

Research Framework for Forest of Dean District

**Forest of Dean Archaeological Survey Stage 4:
Module 3**

Project Number 5291 ANL

Volume 1: Introduction



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Archaeology Service

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1. Introduction

The following is a sub-regional research framework for the Forest of Dean district in the western part of Gloucestershire. It broadly follows the model set out in *Frameworks for our Past* (Olivier 1996, 2.3.2, Fig 1), and consists of a statement of the current state of knowledge which describes the archaeological and palaeoenvironmental resource, an identification of gaps in that knowledge, the research needed to address these gaps and the potential of the resource to answer research questions and also a strategy which sets out research priorities (which may be flexible over time) and which identifies suitable methodologies for future research.

The research framework is the culmination of Stage 4 of the Forest of Dean Archaeological Survey, and takes account of the enormous amount of new archaeological information about the Forest of Dean which has come to light in recent years, not only from that survey, but also from other large scale research projects such as the Scowles and Associated Iron Industry Survey, the Severn Estuary Rapid Coastal Zone Assessment Survey and four National Mapping Programme projects. The evidence for known prehistoric activity in the district has also greatly increased in recent years as a result of the Portable Antiquities Scheme (Kurt Adams, Finds Liaison Officer for Gloucestershire and Avon, pers. comm.), and a number of developer-led commercial investigations, and other research projects have also made significant discoveries. The Research framework pertains mainly to the situation as of November 2015, although some information which has come to light since that time has been incorporated into the final revision (Version 0.4) where considered significant enough to have an impact on the overall understanding of the Forest of Dean's heritage.

A regional research framework for the south-west of England, which covers the historic counties of Gloucestershire, Somerset, Wiltshire, Dorset, Devon and Cornwall, has been published (Webster 2008; Grove and Croft 2012). Although the Forest of Dean falls within the area covered by this research framework it is mentioned on only nine occasions in connection with lithic scatters, Mesolithic sites, Roman coal and iron working, Roman querns, medieval mining, post-medieval Iron working, timber production and tramroads. It is also discussed in relation to hillforts in the area (Webster 2008, 135, 357) and a late Iron Age burial in Coleford (Webster 2008, 143). Although this document recognises that large-scale survey work has been undertaken within the Forest of Dean (Webster 2008, 17), references the 'forthcoming' report on Stage 1 of the survey (Webster 2008, 81) it was published too early to take full account of the considerable amount of research that has been undertaken in the Forest of Dean since 2002.

Forest of Dean extractive industries (principally stone, coal and iron) are also covered by the National Association of Mining History Organisations' (NAMHO) research agenda (NAMHO 2016) and, where appropriate this research framework takes account of the recommendations made in that document.

Aggregate areas within the district are covered by the resource assessment and research agenda of Gloucestershire County Council's project to predict the archaeological resource within aggregate areas of the county (Mullin 2008).

1.1 Area covered by the research framework

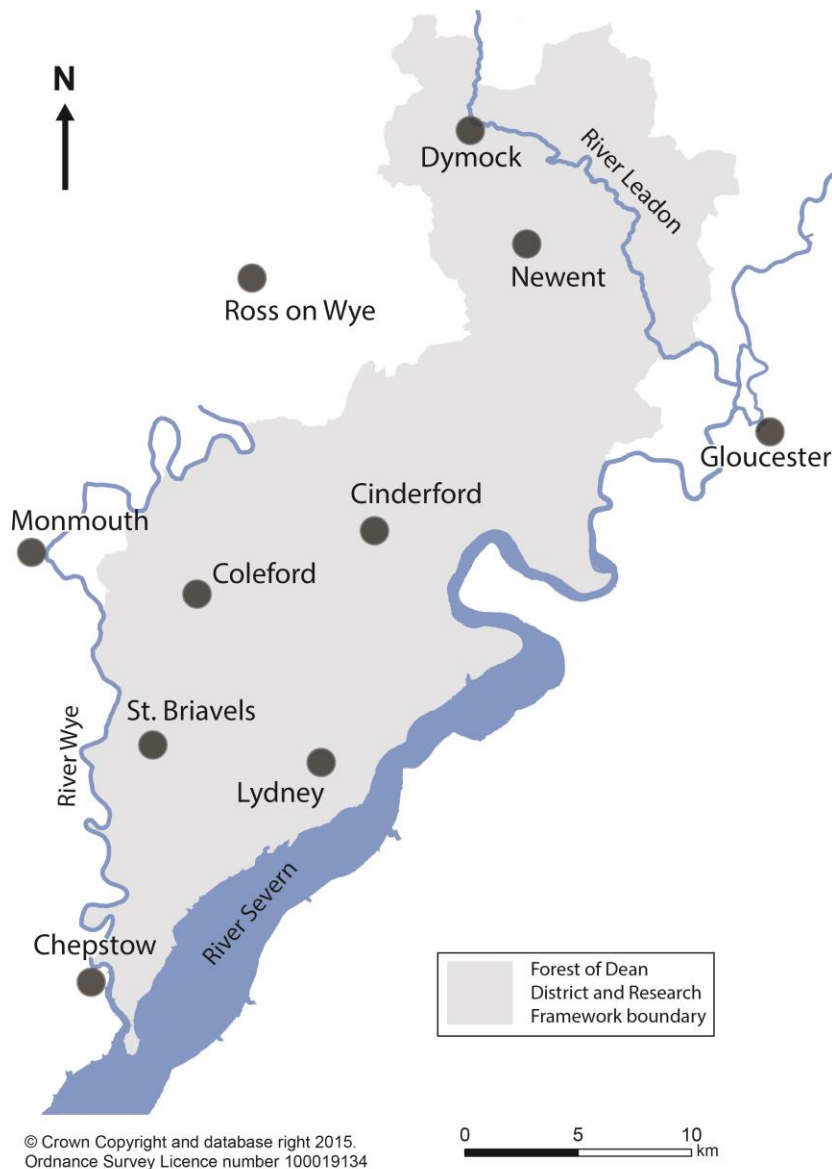


Figure 1: Area covered by the Research Framework

The area considered to be the Forest of Dean has changed through time (Hart 1945) and, to an extent, the meaning of the term varies depending upon the purpose for which it is used, and the perspective of the user.

The Forest of Dean Archaeological Survey focused on the area within the angle formed by the convergent courses of the rivers Severn and Wye. This area included the Hundred of St Briavels which has formed the basis of the administrative structure of the Forest since the 12th century (Herbert 1996a, 83; fig 4), and much of the Forestry Commission woodland in the area (Hoyle 2008a, fig 1). The National Mapping Programme, over four separate projects, has covered not only the Forest of Dean, but also the Leadon Valley and Malvern AONB to the north. This northern area contains considerable evidence for Roman and other pre-modern iron smelting activity (Hoyle *et al.* 2007, 109-110; Walters 1990, 1992a, 1992b), some details of which have been refined as a result of recent excavations (Catchpole 2007; Simmonds 2008). The area also has its own rich post-medieval industrial heritage which is both distinct from, and complementary to, that of the area studied by the Forest of Dean Archaeological Survey to the south (Bick 1987; Cross 1982), and any assessment of the industrial heritage of the Forest of Dean would need to include discussion of this.

This research framework is not limited to the relatively small area covered by the Forest of Dean Archaeological Survey, but includes the areas to the north and covers the whole of the area currently under the jurisdiction of the Forest of Dean District Council which comprises much of Gloucestershire to the west of the River Severn. It is recognised that setting modern political boundaries to a sub-regional research framework constrains it within parameters which are of little relevance to many of the topics under consideration, particularly those relating to periods pre-dating the introduction of those political boundaries.

Although the research framework focuses on the area of the Forest of Dean District Council in west Gloucestershire, where appropriate it expands to encompass relevant issues in the immediate vicinity where these are of relevance to a full appreciation of the significance of the evidence within the core area.

The Forest of Dean District covers an area of approximately 561.59km², representing 20.76% of the county of Gloucestershire.

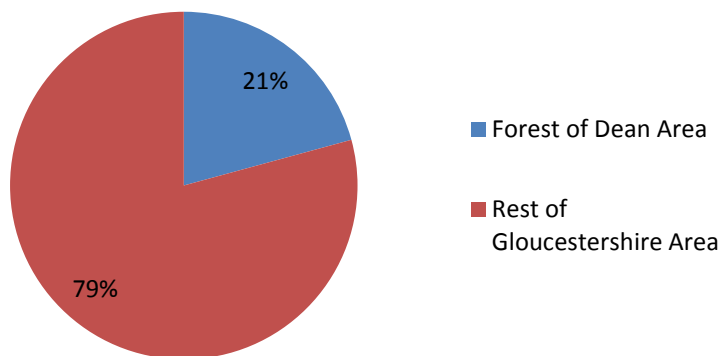


Chart 1: Area of the Forest of Dean and the rest of Gloucestershire

1.2 Topography, geology and landuse

The area covered by the resource assessment is essentially rural in character and is geographically distinct from the rest of Gloucestershire, incorporating a dramatic range of topographies, reflecting a variety of underlying geologies. It can be divided into five distinct landscape zones.

