Another cluster of settlement remains extends south from the present village of Way End Street (Figure 18). The place name "End" is frequently used in the area for a hamlet or small settlement (Goodbury 1999) but it is unclear if the earthworks recorded in this survey once formed part of Way End Street. Most of the features recorded to the south of Way End Street were only visible on the recent oblique photography (see Figure 7) taken specifically for the project and much of the settlement appears to still survive as earthworks.

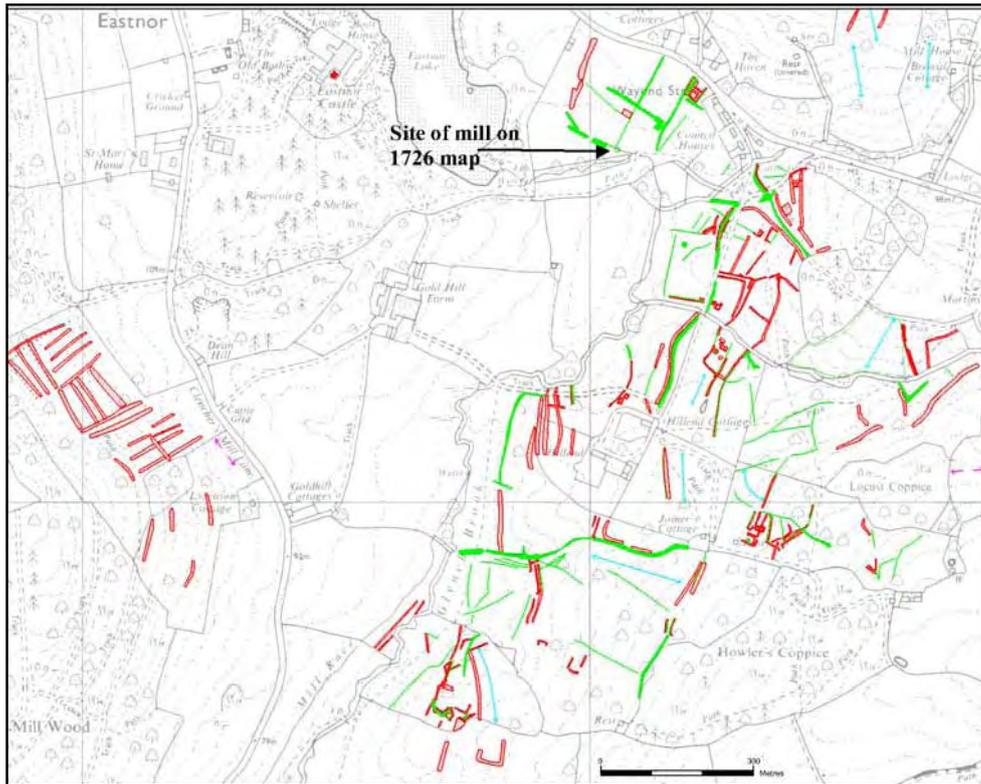


Figure 18 - Settlement and cultivation remains to the south of Wayend Street, Eastnor parish. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved.

There appears to be no obvious pattern to the arrangements of building platforms, hollow ways, cultivation terraces and ridge and furrow which extend to the east of the Glynch Brook between Wayend Street and Howler's Coppice (Figure 18). The earthworks are situated within the former Chase, close to the Eastnor Estate, and may represent the accumulated remains of a shifting settlement pattern, perhaps as the result of assarting or squatting on common land. It is, however, worth noting that some of the platforms could be World War II features related to the camp situated to the north in Eastnor Park. In particular two sub-circular platforms to the north east of Hillend Cottages could be gun or searchlight emplacements, but this was not confirmed on the late 1940's photographs. A mill is marked, on the 1726 Eastnor Estate map, near a spring to the east of Eastnor Lake and boundaries were mapped in the vicinity which could be the related to this mill, but no buildings were found to indicate the site of the mill. At the south end of the settlement remains are the remains of a double moat, partially obscured by trees, and associated features situated in a field called "Moat meadow" on the Inclosure Map of 1816 (Goodbury 1999). It is possible this represents the site of a manor, possibly on the fringes of the settlement which extends south from Way End Street, however this is only one of many potential interpretations (see below for a discussion of moats in the survey area).

8.6 Dispersed Settlement

A number of possible abandoned enclosures or tofts were identified during the aerial survey which appear to be the remains of isolated farms or small settlements. Most of the tofts which contained building platforms are situated close to currently occupied properties but it is unclear if the earthworks represent settlement shift or abandonment.

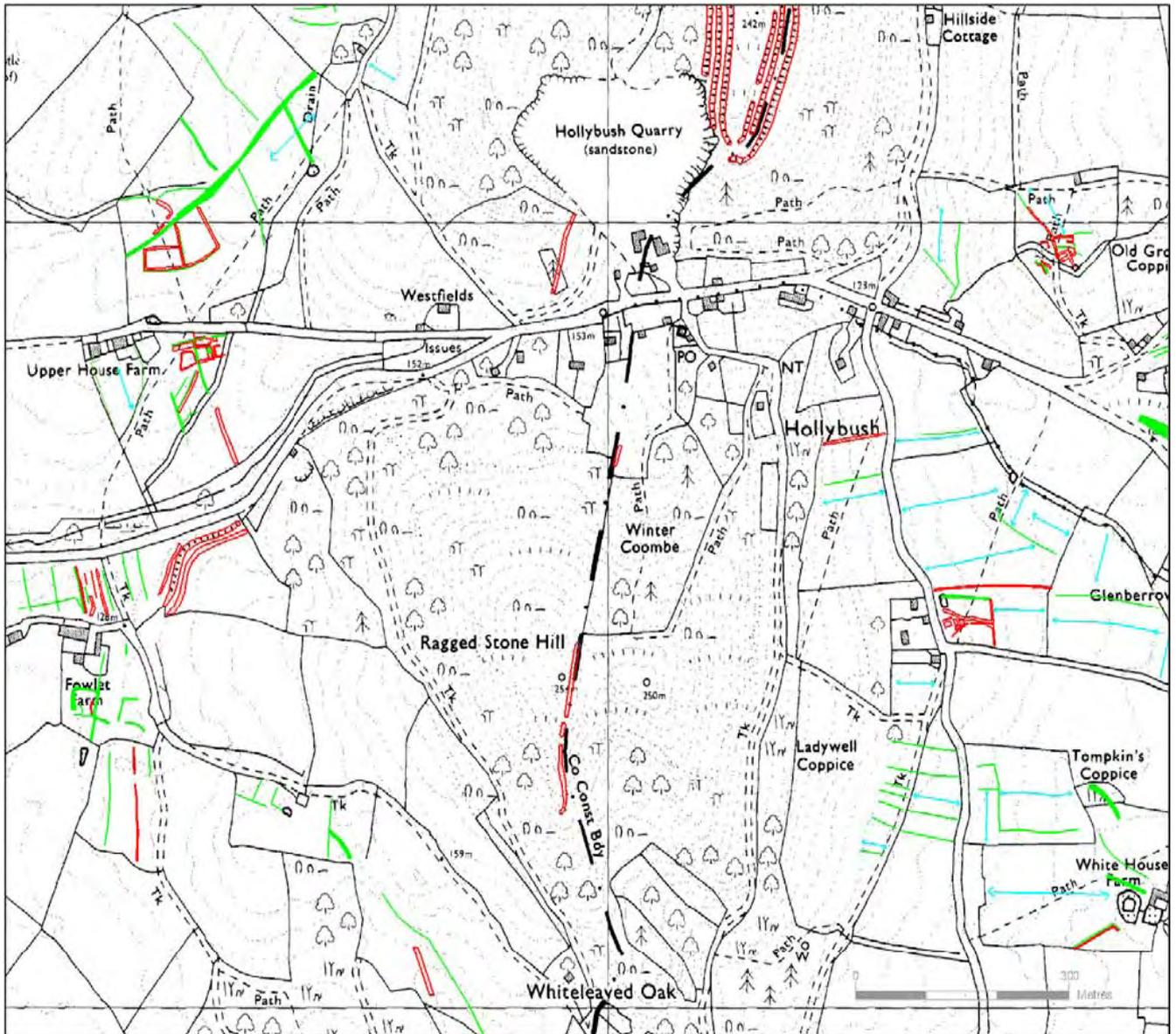


Figure 19 - Dispersed medieval and/or post medieval settlement near Ragged Stone Hill in Eastnor, Berry and Castlemorton parishes. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved

A handful of examples occur to the east and west of ragged Stone Hill (Figure 19). At Upper House Farm (on left of Figure 19), tofts and building platforms to the east of the present farm may represent the former site of the current farm but it is more probable that there was once a larger cluster of properties here. Parts of two smaller enclosures to the south east of Fowlett Farm could be tofts and may be associated with the large cultivation terraces to the north east of Fowlett farm. To the west of Old Ground Coppice (top right of Figure 19), indistinct building platforms and associated boundaries appear to represent a completely abandoned property. The inhabitants of this property may have had commoner's rights at Hollybush, perhaps including quarrying.

House platforms, within a roughly triangular shaped toft, are situated adjacent to the modern road between Hollybush and Chase End Street (on right of Figure 19, and on Figure 20 below). The field within which the settlement sits is called Weavers Leasow and the field to the west of the road is Mill Meadow but no reference to a mill

building has been found in Berrow parish (Goodbury 1999).



Figure 20 - Possible settlement and ridge and furrow to the south of Hollybush. NMR SU7636/5 (18272/10) 02-FEB-1999

The field to the north of Weavers Leasow is called Tan House Meadow on earlier maps (Goodbury 1999). Tanning was an important industry within the Chase and this is reflected in the number of place names (Goodbury 1999) in this north western portion of Berrow parish which falls within the south east extremity of Malvern Chase (Weaver 1998, fig 1). More research is required to ascertain if the remains recorded as part of the NMP survey were related to the tanning industry.

8.7 Moated sites

The term moat is applied to a wide range of types of site, including settlements of varying status, garden features, and ponds for fish, fowl, watering stock or powering mills and a moat could perform one or more of these functions throughout its period of use (Taylor 1978 5, Bond 1978, 77, Smith 2000, 16). Possible candidates are readily identifiable on aerial photographs and this is reflected in the variety of the remains recorded as part of this survey. The distribution of moats (Figure 21) recorded as part of this survey should only be taken as a guide to possible sites rather than as an indication of manorial holdings.

The high proportion of moats in the survey area does seem to reflect the overall distribution in the region. In Worcestershire the distribution of moated sites appears to be linked to heavy, water retaining soils and in Malvern Chase it was probably also heavily influenced by the pattern of assarting (Bond 1978, 71-2 and fig 24).

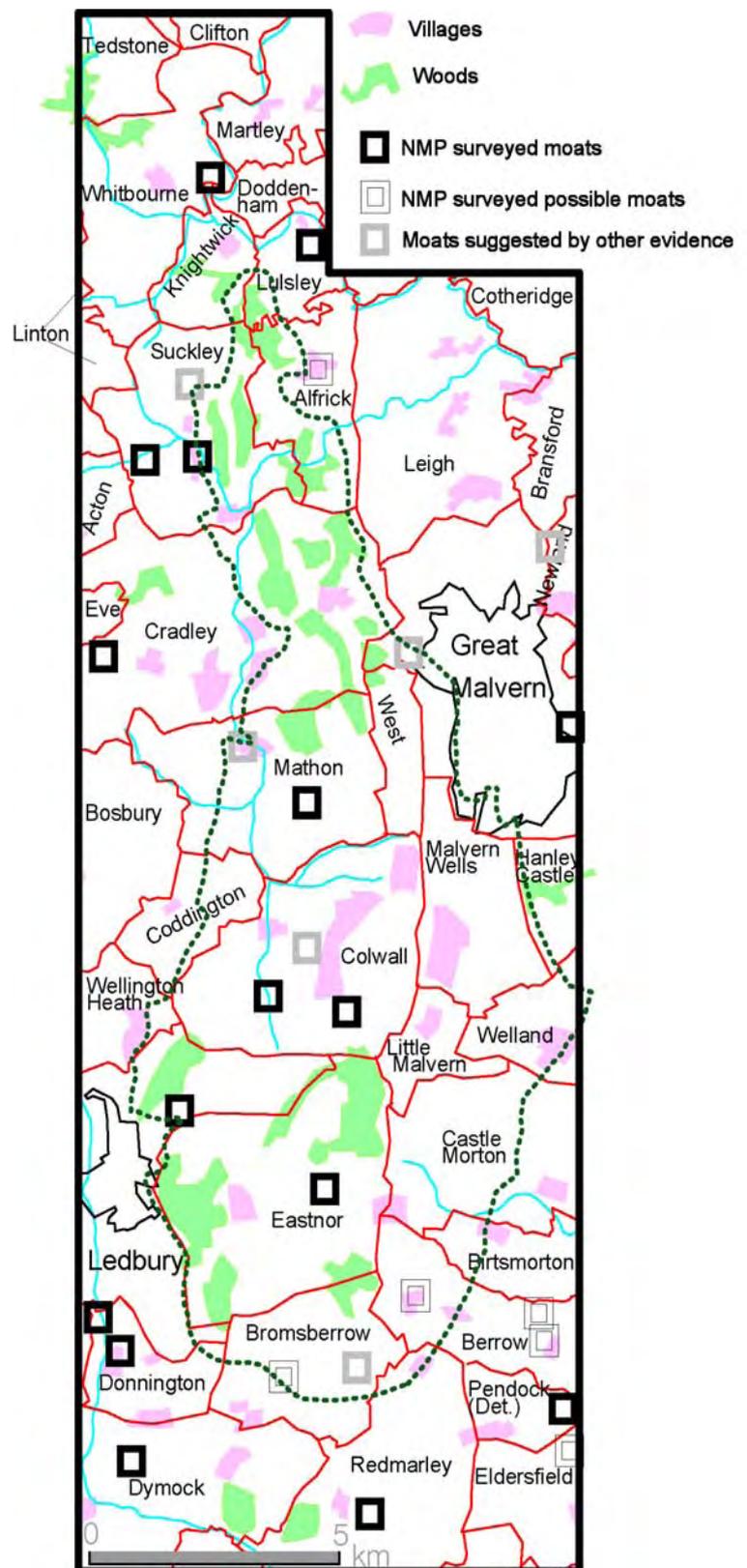


Figure 21 – Distribution of moats

8.7.1 Form and context of moats

Features identified as moats during the survey range from simple pond like remains to rectilinear and curvilinear enclosures of varying sizes (Figures 22-23). Most of these survive as earthworks and have been surveyed by the Ordnance Survey and Bowden illustrates a sample in the Malvern Hills book (Bowden 2005, 39 Figure 3.9). The unusual circular moat at Redmarley D'Abitot has been scheduled but a possible comparable example to the north of Berrow village is a rather uncertain feature and may just be a combination of boundaries and headlands around a natural knoll. It is not uncommon for combinations of boundaries or hollow ways to be mistaken for moated enclosures (Taylor 8) and a possible case, (not interpreted as a moat as part of this survey), occurs near Ockington Farm in Dymock parish. No particular conclusions should be drawn from the form of the moats alone as Bond showed in his survey in Worcestershire there appears to be no obvious link between the form of a moat and the status of its inhabitants (Bond 1978, 77).