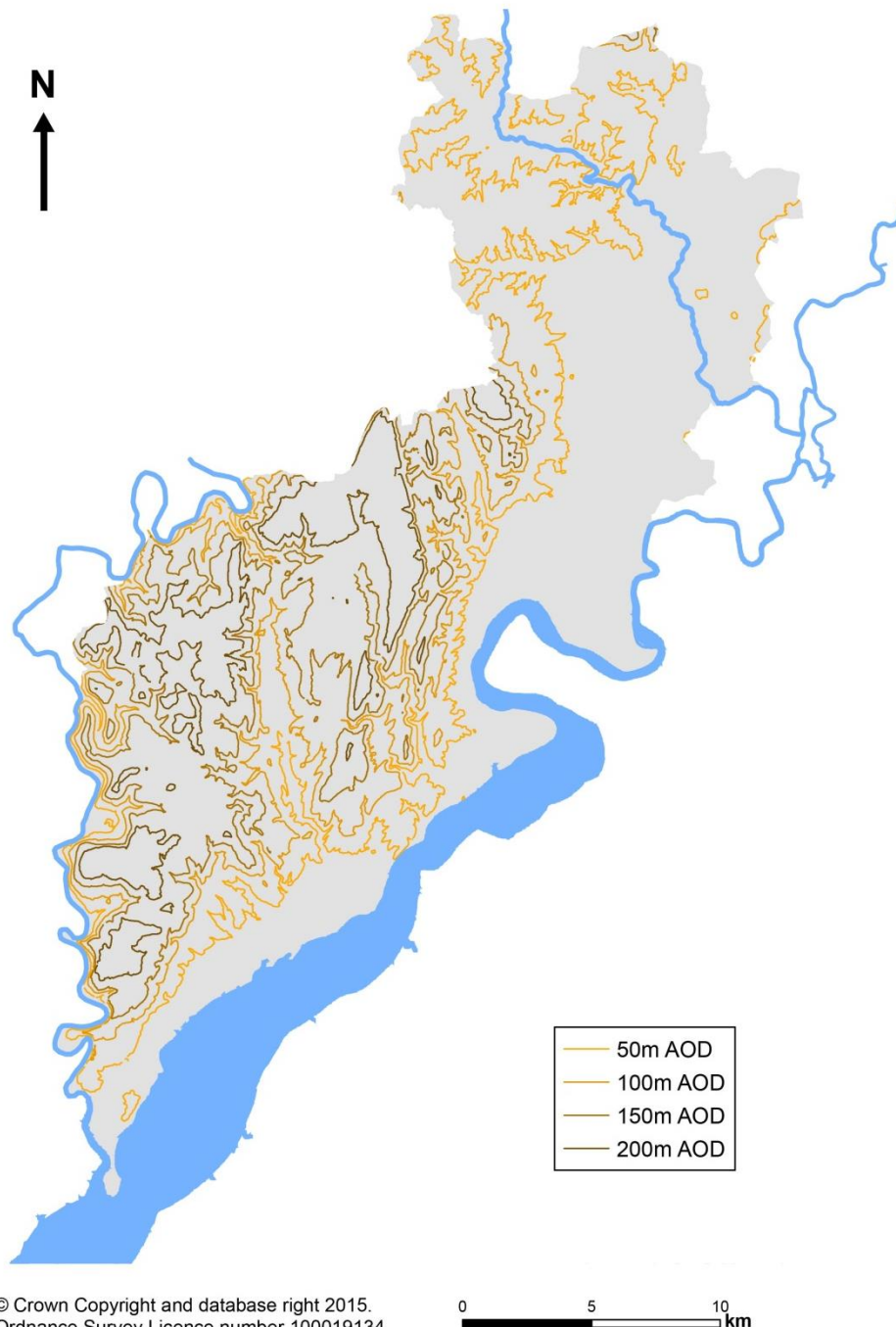


Figure 2: Topography of the district

The Leadon Valley

The Leadon Valley in the northern part of the research framework area consists of low rolling hills generally between 25 and 100m AOD, on either side of the level floodplain of the River Leadon which flows towards the Severn Vale to the east. The underlying geology of the northwestern part of this area is Raglan Mudstone of the Silurian Old Red Sandstone group, although a band of Bromsgrove Sandstone of the earlier Triassic Sandstone group underlies the central area in the vicinity of Newent, where a series of dry valleys are separated by distinctive interlocking hillocks, and where carboniferous coal measures which underlie the Bromsgrove Sandstone are exposed along a fault (Priest *et al* 2008, 9).

The settlement pattern in this area is largely small villages, hamlets and farms, although it also contains the small market town of Newent and some larger villages such as Dymock and Staunton near Corse.

Landuse in this area is predominantly arable, but there are also extensive areas of pasture and a number of orchards. Woodland tends to consist of small deciduous copses or shelterbelts, but larger areas of woodland are found, particularly Dymock Wood and Newent Wood to the west and southwest of Newent.

The wooded high ground, including the Statutory Forest

Much of this area lies above 200m AOD, reaching a maximum height of 290m AOD, and consists of a plateau incised by numerous valleys of streams which flow towards both the Rivers Wye and Severn, and bisected by the wide valley of the Cannop Brook.

The area is heavily wooded and is centred on the Statutory Forest, an area of 9357.78ha which forms the core of the Forestry Commission woodland in the Forest of Dean. Areas of pasture and arable are, however, found close to settlements particularly to the north and west of the Statutory Forest.

Some major settlements such as Mitcheldean, Ruardean and Coleford are medieval in origin and tend to be sited close to the edge of the Statutory Forest. Other settlement consists of sprawling hamlets of haphazardly positioned cottages which ring and have encroached into the central wooded area of the Statutory Forest (Herbert 1996b, 293), largely in response to 18th and 19th century population expansion to meet the needs of the growing industry of the area. In places these squatter settlements have grown and taken on an urban character or developed into sizable towns such as Cinderford.

The geology of this area is made up of layers of sandstone of the Drybrook, Trenchard, Pennant and Supra-Pennant groups of the Carboniferous Series which contain over 20 separate coal seams. These overlie limestones of the Carboniferous Limestone Series, including the iron-ore-bearing Crease Limestone, which forms a 'necklace' around the edge of the higher ground. These strata form a basin (the Dean syncline) and coal seams outcrop or are found close to the surface throughout the area (Dreghorn 1968). In the northeastern part of the zone, the geology becomes more complex with the Old Red Sandstone giving way to bands of limestones, shales and mudstone (BGS 1974).

The southern Forest of Dean plateau

To the south of the Statutory Forest is an undulating plateau which, although tilted to the south, maintains heights of around 200m above sea level and consists of rolling ridges and valleys draining both to the River Severn to the east and the Wye to the west. The eastern edge of this zone is characterised by steep-sided rounded hills, separated by narrow river valleys, whilst its western edge is defined by the steep gorge of the Wye valley.

The predominant landscape is one of enclosed farmland, usually pasture, although arable is also found in some areas. Large tracts of woodland are generally sited on the higher ground at the edges of this landscape zone whilst settlement tends to be found in the river valleys, which drain from the plateau to west and east.

This area overlies a solid geology of Lower Carboniferous Limestone which gives way to Upper Old Red Sandstone and Lower Old Red Sandstone as the ground slopes towards the Rivers Severn and Wye to east and west.

The Wye valley

In the southern part of the district the western edge of the Forest of Dean is defined by the River Wye. In the northern part of this area the river meanders through a steep and narrow gorge (generally less than 0.5km wide) cut through steep cliffs, often 100m high, which rise directly from the edge of the river at their base, and are made up of the Lower Carboniferous Limestone. Much of this landscape consists of early woodland (much of which is designated as Ancient Semi-Natural Woodland) which clings precariously to the steep slopes and there is considerable evidence of limestone quarrying in this area. Further south the valley becomes less steep where the river cuts through Brownstones and Sandstones of the Old Red Sandstone Series (BGS 1974, BGS 1981).

Settlement in this zone tends to be dispersed along the higher ground, although some small communities sit next to the Wye and extend up the steep-sided valleys of streams which flow into it.

Northern bank of the Severn

The southeastern part of the area is made up of a broad level alluvial plain along the northern shore of the Severn Estuary. Most of this is below 50m above sea level, although there is some higher ground in the area of Sedbury at its southern edge. Landuse is generally arable or pasture and settlement consists largely of small towns such as Lydney or Newnham and small villages set back from the river bank but often linked to it by a navigable inlet.

The geology consists of the Lower Old Red Sandstone, although along the northern banks of the Severn these are overlain by Triassic Mudstones which, in turn, are overlain by Charmouth Mudstones in some areas. Significant deposits of drift geology, and bands of terrace deposits (sand and gravel) and alluvium are also found adjacent to the Severn Estuary.