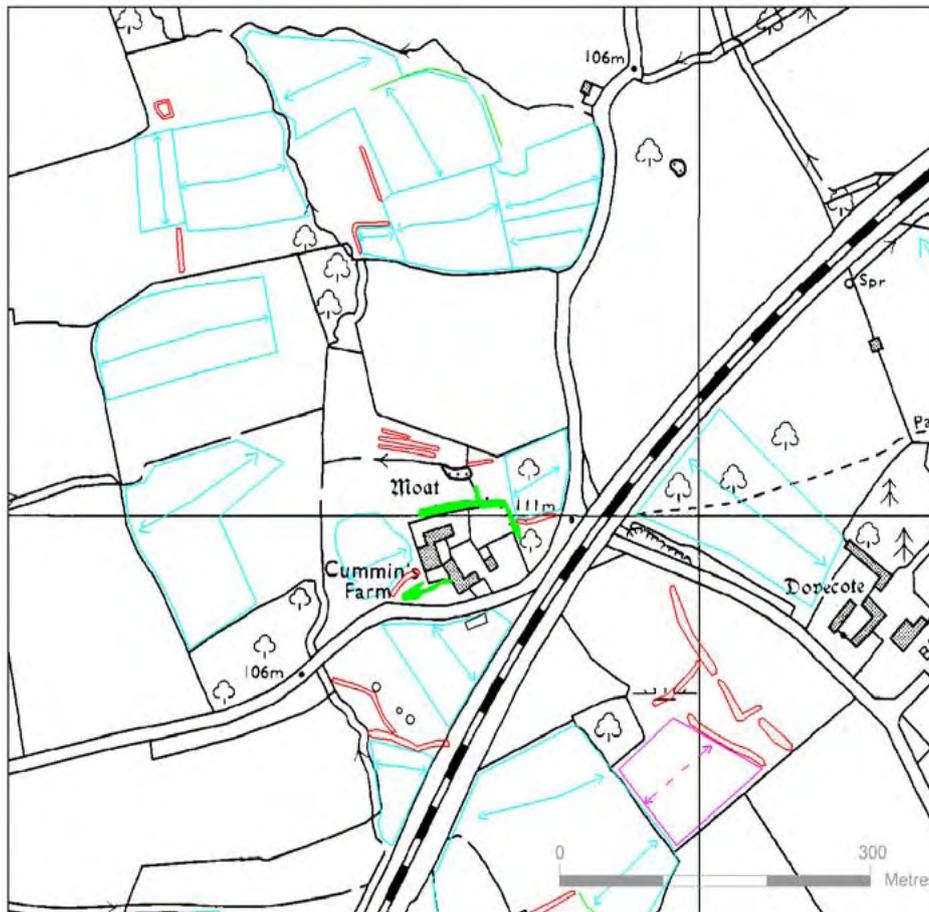


Figure 22 - Slight remains of a moat at Cummin's Farm in Colwall parish. Lynchets and ridge and furrow extend around the site. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved

The majority of the moats mapped during the survey are situated adjacent to or continue to surround occupied buildings, some in village settings and others associated with isolated farms. For example at Cummin's Farm (Figure 22) the moat appears to have been partially destroyed by the present farm buildings. At Ham Green in Mathon Parish, Knights Green in Dymock parish and Donnington Court Farm in Donnington Parish the moats are each situated adjacent to occupied farms. Although the site is now relatively isolated it is possible that the large pits visible in the centre of the possible moat near Dinchall Farm could be the sites of quarried away buildings or structures.

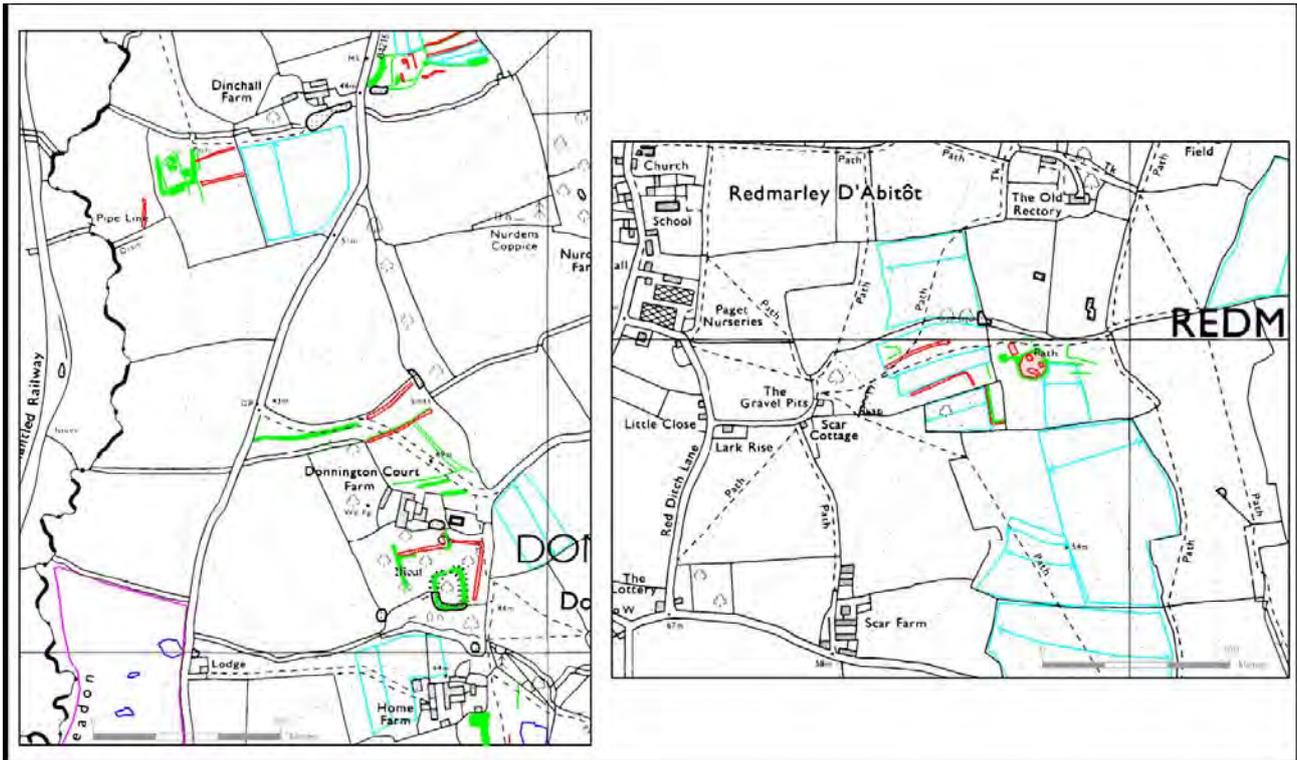


Figure 23 - Examples, on the left, of rectangular moats include the earthwork moat at Donnington Court Farm and the cropmark at Dinchall Farm. The circular moat, on the right, by Redmarley D' Abiotot village has been scheduled. Ordnance Survey Licence No: GD03085G © Crown copyright. All rights reserved.

Further research is required to ascertain the function and histories of each the moats in the survey area. In some cases the current buildings in the vicinity of many of the moats could be the successors of manors associated with the first phase of moat building in the late 12th to early 14th centuries. Details of who owned many of the moats may remain obscure although some could have monastic connections, perhaps functioning as granges. Some moats could also represent the focus, or former focus, of a medieval garden or landscape design feature created in the second major phase of moat building which occurred from the 16th century onwards. It is probable that the moats performed a variety of functions and a detailed study of a variety of sites, and their relationship to other forms of earthwork remains around the villages, could begin to answer some questions about the development of settlement in the vicinity of the Malverns through in the medieval and post medieval periods.

8.8 Cultivation remains

Lynchets and ridge and furrow form the greatest proportion of the medieval and/or post medieval remains recorded as part of the survey.

8.8.1 Lynchets

The majority of the lynchets are in the parish of Colwall and the bordering parishes to the south and west. This may be partly a result of the topography of this area, as it corresponds to the areas characterised as the South Western Hills and Eastnor by the AONB Management Plan (1996, p 23) where ridge tops and steeper slopes are typically wooded. It is on the slopes between these woods that many of the lynchets are visible.

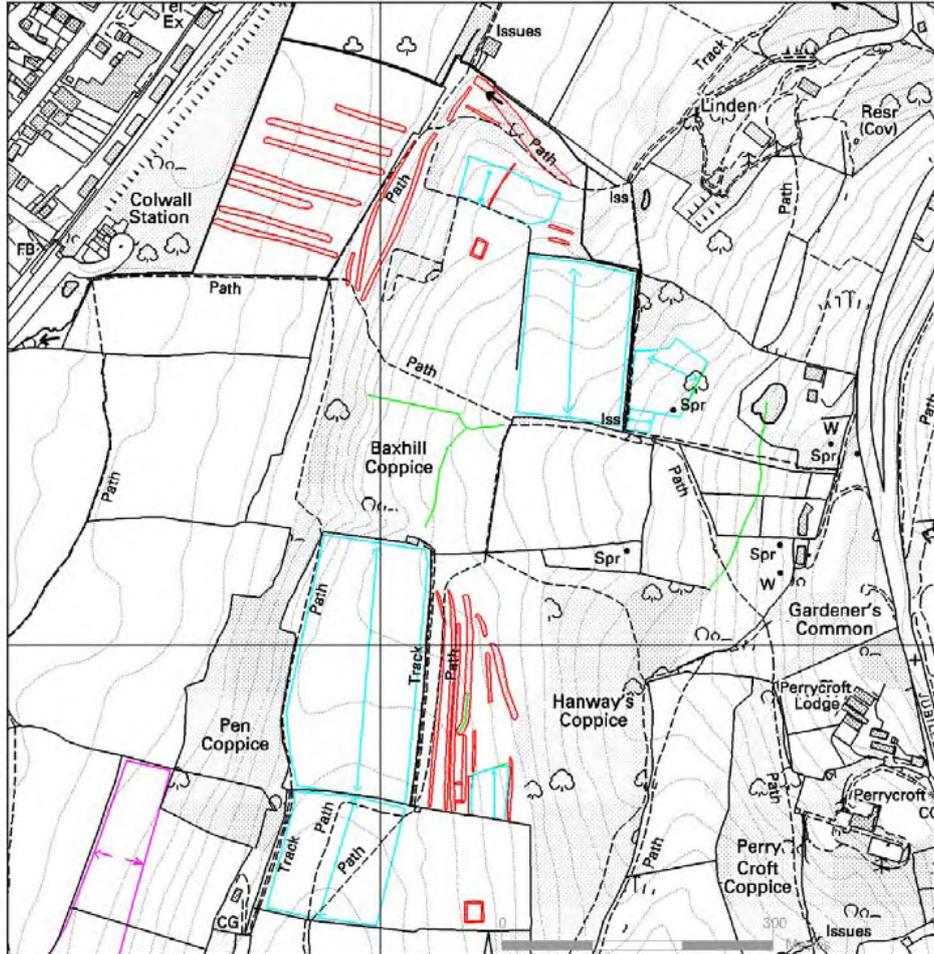


Figure 24 - Lynchets, and possible building platforms, to the south west of Colwall Stone, Colwall parish. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved

It is possible that some of the systems of lynchets continue into the woods as a woodland survey in the vicinity found evidence of extensive ridge and furrow and lynchets on Oyster Hill (Worcestershire Recorder 61, Spring 2000, p 13). It is likely that the majority of lynchets and cultivation terraces recorded as part of this survey are medieval and/or post medieval but earlier origins should not be ruled out as some may incorporate parts of possible prehistoric boundaries like those found in Frith Wood (ibid). The distribution of lynchets does not seem to indicate any particular association with the settlement pattern which is characterised in this area as scattered farms, cottages and hamlets in the valley bottoms linked by a sparse network of lanes (Management Plan 1996 p23).

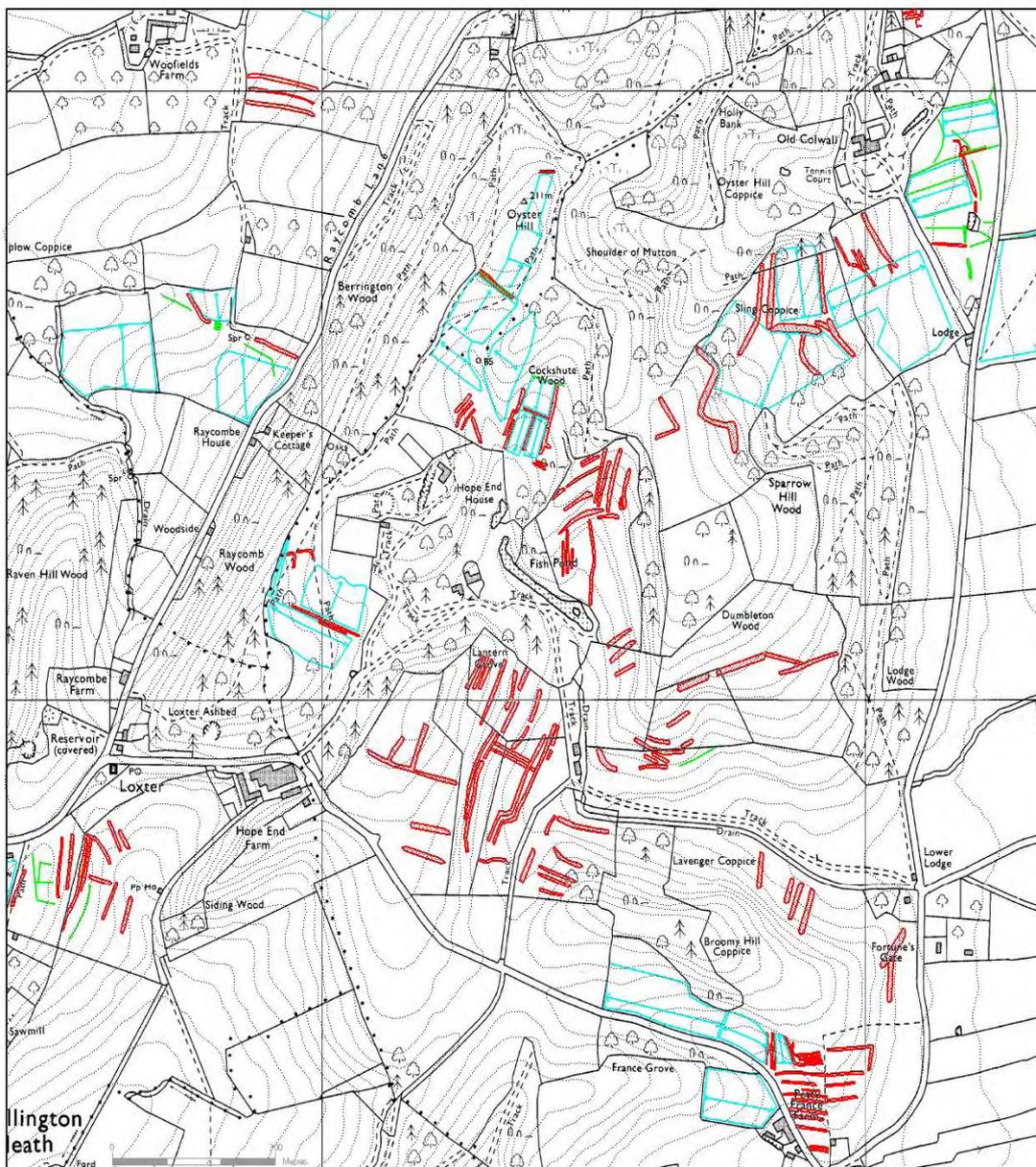


Figure 25 - Lynchets, some perhaps with pre-medieval origins, to the east of the Coddington/Colwall parish boundary. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved.

8.8.2 Ridge and Furrow

Ridge and furrow was recorded throughout the survey area but there were few large or coherent systems of fields. An exception to this occurs in Birtsmorton and Castlemorton parishes which are discussed below. Aerial photographs have long been recognised as a useful survey tool for surveying ridge and furrow (Beresford and St Joseph 1979). The schematic depiction of the ridge and furrow carried out as part of NMP does not draw every rig but the blocks of rigs and furrows are outlined, where the rigs are of relatively even width and follow the same course. The direction of rigs in a single “block” is indicated with an arrow. This broad brush approach is an accurate and effective way of depicting the pattern of large swathes of former cultivation which can then be seen in the context of settlement and the wider landscape. More detailed analysis of the width of rigs, across smaller areas, could be carried out by revisiting the key historic vertical photographs referred to in the monument records. These photographs have the added advantage of recording ridge

and furrow which has since been ploughed level (marked in magenta on NMP maps). The dating of ridge and furrow has been much discussed in the published literature on medieval fields but it seems clear, from detailed comparisons with documentary evidence, that broad dating based on the form and direction of the rigs is reasonably reliable (Hall 1982, 10). Nineteenth century and later ploughing can be characterised as laid out in large fields with narrow straight rigs parallel to the hedges (Hall 1982, 11). This kind of ridge and furrow was recorded throughout the area around the Malvern Hills and usually proved to be associated with former orchards recorded on late nineteenth and mid twentieth century maps.

The majority of the ridge and furrow recorded as part of the NMP survey comprised curvilinear, medieval, rigs. The term “medieval” in this context, however, is no more precise than from as early as the twelfth century through to eighteenth century (Hill 1982, 11-13, Wilson 1989, 185). Given changes and differences in soils, land use, ownership and the underlying economics supporting or driving change or continuity, a more sophisticated form of analysis is obviously required to come to any detailed conclusions on the dating of ridge and furrow in the vicinity of the Malverns. Of particular note is the interchange from woodland to cultivated land which seems to have occurred in the Malverns throughout the medieval period (Bowden 2005, 43). The place names “street” and “green” can indicate areas of former woodland and it has been suggested that the areas of ridge and furrow in the vicinity of Birts Street and Rye Street may therefore have been taken out of woodland in the later medieval date (Bowden 2005, 43). Detailed analysis of the layout of the various blocks of ridge and furrow and their relationship to other features such as abandoned settlement and hollow ways, can also suggest possible chronologies for the development of different parts of the system (Wilson 1989, 183-190). It is, of course, an integrated approach using both the field evidence and documentary sources that is required. Significant clusters of ridge and furrow which could warrant further research occur around the present villages on the eastern edge of the survey area in Birtsmorton and Castlemorton parishes. The medieval and/or post medieval ridge and furrow recorded elsewhere around villages in the survey area, e.g. at Evendine in Colwall parish or at Leigh Sinton in Leigh parish, are also important indicators of the former agricultural regimes within the survey area.