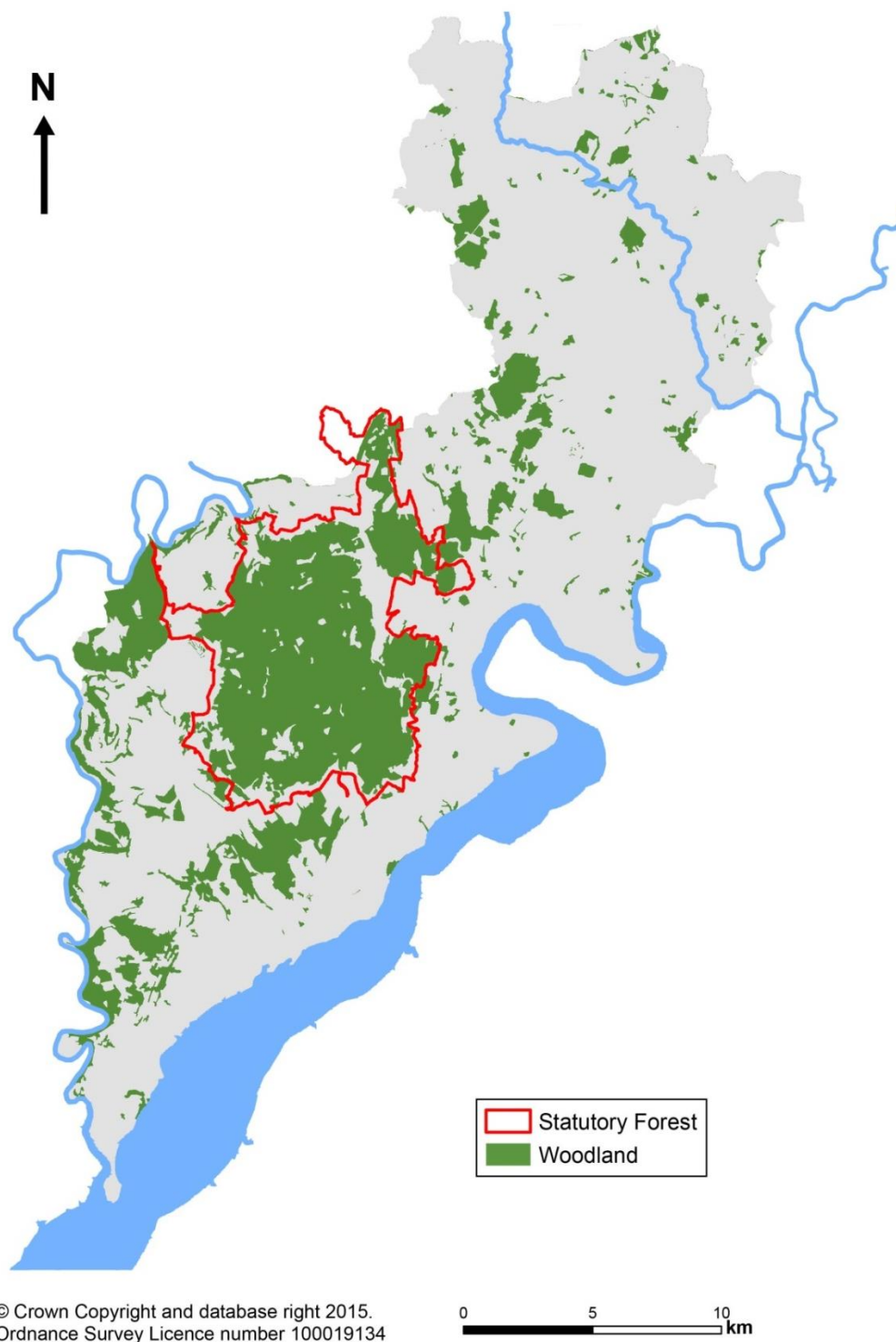


Figure 3: Woodland in the district

1.3 Historic Environment designations

The Forest of Dean District contains a number of sites, buildings and landscapes which are considered significant enough to warrant designation. The full list of these is available through the Historic Environment Record (HER) or through the Historic England website by following the link: <http://www.historicengland.org.uk/listing/the-list/>

Scheduled Monuments

The Forest of Dean District contains 92 Scheduled Monuments, although 47 of these are different sections of Offa's Dyke, which overlooks the River Wye in the western part of the assessment area (English Heritage 2014). This represents 19.1% of the 481 Scheduled Monuments in Gloucestershire and 4.9% of the 19841 Scheduled Monuments in England. Apart from the section of Offa's Dyke, these include a diverse range of sites from Iron Age Hillforts, Roman villas, medieval moated sites, castles and village crosses, post-medieval industrial sites, a post-medieval bridge across the River Wye and three areas of scowles (see below). Twelve of these (St Briavels Castle, Bigsweir Bridge, Lancut Church, Lydney Docks, Gunns Mill charcoal-fired Blast furnace and seven medieval crosses) are also Listed Buildings (Historic England 2015a). Eleven of the Scheduled sites, including four sections of Offa's Dyke, are on the Historic England, Heritage at Risk Register for 2015, including three sites (Lancut Church, Lydney Docks and Gunns Mill charcoal-fired Blast furnace) which are also Listed Buildings (Historic England 2015b, 161-165).

The density of Scheduled Monuments within the Forest of Dean District (19.1% of those recorded in Gloucestershire) appears to more or less correlate with the area the district covers (20.7% of Gloucestershire). This figure may, however, be skewed by the fact that 47 of these Scheduled Monuments represent sections of a single monument, Offa's Dyke, and if allowance is made for this the area could be regarded as containing 46 Scheduled Monuments representing only 10.5% of the 435 in Gloucestershire, indicating that the density of Scheduled Monuments is below average for the county as a whole.

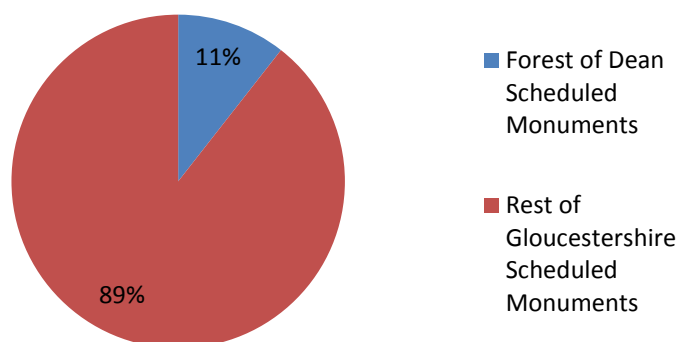


Chart 2: Scheduled Monuments in the Forest of Dean and the rest of Gloucestershire
(rectified to include Offa's Dyke as one monument)

Listed Buildings

The Forest of Dean District contains 1,470 Listed Buildings, 10.9% of the 12,903 Listed Buildings recorded in Gloucestershire and only 0.39% of the 375,944 Listed Buildings recorded in England (English Heritage 2014). These are a diverse group of structures ranging from the castle at St Briavels, churches and chapels, domestic, agricultural and industrial structures to village crosses, individual churchyard monuments and milestones. Twenty-five of these are listed as Grade I (9.5% of the 262 in Gloucestershire), 65 as Grade II* (9.2% of the 704 in Gloucestershire) and the remaining 1,380 as Grade II (11.5% of the 1,1937 in Gloucestershire). Fifteen Listed Buildings in the district are on the Historic England, Heritage at Risk Register for 2015 (Historic England 2015a, 161-165).

Like Scheduled Monuments (see above), the density of Listed Buildings within Forest of Dean District (at 10.9%) is just over half of the county average. The relative numbers of Grades I, II* and II Listed Buildings (1.7%, 4.4% and 93.9% respectively) is, however broadly consistent with the county average of 2%, 5.5% and 92.5% respectively.

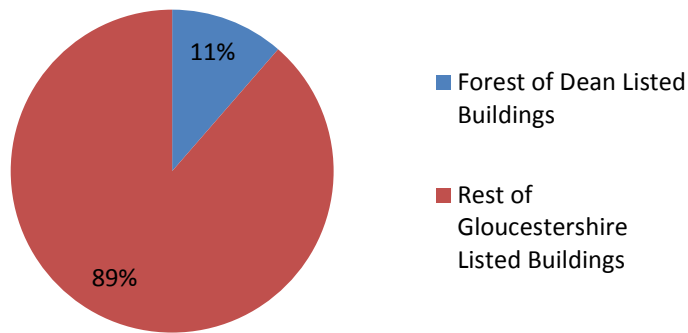


Chart 3: Listed Buildings in the Forest of Dean and the rest of Gloucestershire

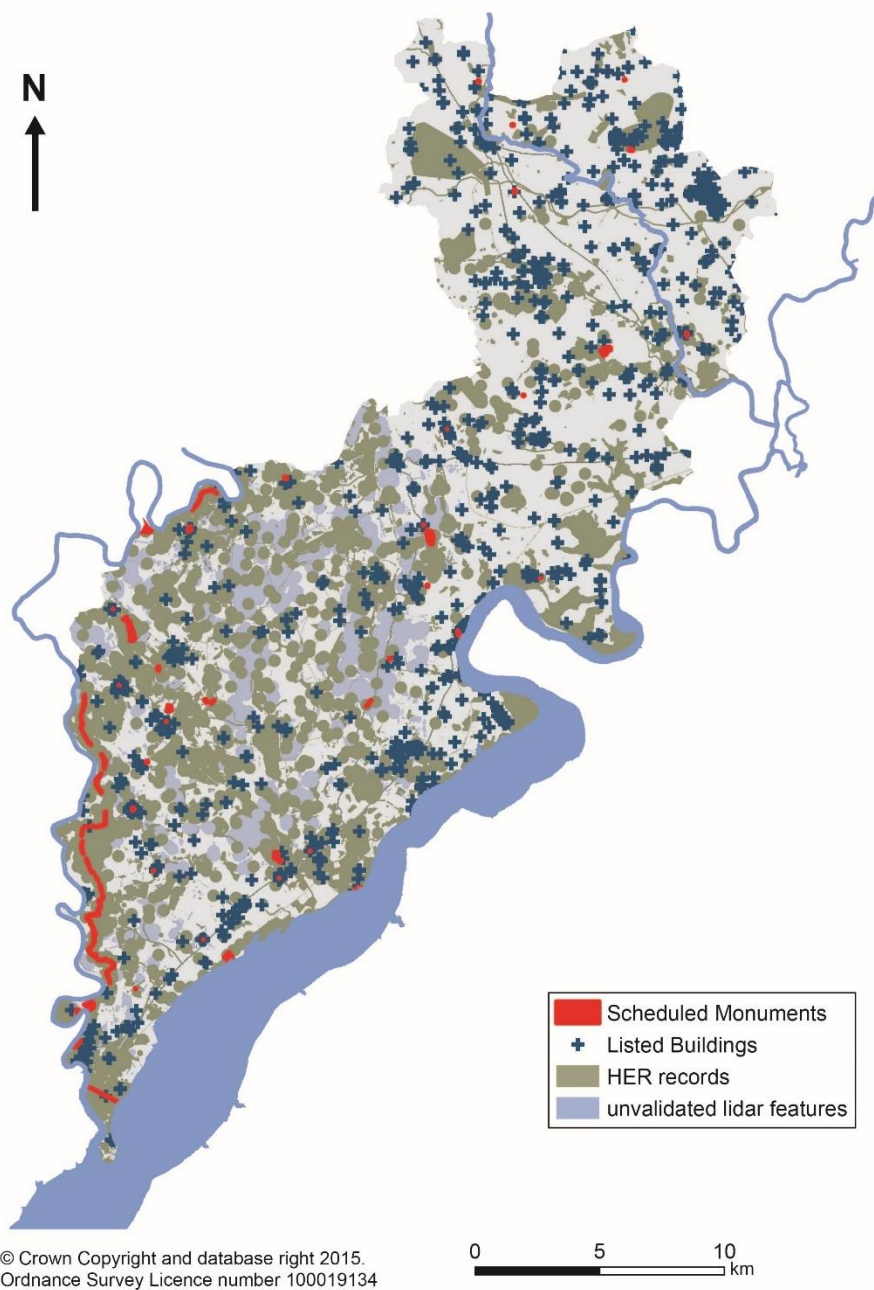


Figure 4: Historic Environment sites in the district (November 2015)

Registered Parks and Gardens

The Forest of Dean District contains only three Registered Parks and Gardens at Westbury Court, Clearwell Castle and Flaxley Abbey. This represents only 5.4% of the 55 Parks and Gardens in Gloucestershire and 0.2% of the 1,629 in England (English Heritage 2014).