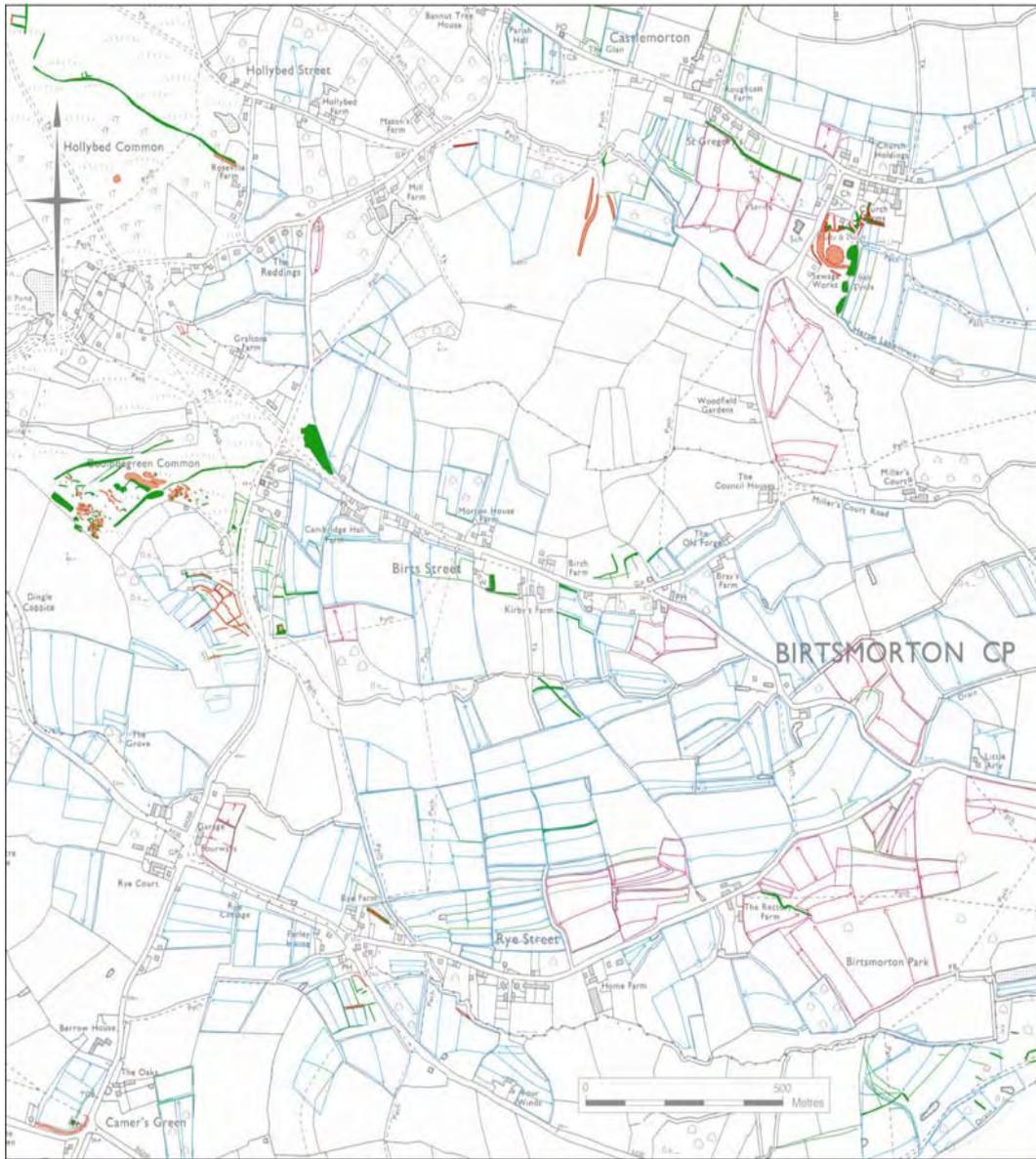


Figure 26 - Blocks of ridge and Furrow (those in magenta appear to have been ploughed level) at Birst Street and Rye Street in Birstmorton and Castlemorton Parishes. Ordnance Survey Licence Number: GD03085G © Crown copyright. All rights reserved

8.9 Miscellaneous medieval/post medieval features

Isolated hollow ways and trackways were a common feature in the northern part of survey area, for example in Suckley parish. Viewed in isolation these features do not appear significant but they form part of the medieval and/or post medieval landscape and may be indicators of lost settlements or communication networks between settlements. The date of the numerous trackways leading from Castlemorton Common up to Swinyard Hill and Hangman's Hill is uncertain but it is likely that the majority are medieval and post medieval. Of note is a possible hollow way leading from an unusual enclosure on Hollybed Common towards and past Roseville Farm where it connects to the present road through Hollybed Street village.

Twelve possible examples of medieval and/or post medieval water meadows were mapped as part of the survey but most do not seem to survive as earthworks. Fragmentary remains extend along the River Leadon and a tributary to the east and west of Ketford and more are situated to the east of Ledbury, near White House

Farm on a stream that eventually drains into Eastnor Lake.

A lime kiln, marked on the Ordnance Survey First Edition map is probably associated with quarrying on the lower slopes to the north west of Herefordshire Beacon.

8.10 Summary of medieval and post medieval NMP results

There appears to be a definite concentration of abandoned properties to the east and west of the southern parts of the main ridge of hills in the Malverns. It is possible that this is a result of proximity to the common land and deer parks where changes in use and enclosure of the common land has affected the development of settlement more than in other areas. The lack of settlement remains found elsewhere in the survey area may be a reflection of the evidence available from aerial photographs. For example, an abandoned medieval or post medieval farmstead was found on Oyster Hill during a woodland survey (Worcestershire Recorder p13) and so it is possible that further settlements remain to be found in the woodland.

There does not seem to be any typical medieval or post medieval settlement type in the Malverns region and it is therefore difficult to characterise the remains mapped as part of the aerial survey without further work, which is outside the remit of this project. Aerial photographs are, however, a useful source for the study of medieval and/or post medieval settlement as they record much that has been destroyed or ploughed level since the Second World War, as a result of the expansion of building and modern ploughing, especially in rural areas.

A combined approach using a variety of sources, including aerial photographs, has long been recommended and demonstrated to be an effective means of studying and comparing medieval and post medieval settlement, for example in Bond's study of the south west Midlands (Bond 1989, 129-148). Therefore documentary research and further fieldwork comparing the current settlement pattern with that of the abandoned properties, in particular in relation to the systems of relict medieval/post medieval ridge and furrow and lynchets, could to begin to answer some of the questions relating to the development of the settlement pattern in and around the Malverns.

9. MODERN NMP RESULTS

All the modern features recorded as part of the survey relate to the Second World War. Aerial photographs and maps are a useful tool when assessing the survival and the appearance of military features but need to be used in conjunction with documentary research (Newsome 2001). The aerial photographs provide an important pictorial record of sites which may never have been mapped or recorded accurately in documentary sources. They also record features which have been removed before, or shortly after 1945. There is blanket coverage of the Malverns taken in 1946, but the earlier 1940s photography is more sporadic. The 1940's photographs do, however, record a number of important sites, such as the military camps and hospitals to the east of Malvern. It is therefore probable that more sites existed but were dismantled before the 1946 sortie took place.

Five searchlight batteries were recorded, two of which have now been removed but now show as cropmarks, and a possible sixth is situated on the edge Castlemorton Common. The battery on the south eastern edge of the survey area may be associated with Berrow airfield at Pendock Moor. This was operational from 1941 to 1945 and was used by spitfires and for practice glider landings (Homer 1995, 6). A possible marker for the airfield is visible just outside the survey area, in the form of a white painted cross.

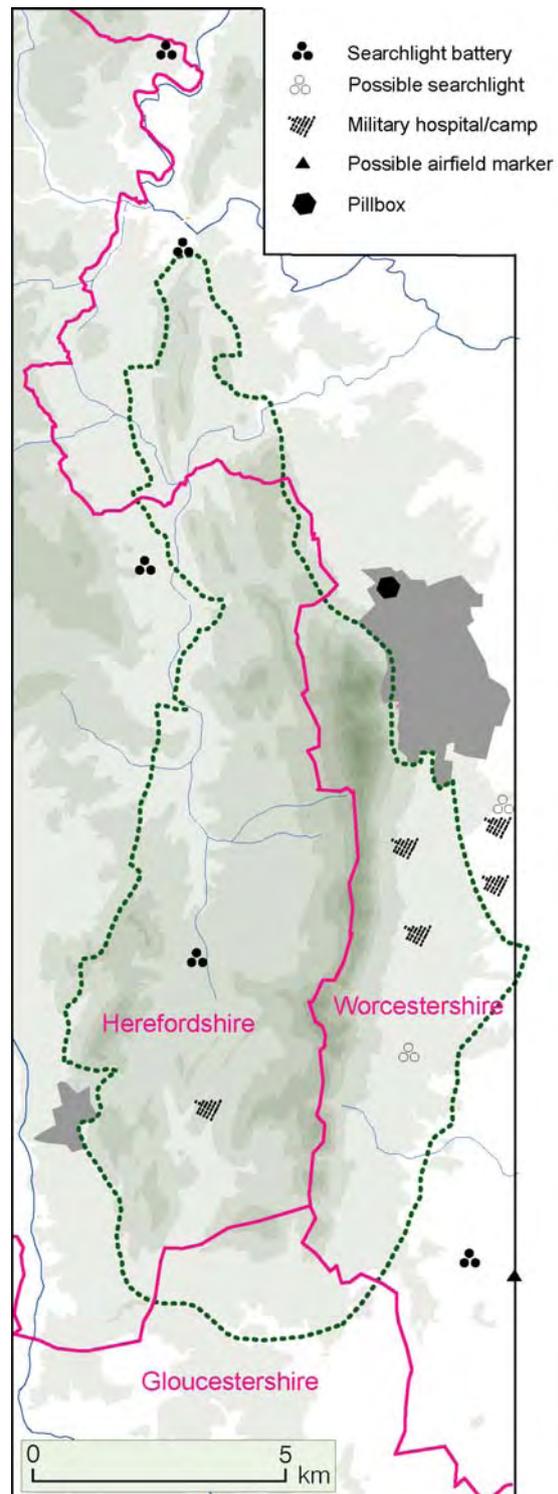


Figure 27 - Distribution of WWII sites recorded by NMP survey

Remains of World War II military camps were mapped in Easton Park and to the south east of Malvern Wells. The camps to the south east of Malvern formed part of a series of United States Army Unit hospitals/camps which were established in Worcestershire towards the end of the war (Turley and Turley 2000, 33). The hospitals on the eastern edge of the survey although considerably reduced in size continue in use as industrial estates.

The hospital at Upper Welland, which is recorded on 1944 vertical photographs (top photograph) continued in use until relatively recently as St Wulstan's Hospital. It has now been built over but was photographed in 1992 (bottom photograph) as part of an RCHME architectural project on hospitals to record its general layout before its demolition (Richardson 1998).



The evidence for World War II activity recorded by the NMP project is only a small part of the available resource for this period but it is an important one. The aerial photographs provide a genuine plan view and in some cases may be the only pictorial record showing the layout of these sites.



Figure 28 - Photographs showing St Wulstan's Hospital in (top) 1944 (US/31GR/LOC20 0009 19-APR-1944) and (bottom) 1992 (NMR SU 7841/7 (4738/42) 27-MAY-1992)

10. SUMMARY AND RECOMMENDATIONS

The survey of the Malvern Hills has shown that aerial reconnaissance can result in the discovery of new sites in an area dominated by earthwork remains. The 1:10,000 scale mapping, backed up by descriptive monument records, provides a detailed enough depiction of the archaeology to come to conclusions about extent, form and classification.

A number of sites could benefit from further investigation. The cropmark sites are all situated in areas of increasingly intensive arable cultivation and even limited excavations could answer some important questions about prehistoric and Roman settlement, in contrast to the much studied hillforts, in the vicinity of the Malvern Hills. A closer examination of the smaller "defended" earthwork enclosures to the south of the main ridge of hills could also be carried out.

The concentrations of medieval and/or post medieval settlements east and west of the southern end of the Chase, in particular those at Wayend Street, Coombe Green and Castlemorton could answer a lot of questions regarding the development of settlement in and around the boundaries of the medieval Chase and warrant further documentary research, large scale ground survey and possibly even limited excavation.

The monument records and mapping can be viewed in a national perspective as part of the corpus of information already compiled as part of NMP. For example the distribution and type of monuments, such as prehistoric settlements, can be compared and assessed at a regional and national level. At a local level the Malverns NMP survey can be used as a landscape management tool as well as providing archaeological contexts for site specific studies and suggestions for further areas for research.

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APPENDIX 1 - RECONNAISSANCE METHODOLOGY

The English Heritage reconnaissance programme records new and well known archaeological sites and landscapes for research, conservation and illustration. Also recorded are architectural targets and urban landscapes of historic importance, particularly those threatened with substantial change or total demolition. Known and protected sites are also monitored from the air in particular in partnerships with the National Trust, National Parks and local authorities and a programme of monitoring and recording Scheduled Ancient Monuments and Parks and Gardens was begun in 1997.

The platform used by the EH reconnaissance programme is a high winged light aircraft, a Cessna 172. The EH southern flying programme operates out of Kidlington airfield, Oxford. An archaeological investigator, Damian Grady, travels in the plane with the pilot, and takes all the photographs. Navigation is aided by a Global Positioning System (GPS) which uses satellites to record the flight trace and the locations of individual sites. Other navigational aids include an air navigation chart and OS 1:50,000 maps, which have been annotated with all archaeological features photographed and/or mapped in a particular area, to avoid duplication. Five flights were carried out in optimal conditions for earthwork and cropmark photography for the project.



Figure 29 - Flight traces recorded during targeted reconnaissance of the AONB and scheduled monuments in the vicinity.

Brief details on the sites photographed during a flight are also recorded on a kneepad using a pro forma. Additional information, including weather conditions, duration of the flight and aircraft used are also recorded.

The camera equipment used comprises two Leica R4's with 35mm colour negatives and transparency and a Rollei camera with medium format black and white film. The photographs are taken through an open window whilst circling a site. When taking photographs for mapping purposes, the aim is to take as vertical a view of the site as possible, including a framework of control points, (usually intersections of field boundaries), from which a plot can be made of the features visible. This method contrasts to vertical aerial photography which uses a camera, usually fixed in a vertical position to the body of the aircraft, which takes a continuous stream of photographs.

Reconnaissance routinely aims to maximise the results by photographing marks in a wide variety of crops at different times of year to take advantage of differential crop growth throughout the seasons. Flights in the autumn/winter take particular advantage of the long shadows at this time of year to highlight earthworks.

All photographs taken as part of the English Heritage reconnaissance programme are on open-access at the NMR in Swindon.

APPENDIX 2 - NMP METHODOLOGY

2.1 Project Management

During the Malverns project overall responsibility for the National Mapping programme was held by Dr Robert Bewley, Head of Aerial Survey. The Swindon team was managed by Simon Crutchley, Senior Investigator, Aerial Survey, Swindon. Two members of staff, Helen Winton (project co-ordinator) and Fiona Small, carried out the interpretation, mapping and database recording. A total of 92.75 person days were spent on mapping. The project co-ordinator spent a further 15.5 days on general administration, project specification and two field visits. Funding for the aerial survey mapping project came entirely from within English Heritage.

2.2 National Mapping Programme – Aims and Objectives

The aim of 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 twentieth century. 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 planning, protection and research of the historic environment.

The specific aims of NMP are:

1. To produce a georeferenced digital transcription of the form and extent of all archaeological features visible on aerial photographs for the whole of England.
2. To record the location, indexed classification, archaeological description and analysis, and main sources of all archaeological sites visible on aerial photographs. Additional morphological recording for those sites for which meaningful morphological comparisons can be made.
3. 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.
4. To provide a management report that will discuss the methodology, sources, and the extent to which the project has achieved its stated aims.

2.3 Archaeological scope of the survey

All archaeological features were recorded, both plough-levelled and upstanding remains, with a potential date range from the Neolithic period to the twentieth century, including industrial and military features.

Plough-levelled features and Earthworks

All cropmarks and soilmarks of archaeological origin were recorded which represent buried cut features (i.e. ditches and pits), earthworks or stonework.

Ridge and furrow

Areas of ridge and furrow were recorded using a standard convention to indicate the extent and direction of the furrows.

Buildings

Foundations of buildings which appear as earthworks or exposed stonework were recorded.

Standing buildings which have been destroyed since the photography, were recorded when there was no other adequate record.