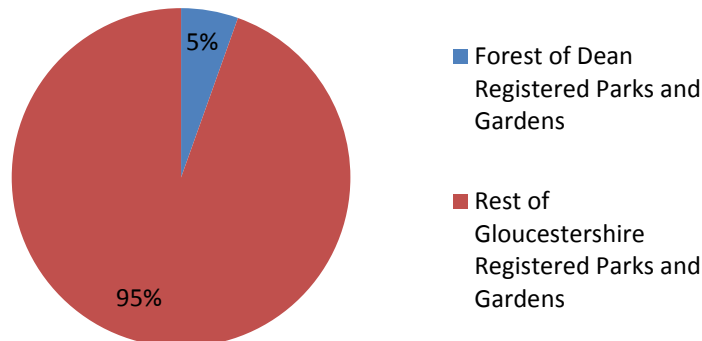


Chart 4: Registered Parks and Gardens in the Forest of Dean and the rest of Gloucestershire

1.4 Previous archaeological work in the area

1.4.1 Antiquarian and research-led archaeology

In 1977 a survey of the archaeological implications of forestry in the Forest of Dean stated that it was generally considered that there is 'no great tradition of local antiquarian activity ...in the Forest of Dean... and very little archaeological fieldwork has ever been carried out...' there (Ellison 1977, 9). Whilst, when compared with other parts of Gloucestershire such as the Cotswolds, antiquarian and archaeological research has been limited, it was certainly not non-existent.

Camden's Britannia of 1588 may be the earliest conscious record of surviving features from the Forest of Dean's past as he recorded observations of St Briavels Castle, the remains of the early iron industry in the form of scowles in Newland Parish and the iron-rich residues of iron slag from earlier smelting which was sought out for re-smelting.

These observations are essentially notes of interesting features within a descriptive account of the contemporary landscape, but by 1780, in a series of notes which were not published until 1878, George Wyrall of Bicknor Court was not only recording the remains of earlier iron smelting, but also beginning to analyse their significance, differentiating the waste from blast furnaces from those of earlier bloomery smelting, drawing conclusions on the industries which they represented, discussing the date for earlier smelting on the evidence of artefacts found within the waste rather than popular tradition, and examining the landscape implications of the resources needed to supply the industry (Wyrall 1878).

In the latter part of the 18th century archaeological excavation was undertaken at the prehistoric earthworks and Roman temple site at Lydney Park by the antiquary Major Rooke (Bathurst 1879, 3). Further excavation prompted by the remains of foundations exposed in holes excavated for tree planting, was undertaken by the Right Hon. C. Bathurst who owned the site in 1805 and posthumously published by his son the Reverend William Hiley Bathurst, in 1879 (Bathurst 1879).

During the 19th century antiquarian interest in the district tended to focus on the identification and description of major earthwork features outside, or at the edge of, the central area of woodland. Numerous descriptions of the course of Offa's Dyke, which overlooks the Wye Valley at the southwestern edge of the district, were made (Bellows 1877; Fosbrooke 1831, 1832; MacClean 1893-4; Ormerod 1841). Other earthwork features, such as Symonds Yat promontory fort were described (Maclean 1880), whilst archaeological sites in the Forest of Dean were included in early county-wide surveys (Playne 1877; Witts 1880). There was also some antiquarian interest in the early industrial history of the Forest of Dean (Nicholls 1858, 1866).

The earlier part of the 20th century saw a continuation of the tradition of recording major earthworks such as Offa's Dyke (Fox 1931, 1955) or visible landscape features such as the Dean Road, a putative Roman road

through the Forest (Trotter 1936). Further excavations were also undertaken on Roman villa sites at Lydney (Wheeler and Wheeler 1932) and also at Woolaston (Scott Garret and Harris 1938). Much of the archaeological work in the area during this period, however, was confined to small-scale excavations or observations made by a few individuals (Hart 1967).

More recently active local groups, such as Dean Archaeological Group and the Forest of Dean Local History Society, along with some individuals, have undertaken further research in the area. Much of this research has tended to focus on the identification and description of structural remains of post-medieval industrial sites (Bick 1980; Cross 1982; Standing and Coates 1979), although techniques such as field walking, limited aerial photography or excavations have extended knowledge of the prehistoric and Romano-British periods, particularly in areas outside of woodland (Walters 1992a, Figs 8, 9, 32). A small number of professional excavations have also further investigated some sites, such as Woolaston Roman Villa or Lydney Park Roman temple (Fulford and Allen 1992; Young and Macdonald 1998; Casey and Hoffman 1999) or Palaeolithic cave shelters in the Wye Valley close to Symonds Yat (Barton 1993; 1994; 1995; 1997).

Between 2003 and 2011 Gloucestershire County Council Archaeology Service undertook a major archaeological survey of the southern part of Forest of Dean District funded by a number of organizations, including English Heritage, the Countryside Agency, the Forestry Commission and the County Council.

This investigated the area bounded by the Rivers Wye and Severn from Tidenham in the south to Blaisdon and Longhope in the North and adopted a staged approach which included desk-based research and investigation of strategies to identify archaeology in areas of woodland, including excavation, geophysical survey and systematic walkover survey. A daughter project, funded through the Aggregates Levy Sustainability Fund, investigated scowles, a significant landscape feature found only in the Forest of Dean which are the surface expression of an iron-ore bearing cave system and which were used as one of the principal sources of iron-ore from at least later prehistoric times, and associated evidence for pre-blast furnace smelting sites. During the early stages of the survey English Heritage's Aerial Survey team also undertook a National Mapping Programme project to investigate aerial photographic collections covering the Forest of Dean. These projects identified thousands of new sites (and augmented information about many more) although the majority of these were associated with post-medieval industrial features, or were outside of the Forest of Dean's woodland (Hoyle 2008a, 2008b; Hoyle *et al* 2007a; Small *et al* 2006).

In 2006, the survey made use of lidar, applying an innovative vegetation removal algorithm to effectively remove the woodland cover and map the micro-topography of the ground surface normally concealed by woodland cover. Preliminary analysis of the results identified a considerable number of potential features, or groups of similar features, none of which had been identified by earlier archaeological research. A number of these features were validated through rapid field survey and finally a small subsection investigated more intensively, producing evidence of surviving prehistoric field systems, an early Roman sub-rectangular enclosure interpreted as a possible early Roman military fortlet and a Bronze Age ring cairn (the only one known in Gloucestershire), which included a small stone circle, and the earliest evidence for Roman iron smelting currently known in the Forest (Hoyle 2008c, 2009, 2010, 2013).

Between 2006 and 2011 Gloucestershire County Council Archaeology Survey also undertook a Rapid Coastal Zone Assessment of 575 km² of the intertidal zone and foreshore of the Severn Estuary from Gore Point Porlock in Somerset to Maisemore Weir about 2km northwest of Gloucester, including all of the coastal zone of the Severn Estuary in southern part of Forest of Dean District (Crowther and Dickson 2008; Mullin *et al* 2009; Chadwick and Catchpole 2013).

In addition to the Forest of Dean National Mapping Survey project (see above), similar projects which include areas within the district have been undertaken by English Heritage for the Malvern Hills Area of Outstanding National Beauty (Winton 2005) and By Gloucestershire County Council Archaeology Service for the Leadon Valley, and the Severn Estuary intertidal zone (see above) (Priest *et al* 2008; Crowther, and Dickson 2008).