Industrial and Twentieth Century military archaeology

Areas of industrial archaeology were recorded using the appropriate conventions where they can be recognised as pre-dating 1945. Extraction was mapped where their inclusion enhanced the record. Twentieth Century military features were recorded to an appropriate level of detail.

Field boundaries and geological marks

Removed field boundaries and geological features were not routinely recorded unless they could be confused with the remains of earlier field systems, in which case their presence and extent was noted in a monument record or the final report.

Other Features

The distinctive landscapes of the Malvern Hills are largely the result of traditional farming practices, many of which are going out of use. The AONB management plan notes the management issues arising in parts of the AONB, in particular “the pronounced problems arising from the general demise of orchards and hop growing, the reductions of both crops having far-reaching ramifications for the landscape”. Orchards which appear, from maps or aerial photographs, to have gone out of use have therefore been mapped.

2.4 Sources

Aerial Photographs

The main source for the project consisted of the 1153 specialist oblique photographs and 1463 vertical photographs from 43 sorties over the area, held by the NMR. The oblique photographs were derived from a variety of sources, including EH (formerly RCHME) reconnaissance, Cambridge University Committee for Air Photography (CUCAP), the Baker Collection, the Harold Wingham Collection, the Pickering Collection, Clwyd-Powys Archaeological Trust, Jewry Wall Museum, and Millennium Air Survey photographs taken by Chris Musson. These ranged in date from the mid 1950's to the present. The majority of the vertical photographs were taken by the Royal Air Force and the Ordnance Survey and a small number have been supplied by Meridian Airmaps and the United States Army and Air Force. The photographs date from 1942 onwards but most are from the post-war period.

The Unit for Landscape Modelling (formerly CUCAP) had 29 vertical photographs and just under 300 oblique photographs of the project area, most of which were taken for archaeological purposes from the 1940's until the early 1980's.

The Sites and Monuments Records at Herefordshire and Worcestershire County Councils had some oblique and vertical photographs but most were duplicated in the NMR collection and the few not held were consulted. The Malvern Hills Conservators collection of colour vertical photographs taken by Aerofilms in 1999 was also consulted.

Other sources

All NMR monument and event records within the survey area were consulted. Herefordshire SMR provided an excerpt of relevant database records. Ordnance Survey historic maps (including 19th and mid twentieth century mapping) were used to provide information on removed buildings, field boundaries and industrial remains. These were also used to assess the survival of orchards.

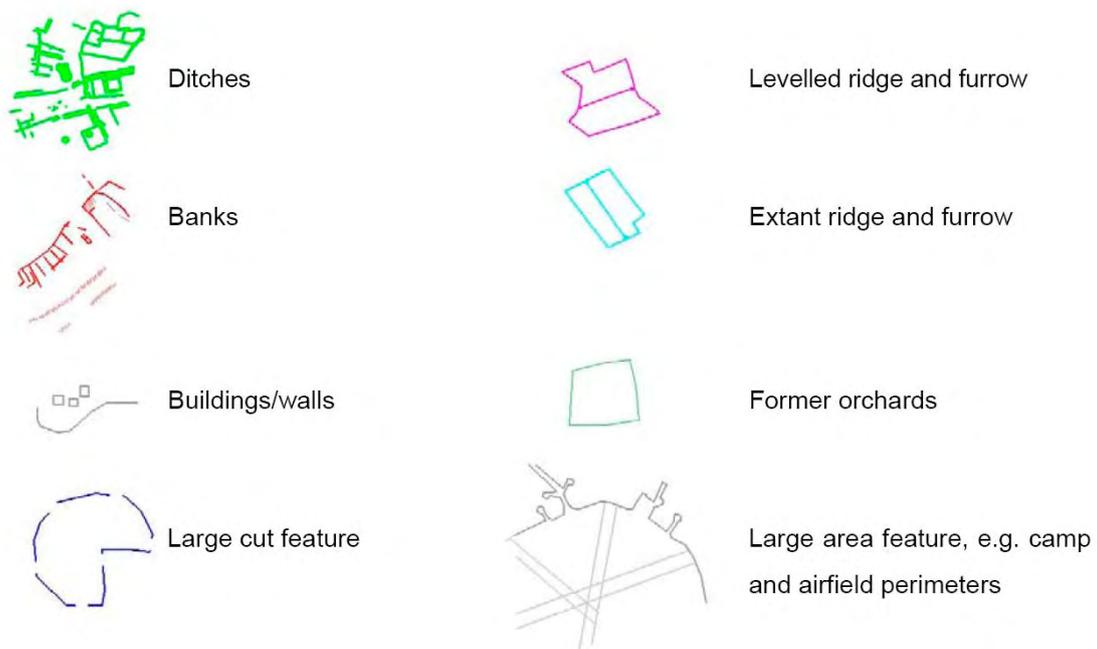
Documentary research was carried out by Valerie Goodbury for the parts of each parish which fall within the AONB boundary and the resulting written record cross referenced with marked-up maps, was consulted during the course of the survey. This proved useful for general background information but there was only one direct correlation with the place name evidence and features visible on the aerial photographs. This was at Moat Meadow, a place name mentioned on an early nineteenth century map, where the earthworks of a moat have been mapped.

2.5 Digital Mapping

Plane transformations of photographs, or tracings of archaeology from photographs, were produced whenever possible, with the aid of the John Haigh (University of Bradford) computer-based rectification programme AERIAL5. This provided a level of accuracy for the positions of the archaeological features plotted to less than 2.5m error in relation to the OS map and, as control information was taken from digital OS 1:10,000 scale maps, within 515m of true ground position. Where appropriate the digital terrain model function in AERIAL5 was used to compensate for steep or undulating terrain.

The rectified images were imported into the AutoCAD drawing for the appropriate map. The archaeology was then traced using the appropriate convention. To avoid subjective classifications, which may alter as interpretations of sites develop, the conventions are based on the form of the remains e.g. banks, ditches or stonework. The date, function and preservation of the features, e.g. if it is a cropmark or an earthwork, and other details are recorded in full in the accompanying database record.

Conventions used on Malvern Hills AONB NMP maps.



2.6 Database Recording

AMIE

AMIE (called NewHIS during the project) is the database of English Heritage's National Monuments Record. Monument records were created for each site transcribed. An Event record, consisting of a brief specification for the project, and a Collection record, consisting of a description of the archive for the project, were produced for the part of the project carried out by Aerial Survey. Both records have the title English Heritage: Malvern Hills AONB NMP and are linked to the parent Event (English Heritage: Malvern Hills Archaeological Survey). Skeleton collection records, linked to the parent collection record, were created for each map sheet.

Archaeological Survey parent Event UID		1323772
Aerial Survey Event UID		1317924
Aerial Survey parent collection UID		1317928
UID of Child collection record	SO 75 NW	1317930
	SO 75 SW	1317932
	SO 75 SE	1317933
	SO 74 NW	1317934
	SO 74 NE	1317935
	SO 74 SW	1317938
	SO 74 SE	1317939
	SO 73 NW	1317942
	SO 73 NE	1317944
	SO 73 SW	1317946
	SO 73 SE	1317945

AutoCAD

Object data was attached to groups of objects which comprise each monument in the drawing, in a data table called MONARCH which consists of a single field (Monarchuid) with the relevant NMR database unique identifier number.

Aerial Survey databases

Morphological records were created for appropriate sites using the English Heritage, Aerial Survey Interim Morphological Recording Module. The accumulated morphological information recorded as part of all NMP projects is intended to eventually provide a national database for England of objectively described site types.

APPENDIX 3 - PROJECT STATISTICS

448 new monument records were created during the project. 80 records were amended. No new information was added to 402 records. The statistics provided here are a guide to the monument records and only provide a broad overview of the nature of the archaeology of the area. Therefore features which in reality cover a much larger physical area, such as settlement and cultivation remains are statistically under represented, in terms of monument records, compared to smaller, more discrete archaeological remains, such as moats or isolated enclosures.

3.1 All monuments

The nature of aerial archaeological survey means, generally speaking, it is relatively large earthworks, cropmarks and structures which are recorded. Therefore new information was added to the 20% of existing records which comprised “monumental” structures but, generally speaking, usually no new information was added to monument records which describe buildings, finds, or other archaeological structures not visible from the air. The area in and around the Malverns was an area of relatively “low monument density” but the NMP survey has resulted in a 92% increase in known monuments.