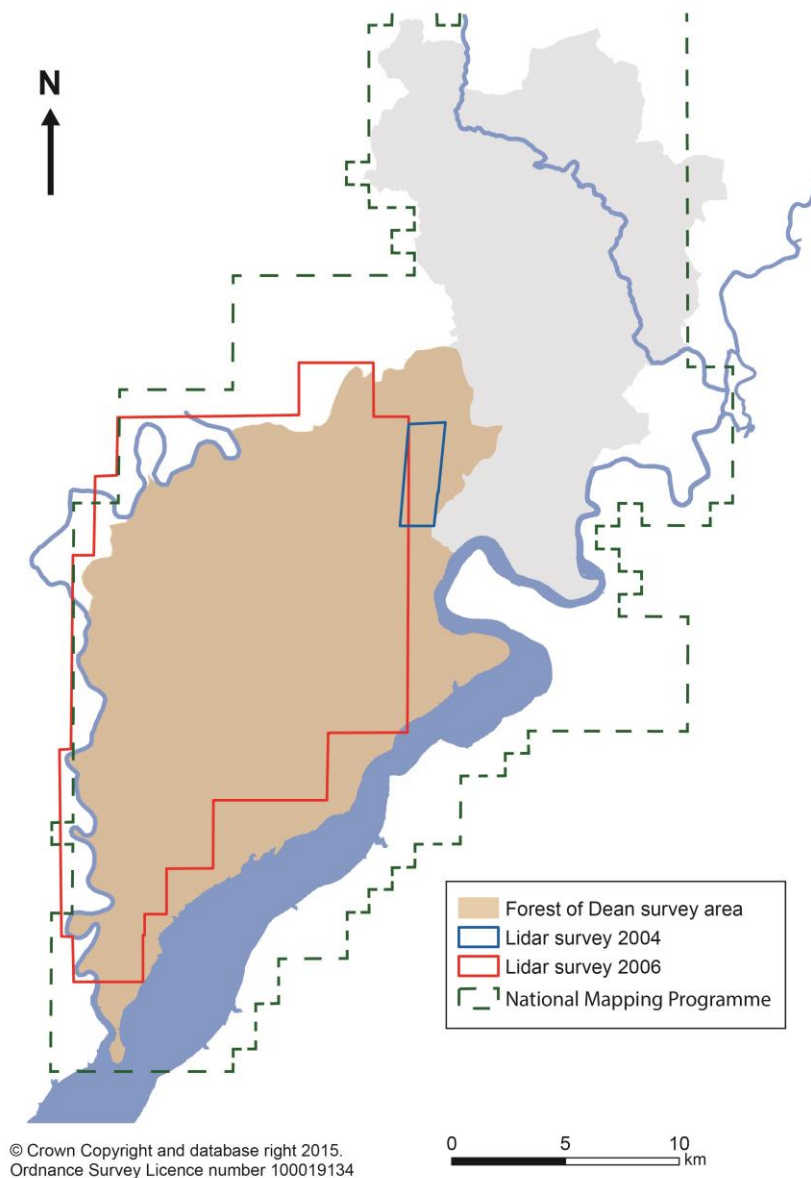


Figure 5: Extensive surveys covering the district

1.4.2 Planning-related archaeology

Since the adoption of Planning Policy Guidance 16 (Archaeology and Planning) in 1990, archaeology has been a material consideration in the determination of all planning applications (DoE 1990).

As a result of this 435 development-led archaeological works (watching briefs, small-scale site evaluations, excavations and desk-based assessments) have taken place within the Forest of Dean since November 1990.

The most common of these (150) were watching briefs, although trial trenching evaluation and desk-based assessment (DBA) accounted for 125 and 94 investigations respectively. Only 27 excavations were undertaken with a smaller number of geophysical surveys (18) and building surveys (21).

Archaeological investigations November 1990 - May 2014

■ DBA ■ Geophysical survey ■ Trial trenching
■ Watching brief ■ Excavation ■ Building survey

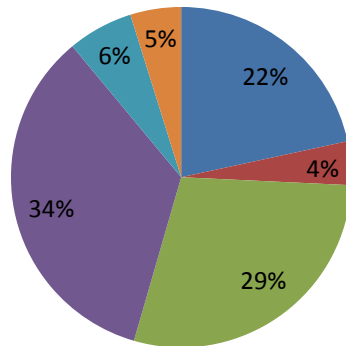
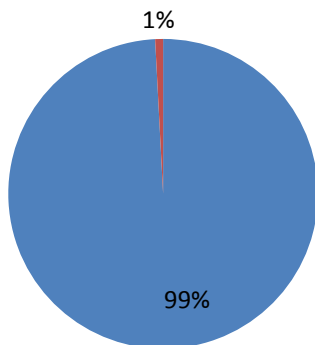


Chart 5: Archaeological investigations since November 1990

Since 2000 there has been a slight increase in the proportion of planning applications in the Forest of Dean which have elicited an archaeological response. In 2000 only 1% of planning applications led to further archaeological work, comprising one desk-based assessment (DBA), two trail-trenching evaluations and nine watching briefs, whilst in 2013 the proportion of these had risen to 3% comprising 10 desk-based assessments, 11 geophysical surveys, seven trial trenching evaluations, six watching briefs and a single excavation.

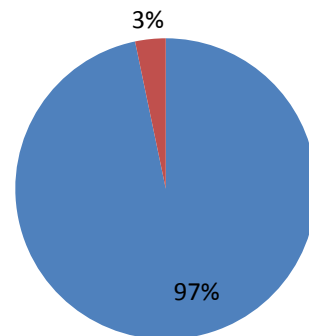
2000

■ Planning applications ■ Archaeological response



2013

■ Planning applications ■ Archaeological response



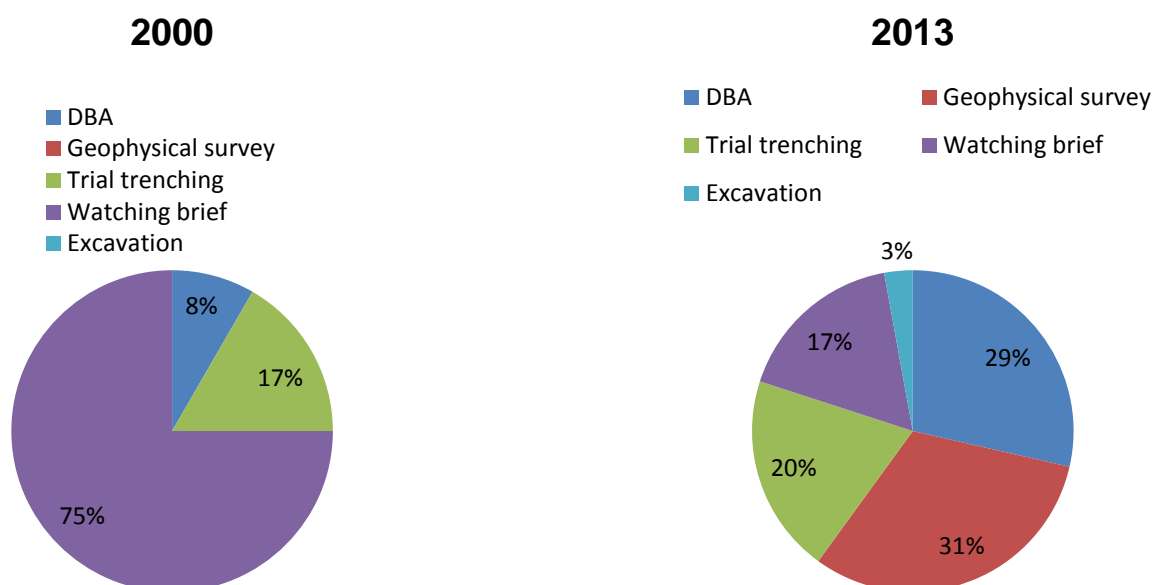


Chart 6: Planning applications and archaeological responses in 2000 and 2013

With a few exceptions, these have all taken place outside the Statutory Forest or other areas of woodland, and, by their nature, have not targeted any archaeological period or theme.

This increase in planning-led archaeological work in the Forest of Dean District has, however, produced some significant results in the Forest of Dean. These include the first *in situ* evidence for Saxon iron smelting discovered at Clearwell Quarry to the west of St Briavels during excavation in advance of a quarry extension (Pine *et al* 2009), Roman settlement and industrial sites at Blakeney (Barber and Holbrook 2000), Dymock (Catchpole 2007; Williams 2011; Simmonds 2013), Staunton near Coleford (Ellis 2013) and Alvington (Hood 2013), and a number of Bronze Age round barrows recently discovered at Redhill Farm, Redmarley D'Abitot (Barrett 2013). It is anticipated that development-led archaeological investigation will continue to increase knowledge of the archaeological resource within the district and throw up research questions not anticipated in this research framework.

1.5 Current management of the archaeological resource in the Forest of Dean

Apart from the planning process (see above), there are a number of other mechanisms for managing the archaeological resource in the Forest of Dean.

1.5.1 Environmental Stewardship schemes

Environmental stewardship is an agri-environment scheme administered through Natural England which was set up to provide funding for farmers and land managers to deliver effective environmental management on their land (Natural England 2014). These can include management of heritage assets, and the County Archaeology Service is consulted on new schemes and provides information on recognised sites and their appropriate management.

In November 2013, there were 247 active environmental stewardship schemes within Forest of Dean District, and 182 heritage assets are currently managed under some form of stewardship scheme.

1.5.2 Forestry schemes

The County Archaeology Service is also consulted on all forestry schemes which are administered through the Forestry Commission and provides information on recognised sites and their appropriate management. Between April 2013 and December 2014, the Archaeology Service provided management advice on 119 forestry schemes, of which 39 (32.77%) were in the Forest of Dean District.

1.5.3 Forestry Commission

The Forestry Commission is the largest single landowner in Forest of Dean District, with holdings covering an area of 43272.6km².

Their landholdings contain a number of Scheduled Monuments, comprising sections of Offa's Dyke, Welshbury and Symonds Yat hillforts, Soudley Camp, a short section of early road at Blackpool Bridge, three sections of scowles and two post-medieval industrial sites; Darkhill Ironworks and Titanic Steelworks at Coleford, all of which are covered by a management plan which is renewable every 10 years.

These Scheduled Monuments, however, represent only a small proportion of the more than 2,000 recognised archaeological sites within Forestry Commission woodland (information from Gloucestershire County Council Archaeology Service, Historic Environment Record 13/01/2014).

Many of these are particularly vulnerable to damage from forestry operations and the Forestry Commission has entered into an agreement with the County Archaeology Service to ensure that they have current Historic Environment Record information on the sites in their ownership. All identified archaeological sites recorded on the HER which are in Forestry Commission land in the Forest of Dean have been assigned a management category linked to a broad-brush management strategy (Hoyle 2008a, Appendix B). This information is transferred from the HER to the Forestry Commission who incorporates it into their own information systems and routinely uses it to inform all forestry forward planning at an operational level. The information is periodically updated as new information is added to the HER.

2. Sources of information about archaeology in the Forest of Dean

There are numerous sources of information for the archaeology of Forest of Dean District.

2.1 The Historic Environment Record

Forest of Dean District is covered by the Gloucestershire County Historic Environment Record (HER) which is curated by Gloucestershire County Council Archaeology Service. This is a database of all known archaeology in the district ranging from chance finds of a single flint or sherd of pottery to complex sites which can contain numerous artefacts or features. It is also an inventory of the built heritage in the form of historically significant structures and records archaeological events such as excavations and watching briefs, and advice on the management of the heritage resource. The database is linked to a GIS mapping system which records the location and extent of all recorded archaeology (mapped either as points or polygons as appropriate) and includes a range of other data sets including:

- Scheduled Monuments.
- Listed Buildings.
- Registered Battlefields.
- Registered Parks and Gardens.
- Conservation Areas
- National Mapping Programme mapped information
- Historic Landscape Characterisation data shown as point lines or polygons.
- National Monument Record data
- Hillshaded imagery from the Forest of Dean lidar survey and mapped information from the rapid analysis of that data.

The HER also has access to other data sets (as GIS layers) of value to historical research principally:

- Historic map data including:
 - 1st, 2nd and 3rd Series OS maps.
 - Rectified copies of selected tithe or enclosure maps or contemporary industrial maps.
- Environmental data including:
 - SSSI information.
 - Ancient Semi-Natural Woodland information.

In addition, the HER contains paper records such as unpublished correspondence, notes and reports, or mapped information (such as copies of 1:10,000 OS map sheets showing sketched cropmark data) which pre-dates and complements many of the digital data-sets. The HER also holds a comprehensive collection of all grey literature reports produced by archaeological organisations undertaking investigations as part of the planning process. Much of this information has been scanned and can be viewed as part of the digital HER record, but significant sections are currently only available in hard format within individual HER site files stored at Shire Hall, Gloucester. HER information is publicly accessible via the web link www.gloucestershire.gov.uk/her (Glos HER 2015) and also through Heritage Gateway via the web link <http://www.heritagegateway.org.uk/gateway/>.

2.1.1 Sources of information for the HER

At the time of writing the Gloucestershire Historic Environment Record had incorporated all information generated by all stages of the Forest of Dean Archaeological Survey, Rapid Coastal Zone Assessments and National Mapping Programme projects which covered the Forest of Dean. All archaeological contractors who undertake work as part of the planning process are obligated to submit copies of their reports to the HER, and there is a policy of trawling local and county-wide journals to access information suitable for inclusion in the database. These include the Transactions of the Bristol and Gloucestershire Archaeological Society, Dean Archaeology (the journal of Dean Archaeological Group), the Journal of the Gloucestershire Society for Industrial Archaeology and the New Regard of the Forest of Dean (the journal of the Forest of Dean Local History Society). All academic or private researchers who make use of HER information are also requested to submit the results of their research to the HER, although this is not a contractual obligation.

A number of sources, for example published historical sources such as the Victoria County History, articles in national archaeological journals and map-based information derived from tithe or earlier maps or early editions of Ordnance Survey Maps, are not routinely accessed by the HER and information is derived from these on an *ad hoc* basis. Stage 1 of the Forest of Dean Archaeological Survey, however, did systematically

access information from a range of published and unpublished documentary and map sources including the relevant volumes of the Victoria County History of the area and early map sources (Hoyle 2008a, Appendix C) and added them to the HER. In consequence, the HER for the southern part of Forest of Dean District, which was covered by that survey (Hoyle 2008, Fig 1) is relatively comprehensive.

2.1.2 HER records for the Forest of Dean

In May 2014, the Gloucestershire County Historic Environment Record contained 9,287 HER Area records for Forest of Dean District, representing 22.3% of the 41,537 HER records for the whole county.

These comprised 14,610 separate 'Monuments' or 'Events' (see above) of which 13,674 (94%) represent archaeologically significant sites, monuments or artefacts, whilst the remaining 846 (6%) represent archaeological events such as surveys, watching briefs or excavations. In the rest of the county 39,617 HER records (89%) represent archaeological 'Monuments' with the remaining 5145 (11%) representing archaeological 'Events'.

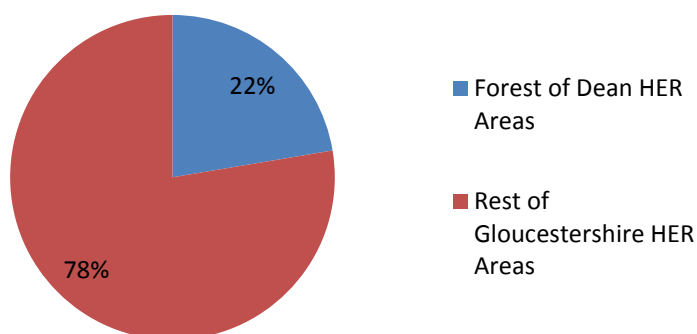


Chart 7: Historic Environment Records for the Forest of Dean and the rest of Gloucestershire

2.1.3 Types of site represented

Excluding the HER 'Events' (see above), the remaining archaeological monuments within the district can be broken down by general period demonstrating that only 18% of recognised sites are medieval or earlier, with only 1% of sites Prehistoric and only 2% Roman.

There is also a high proportion of sites of Uncertain date (21%), although this is a product of the HER categorisation system where features such as quarries, the majority of which probably date to the post-medieval period, are dated as 'Uncertain' unless their date can be firmly established through documentary records.

Forest of Dean: HER 'Monuments' by period

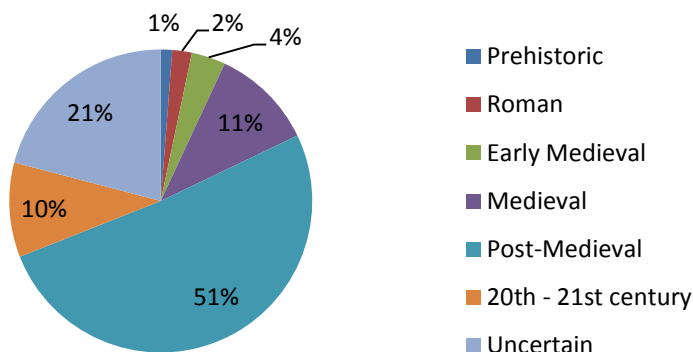


Chart 8: Historic Environment 'Monuments' and events for the Forest of Dean by period

Although these figures may be skewed by some of the systems which have in the past been used to record HER data within the database (for example fieldnames are dated to their first record rather than the potential date of the archaeological site to which they may refer, and findspots are dated to their date of recovery rather

than the date of the artefact (Hoyle 2008a, 52-53)), the overall distribution of sites by period is essentially accurate as the overwhelming majority of HER records within the Forest of Dean are post-medieval or later.

This largely reflects the wealth of post-medieval industrial or related (e.g. industrial transportation links) sites known in the Forest of Dean, particularly in the southern part of the district which had a strong tradition of mineral extraction (Hoyle 2008a, 51). Sites of this type only account for 43% of recognised 'Monuments', however, and 16% relate to agricultural sites. The remainder are made up of a range of religious, domestic, civil or military sites, although 22% are currently classed as 'Unassigned' or simply a 'Monument': This is a potentially misleading classification as, although a number of these are features which genuinely do not easily fall into other categories, at least 601 (representing c. 22% of this category) are features such as field boundaries, mine shafts, or field surveys which should have been classified differently.

Post-medieval and later HER sites by General Type

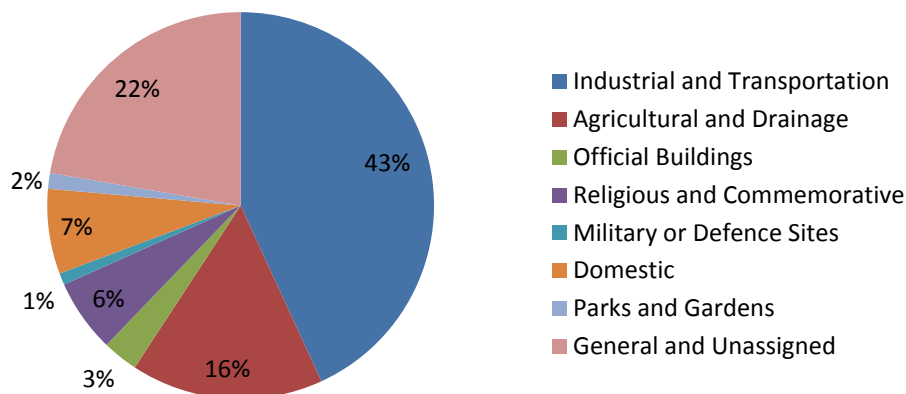


Chart 9: Post-medieval and later HER records for the Forest of Dean District

2.1.4 Limitations of the HER

The Gloucestershire HER is a huge database of immense value to any research into the archaeology of the district. In May 2014 (see above) it contained 41,537 separate 'Monuments' or 'Events' records for the county, and is continually being added to as new information comes to light. Archaeological organisations undertaking planning-related work in the county are obliged to send copies of their results to the HER, information published in local journals is routinely added to the database, and any independent researchers who use HER data are encouraged to reciprocate by informing the HER of any new findings (see above).

The HER has, however, been in operation for over 25 years, a period which has seen enormous changes in data standards and mapping systems (not least of which is a change from paper to digital systems) which inevitably means that it contains some inconsistencies, and any database of this size is bound to have errors or duplications, or necessitate classification systems (see above) which may seem strange when attempting to extract some types of information, but are necessary to ensure consistency when searching in other ways.

The quality and breadth of the HER record is also not consistent across the district as the HER for the southern part of the district was checked, rectified and updated with additional information from a wide range of sources as part of Stage 1 of the Forest of Dean Archaeological Survey (Hoyle 2008a, 43-47) and no similar work has taken place in the northern part of the district.

2.2 Portable Antiquities Scheme database

The Portable Antiquities Scheme (PAS) is a DCMS funded project to encourage the voluntary recording of archaeological objects found by members of the public in England and Wales. Every year many thousands of objects are discovered, many of these by metal-detector users, but also by people whilst out walking, gardening or going about their daily work. In October 2014, over 1 million objects had been recorded for the whole country, 6,239 of which were in the Forest of Dean District.