New records	448
Amended records	80
No new information	402

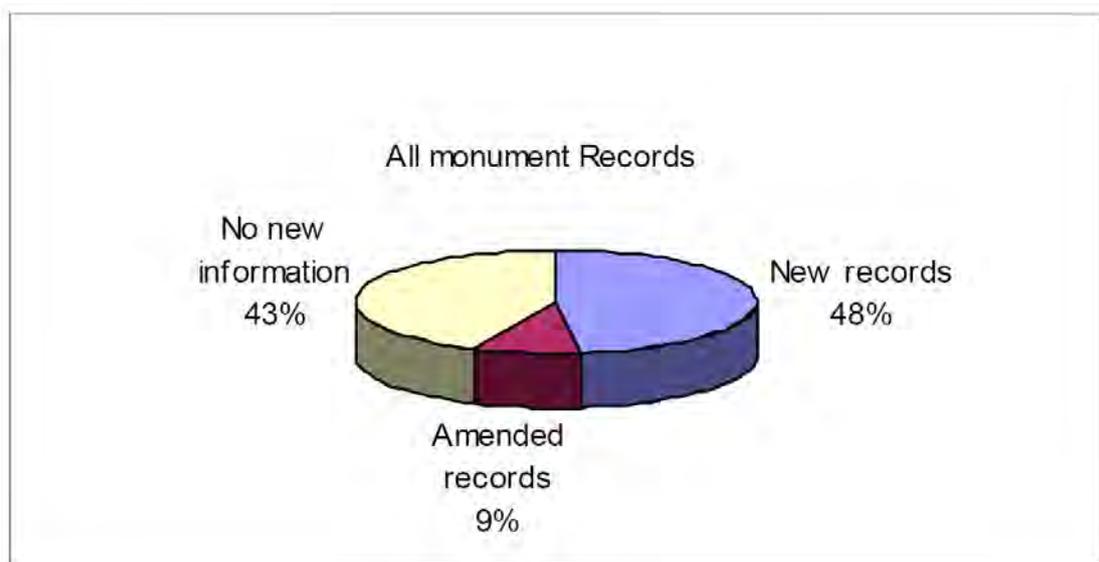


Figure 30 - Pie chart of NMR monument records relating to the project

3.2 Amended Monuments

The majority of the amendments were to medieval and post medieval records, mainly relating to moats and settlement. It should be noted that some of the amendments are to records for which there is no mapped information, for example where a review of the sources suggests a record may relate to a non-archaeological feature, or “non-antiquity” as referred to by the OS archaeological survey.

Bronze Age	2
Iron Age	7
Roman	3
Prehistoric or Roman	1
Medieval/postmedieval settlement (including 25 moats and 1 motte)	40
Other medieval/postmedieval (cultivation remains, tracks etc)	12
Postmedieval	4
Modern	1
Unknown	10

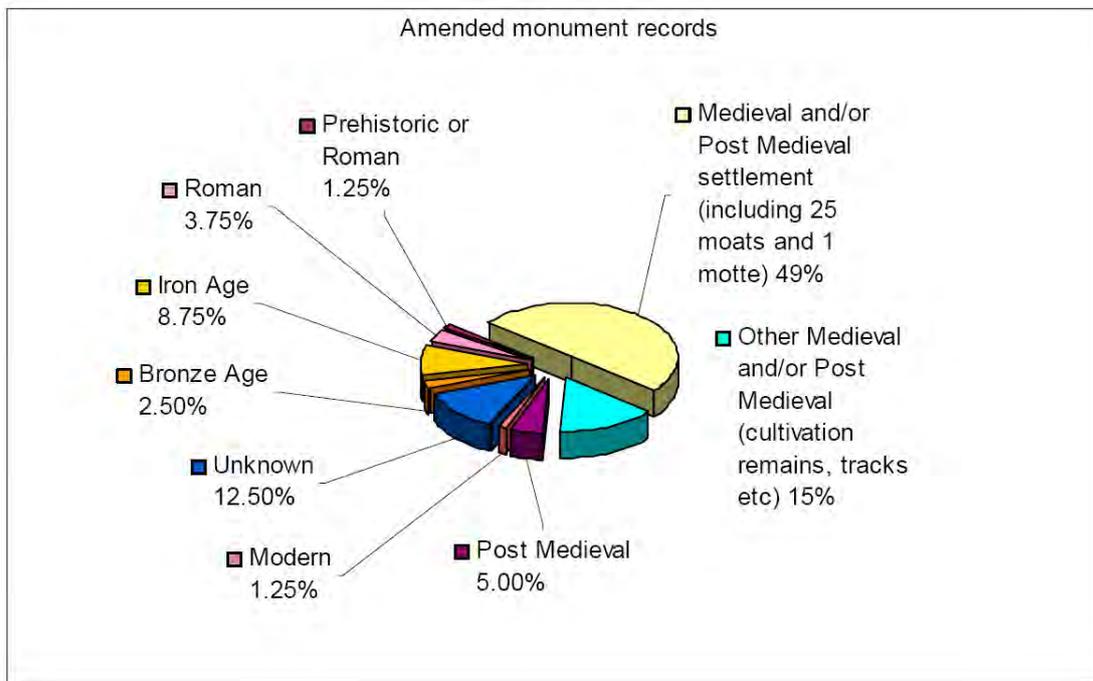


Figure 31 - Pie chart of amended NMR monument records relating to the project

3.3 New monuments

New monuments were predominantly “other” medieval and/or post medieval features. This is partly due to the fact that this is an under recorded monument type but also the nature of the archaeological landscape of the Malverns which is covered in former cultivation remains in particular in the southern and western areas. A significant group of modern features, mainly relating to World War II have also been added to the record for the area.

Bronze Age	7
Prehistoric or Roman	11
Medieval/post medieval settlement (including 1 moat)	25
Other medieval/post medieval (cultivation remains, tracks etc)	305
Post medieval	53
Modern	19
Unknown	22

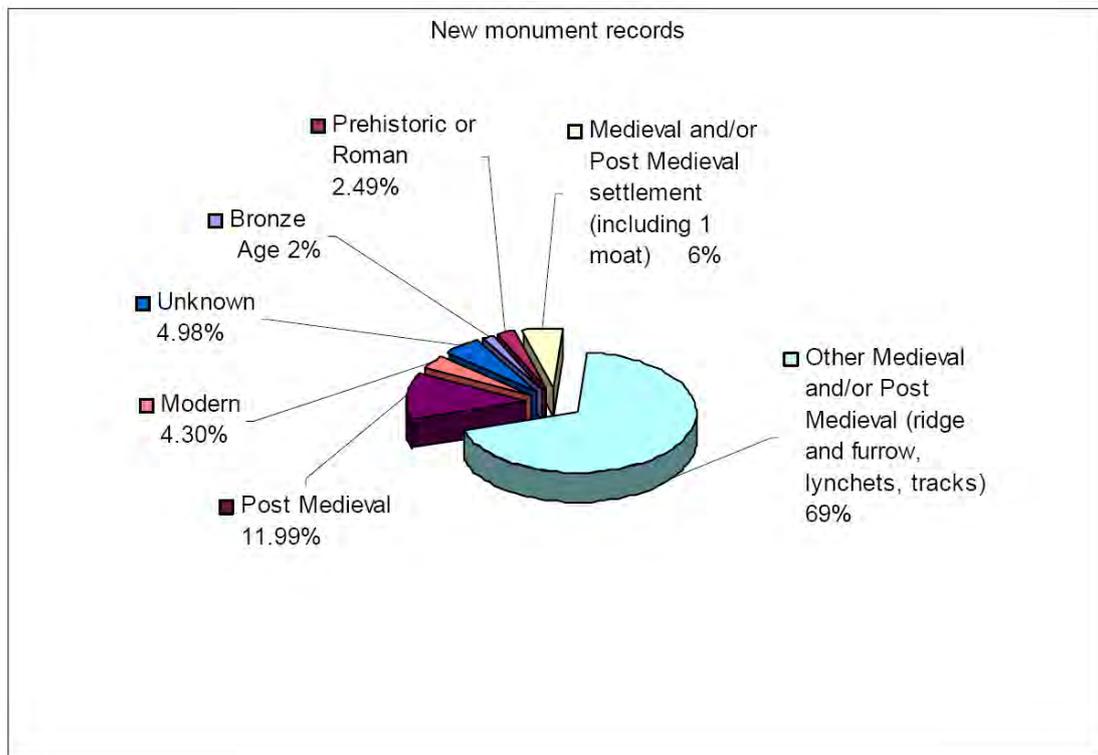


Figure 32 - Pie chart of new NMR monument records relating to the project

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