In principle PAS data is incorporated into the County HER, but the overwhelming amount of data and the variable quality of the information, not least locational data, means that the quality of the PAS data within the HER is inconsistent and cannot necessarily be assumed to be up to date. Consequently, the PAS database should be regarded as a separate source of information about the archaeology of the district.

The Portable Antiquities Scheme do not generally record artefacts which are less than 300 years old, although some finds in this category (for example Yeomanry buttons) are recorded where they are considered to be of particular significance or research potential (Kurt Adams, Finds Liaison Officer for Gloucestershire and Avon, pers. comm.).

The Portable Antiquities Scheme database can be searched online by following the link:

<https://finds.org.uk/database>

2.3 Published and unpublished sources

A range of published and unpublished documentary and map sources exist for the Forest of Dean.

No list of these can be comprehensive although a list of recognised sources including published and unpublished documentary and map sources is included in Section 10, below.

2.4 Archaeological artefacts and archives

2.4.1 Museum collections

Dean Heritage Centre

Almost all of Forest of Dean District is within the collecting area of the Dean Heritage Centre at Camp Mill, Soudley. Three parishes, Gorsley and Kilcot, Hartpury and Rudford and Highleadon, all in the northeastern part of the area, are within the Gloucester City Museum collecting area (GCCAS 2013, Appendix G).

Although the Dean Heritage Centre opened in 1983, they have only routinely received archives of archaeological investigations in their collecting area since the late 1990s and the archives from a number of historic archaeological investigations within the district, which pre-date that time, were sent to museums outside the district, where they are still held.

The Dean Heritage Centre do however hold a range of chance finds which were collected before the 1990s and also the archives a number of significant earlier excavations including High Nash, Coleford Roman site and Late Iron Age burial (although they do not have the iron sword), Littledean Hall Temple, Stock Farm Roman Villa, Park Farm Roman Villa, Aylburton, Whitecross Furnace, Lydney, Whitecliffe Furnace, Coleford and the assemblage of prehistoric material from Hollybush pothole in Willscroft Wood, St Briavels.

They also have the hoard of Roman coins found at Yorkley and assemblages of flint recovered from the Tidenham Chase area, as well as a number of significant individual finds such as a post-medieval sword from Welshbury Hill and the Roman altar from Closefturf Farm, St Briavels which was reused as an early Christian grave marker.

Other Museums

To provide complete details of all museum collections is beyond the scope of this resource assessment but consultation with a number of local museums combined with data from the HER indicate that the majority of archives from significant earlier excavations and many high-profile artefacts have not been retained in the district.

The majority of these are held by Gloucester City Museum who curate a range of chance finds of coins, brooches, flint pottery or other artefacts including the Roman coin hoard from Oldcroft, Lydney, a large Palaeolithic quartzite tool from near Upleadon, Newent, a Roman lamp from Staunton near Coleford, four Neolithic axe heads (from Longhope, Mitcheldean, Clements End and Newent), three Bronze Age axe heads (from Viney Hill, Awre, Newent and Roads Farm, St Briavels), three of the alleged Roman stone heads from Ruspidge and a Bronze Age palstave from High Nash Coleford. They also hold the archives of many earlier excavations including the archive of Scott-Garrett's excavations at The Chesters, Woolaston, Soldiers Tump round barrow Tidenham and the excavations at Boughspring Roman Villa, Tidenham between 1979 and 1985 (although it is not clear if the archives of earlier and later episodes of investigation are included in this). They also hold some 30 boxes of finds from 1960s excavations at Dymock (Catchpole 2007, 135) which have not been fully published.

Cheltenham Museum have a Bronze Age axe head and spear from Kilcot Wood, Newent and a number of finds from the Dymock area, whilst The Museum in the Park, Stroud have a small number of assorted medieval or post-medieval finds from Coleford, Lydney, and Princess Royal Colliery, Bream, pot wasters from an excavation of a 17th century pottery kiln in Haind Park Wood, Dymock, a sample of bones found in Lady Park Wood Cave near Symonds Yat (which are probably actually from Monmouthshire) and another pennant sandstone carved head of possible Iron Age or Roman date.

Outside of Gloucestershire, Bristol City Museum hold a sample of bloomery slag from the Roman smelting site at Pope's Hill near Littledean and a sample of post-medieval pottery from the 17th century kiln in Haind Park Wood, Dymock. They also hold three coins from a Roman coin hoard found in Tidenham in 1862, although these may be from a hoard reported in Woolaston in 1862 rather than the remaining coins from a separate hoard.

Newport Museum hold a Palaeolithic handaxe from Sedbury Cliffs and the human remains from a Bronze Age cist burial at Beachley, whilst Hereford Museum hold some flints from the Dymock area and pottery and slag from a medieval smelting site at Warfield farm, Ruardean. A Bronze Age axe from Staunton near Coleford is at the Ashmolean and the British Museum are reported to hold three Iron Age coins (from Newent and West Dean), a Roman altar from Tidenham, and a number of Bronze Age gold bracelets and pottery sherds from Woolaston.

Another Forest of Dean artefact held outside the district is the Saxon lead font from Lancaut Church, Tidenham, which is now in the Lady Chapel of Gloucester Cathedral.

2.4.2 Private collections

Numerous chance finds (including the majority of non-treasure trove finds recorded by the Portable Antiquities Scheme) and also some more extensive collections of surface artefacts, are held by private individuals.

The bulk of the material from numerous fieldwork episodes undertaken by Dean Archaeological Group, including their assemblages from the significant episodes of fieldwalking undertaken in the 1980s (see below) was held by the group, but its current location is unclear (Phil Riches, pers. comm.).

Perhaps the most important single collection of Roman artefacts from the Forest of Dean are the finds from Lydney Park temple, excavated by Lord Bathurst in the 19th century and again by the Wheelers in the late 1920s. Almost all the artefacts from these excavations are housed in a small private museum at Lydney Park, although a bronze statuette of a dog is a facsimile.

2.5 Other material/unpublished sources

A number of other collections hold documents or photographs of value to researchers into the archaeology and history of the district.

2.5.1 Gloucestershire Archives

Gloucestershire Archives holds 2393 records relating to Forest of Dean District.

This is a diverse collection of value to research into many aspects of the history and archaeology of the Forest of Dean. Their collection includes tithe and enclosure maps and terriers, estate maps and early Ordnance Survey maps. They also hold a copy of a copy of the 1835 Sopwith survey of coal and iron mines in Forest of Dean (commissioned by the Commissioner of Woods, Forest and Land Revenue) which displays mines, mine shafts, kilns and numbered stones (gale stones and stones marking the boundary of the Statutory Forest) and a collection of other 19th century and later maps of industrial workings, including a number of fairly detailed maps of individual mineral workings (both below ground and surface features) which date from between 1830 and about 1960 and were originally held by the Deputy Gaveler based with the Forestry Commission.

Gloucestershire Archives also hold a range of other documents including records relating to the administration of the Forest (Verderer's court records), a number of deeds (some as early as the 16th century), and the archives of a number of historical researchers into the Forest of Dean such as Cyril Hart and David Bick. They also hold unpublished antiquarian field observations including those made by Ormerod in the early to mid 19th century (Ormerod 1861b), Scott-Garrett between 1918 and 1958 (Scott-Garrett 1918-1932), Scott-Garrett and Harris in 1932 (Scott-Garrett and Harris 1932) and also a number of other notebooks of observations and excavation records made by Scott-Garrett between 1930 and about 1960 including the documentary archive of his excavation of the Roman site at Popes Hill, Littledean (although the whereabouts of the finds from this excavation are currently unknown).

They also hold a number of other documents of interest to local history such as annotated maps of proposed Home Guard stations in the Forest of Dean to be used in the event of invasion during The Second World War.

The Gloucestershire Archive collections are open to the public at Alvin Street, Gloucester and their online catalogue can be searched by following the link:

<http://www3.gloucestershire.gov.uk/DServe/DServe.exe?dsqApp=ArchiveanddsqCmd=Index.tcl>

2.5.2 Dean Heritage Centre

In addition to the artefacts and excavation archives outlined above, the Dean Heritage Centre in Soudley also holds a number of other items which may be of value to researchers, housed in the Gage Library. The library holds over 8000 historical documents, including over 1500 books and numerous pamphlets, periodicals, trade directories and journals which cover the history, natural history and geography of the Forest of Dean and the surrounding area and also Crown Reports and Acts of Parliament, newspapers and documents relating to coal and iron mining.

They hold a large collection of Ordnance Survey 25" maps from the late 19th century onwards, tithe maps and apportionments, 19th century maps recording encroachment into the Royal Forest, and other maps of industrial workings, including a copy of the 1835 Sopwith survey of coal and iron mines in Forest of Dean. They also hold a bromide copy of the 1608 map of the western part of the Forest (the original of which is held by the Public Records Office in Kew) and a rectified copy (at scale 1:1050) of the map drawn by Gordon Clissold (PRO 1608; Clissold 1982). In addition, they hold over 2,500 images (either postcards or photographs) of the Forest of Dean including some showing working collieries. They also hold a card index of the names and location of mines in the Forest (although it is not clear how comprehensive this source is) and an unpublished survey of railway and tramroad remains undertaken by Ian Standing for the Forestry Commission in 1993.

The Gage Library is open to the public by appointment and at the time of writing (June 2015) the centre was in the process of creating an online catalogue of their collections.

2.5.3 The Forestry Commission, Coleford Office

A collection of unpublished observations and notes by Cyril Hart, probably the leading Forest of Dean historian in the latter part of the 20th century, is held by the Forestry Commission at Bank House, Coleford. The Forestry Commission also hold a number of map sources of value to research into the more recent history of the southern part of the Forest of Dean, and particularly of encroachment into Crown land. Pre-eminent are the original Hosner maps which show encroachments at 1787, 1812, and post 1812, which were compiled in 1834 to define the extent of Crown land at that time and are accompanied by some written information on 19th century encroachment contained in hand-written ledgers. The Forestry Commission also hold a set of annotated 1:2500 scale OS maps showing encroachment in 1904, and 1922 and 1:10,000 scale OS maps showing encroachment in 1955, 1970 and the present day. This information has also been added to modern 1:2500 map sheets (copies reduced to 1:5000) held in a book of 124 1km² sheets. They also have a copy of the 1835 Sopwith map of mine workings in the Statutory Forest (see above), and approximately 372 monochrome vertical aerial photographs of their landholdings taken in 1982 (Hoyle 1993, Part 2, 7), although these are likely to be of limited archaeological value.

Material held by the Forestry Commission in their Coleford office can be accessed by appointment

<http://www.forestry.gov.uk/forestry/infid-7audcq>

2.5.4 Historic England Archives

Archives

At the time of writing (June 2015) Historic England's archive based in Swindon holds 2,170 separate items for the Forest of Dean. Many of these are photographs of buildings, or individual sites or monuments, but the collection does include unpublished field surveys of archaeological landscape features such as hillforts, scowles or surface mining remains.

The archive is accessible to the public and the online catalogue can be searched following the link:

<http://archive.historicengland.org.uk/>

Aerial photographs

The archive also holds the largest collection of aerial photographs covering Forest of Dean District. In excess of 20,000 of these (both vertical and oblique) have already been transcribed by the Forest of Dean, Leadon Valley, Malvern Hills and Severn Estuary RCZA National Mapping Programme projects which cover almost the whole of the Forest of Dean with the exception of a small area in the northeastern part of the district (Priest *et al* 2008, Fig 2), and this information has now been added to the Gloucestershire HER (see above). Since these projects were completed, however, the Historic England Archive have acquired some significant air photo collections (for example the Aerofilm Collection) and many more air photos covering the district will not have been accessed by these surveys (Steve Crowther, Gloucestershire County Council Archaeology Service pers. comm.).

A proportion of their collection can be searched online through the Historic England Archive website (<http://archive.historicengland.org.uk/>), and some aerial photographs are also available through the *Britain from Above* website (<http://www.britainfromabove.org.uk/>).

Not all photographs in their collection can, however, be searched on line, although a free search can be requested through <http://historicengland.org.uk/images-books/archive/archive-services/enquiries/>. Photocopies of photographs can be purchased and sent through the post, or the collection can be viewed at the Historic England Archive in Swindon.

PastScape records

The Historic England Archive also contains 2,706 records for Forest of Dean District on the PastScape database which is available online through the following link: <http://www.pastscape.org.uk/>

PastScape records are derived from Historic England's National Record of the Historic Environment which is an inventory of sites or buildings of historic or archaeological value from all periods where Historic England or its predecessors (for example the Royal Commission on the Historic Monuments of England) has undertaken recording or research. The database contains summary site information, a statement of the site's investigation history and also key sources. Further information about related archives held by Historic England can be requested by contacting the archive team at Archive@HistoricEngland.org.uk

The majority of PastScape records are currently incorporated into the Gloucestershire HER for Forest of Dean District, although this has tended to have been undertaken for certain types of project (for example NMP surveys) and the National Monuments Record Long Listings were incorporated into the HER in 2003-2004 during Stage 1 of the Forest of Dean Archaeological Survey (Hoyle 2008d). There is, however, no formal data transfer policy between Historic England and the country HER and it is very likely that there are PastScape records which have not necessarily been incorporated into the HER, although the extent of this is unknown (Tim Grubb, Gloucestershire County Council HER Officer pers. comm.).

Research Framework for Forest of Dean District

**Forest of Dean Archaeological Survey Stage 4:
Module 3**

Project Number 5291 ANL

Volume 2: Resource Assessment



Version 0.4

Jon Hoyle

Archaeology Service

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3. The earlier prehistoric periods: Palaeolithic to Neolithic (900,000BC – 2,200BC)

3.1 The Palaeolithic period (900,000BC – 10,000BC)

Although the Palaeolithic period, which in Britain lasted for close to a million years between about 900,000BC and 10,000BC, is by far the longest period of human history there is very little evidence for activity in the Forest of Dean during this period, and it is not even clear when the area was first inhabited. Stone tools dating to approximately 900,000BC from Pakefield, Suffolk and Happisburgh, Norfolk now represent the earliest evidence for human (*Homo antecessor*) activity in Britain (Dinnis and Stringer 2014) and finds from eastern Gloucestershire suggest the earliest humans (*Homo heidelbergensis*) arrived in that area around 400,000BC (Darvill 2011, 36), but evidence for human occupation of the Forest of Dean during these very early periods is absent.

A possible Lower Palaeolithic Acheulean handaxe recovered as a surface find by a metal detectorist to the south of Newent may be amongst the earliest evidence for human activity in Dean (PAS database: GLO-3BE525). A large quartzite tool from near Upleadon, Newent and a crude ovate handaxe from Sedbury Cliffs, Tidenham have also been recorded. Similar finds from the vicinity of the district include an Acheulean handaxe from Welsh Newton, Herefordshire (Walters 1989, 9) and two handaxes from Sudbrook in Monmouthshire (Green 1989, fig 2). All of these are surface finds removed from their original contexts which can provide little evidence for the nature or duration of occupation at this time apart from suggesting that people were present at some time during the Lower Palaeolithic.

There is some evidence for a Middle Palaeolithic (Neanderthal) presence in the vicinity of the district as a Levallois blade was discovered during construction of the Second Severn Crossing near Sudbrook, Monmouthshire (Green 1989). It was thought that there was evidence for Middle Palaeolithic activity at King Arthur's Cave, Ganarew, Herefordshire, in the Wye Valley on the northwestern edge of the Forest of Dean (Symonds 1871; ApSimon *et al.* 1992), although a recent re-evaluation of this evidence has demonstrated that, although there is evidence for Middle Devonian fauna, there is none that humans used the cave at this time (ApSimon and Jacobi 2004).

Evidence for a human presence dating to the Early Upper Palaeolithic from around 40,000BC, when anatomically modern humans (*Homo sapiens*) are known to have been present in the British Isles is also largely absent from the Forest of Dean. A potential exception is a record of a possible Upper Palaeolithic Solutrean shouldered point reported as a chance surface find from the Wye Valley in Tidenham. The implement was in such a pristine condition that 'it could have been made yesterday' (Barton quoted in Webb 2005) and is manufactured from a coarse brown flint unlike any known from the area, suggesting that this implement may be a find or recent facsimile introduced to the area from elsewhere (Webb 2005, 23).

A number of surface finds of Upper Palaeolithic age have been discovered from the Forest of Dean. These comprise an Upper Palaeolithic flint core from Woolaston, on the boundary of the first and second gravel terraces, close to the River Severn (James and Walters 1988, 39), an Upper Palaeolithic retouched blade from Morse Lane, Drybrook (Walters 1989, 9) and a large late notched blade from Taynton. A flint blade and scraper from excavations of the Roman villa at Stock Farm, Clearwell have also been recorded as possibly Upper Palaeolithic (Atkinson 1986, 30) although this identification has not been confirmed.

Between about 25,000BC and 12,000BC, during the Last Glacial Maximum, the British Isles were too cold to sustain the resources required for human survival apart from but the most sporadic human activity, and the district would have been in an arctic zone, although people began to return to the area as conditions improved. It is from this time that secure evidence for a human presence in the Forest of Dean is found. King Arthur's Cave just outside the Forest of Dean on the Herefordshire side of the Wye Gorge was occupied, possibly as a seasonal hunting camp, at two separate times in the Late Upper Palaeolithic (ApSimon *et al.* 1992; Barton 1995; 1996; 1998; Jacobi and Higham 2011). Wild horse was initially hunted by humans during an early stage in the Late Glacial period before they departed and there is a gap in use of the cave before the arrival of hunters who exploited red deer during the latter part of the Late Glacial interstadial (Jacobi and Higham 2011). The lithic artefacts corroborate this interpretation and the interesting large Final Palaeolithic assemblage is enhanced by finds from a second site above the River Wye, Symonds Yat East rock-shelter, where two Final Palaeolithic artefacts were also recovered during excavations in 1994. These, a penknife point and an abruptly-backed bladelet (Barton 1994, 66), together with the earlier discoveries from King Arthur's Cave amount to a significant Final Palaeolithic assemblage from the upper Wye Valley.

Just south of the district a Late Upper Palaeolithic settlement site has been recorded at Cophill Farm to the west of Chepstow Monmouthshire in the southwestern part of the Wye Valley (Walker 2015). This open-air settlement had two periods of use, with two sites a kilometre apart used at different times during the Late Glacial period. Other chance surface finds have also been discovered at Llanishen and at Thornhill Farm Chepstow (Bevan 1986; Walker 2015).

3.2 The Mesolithic period (10,000-4,000 BC)

3.2.1 Early Mesolithic

Evidence for activity in the Forest of Dean during the earlier part of the Mesolithic (from about 10,000BC-6000BC) is sparse and limited to a number of surface finds. These are a probable early Mesolithic flint blade from Soilwell Manor, Lydney, and 19 flint implements from Brook Farm, Newent. Four flint blades (three from Taynton and one from Lydney) and a combined end scraper and notched fabricator from Tidenham, all from larger assemblages containing later material, are also probably early Mesolithic in date (PAS database), but could be Late Upper Palaeolithic, whilst the Late Upper Palaeolithic flint flake from Morse Lane Drybrook and flint core from Woolaston (see above) could be early Mesolithic in date (see Walters 1992a, 11).

Early Mesolithic sites (again represented entirely by surface finds of flint tools) have also been recorded near the Forest of Dean to the west of the Wye at Llanishen, Skenfrith, Hadnock and Dixon in Monmouthshire (Walters 1992a, 12-13). Additional microliths of early Mesolithic forms have been collected from eroding surfaces on the Black Mountains and further west at Usk and Shirenewton, Monmouthshire (Walker 2004).

3.2.2 Later Mesolithic

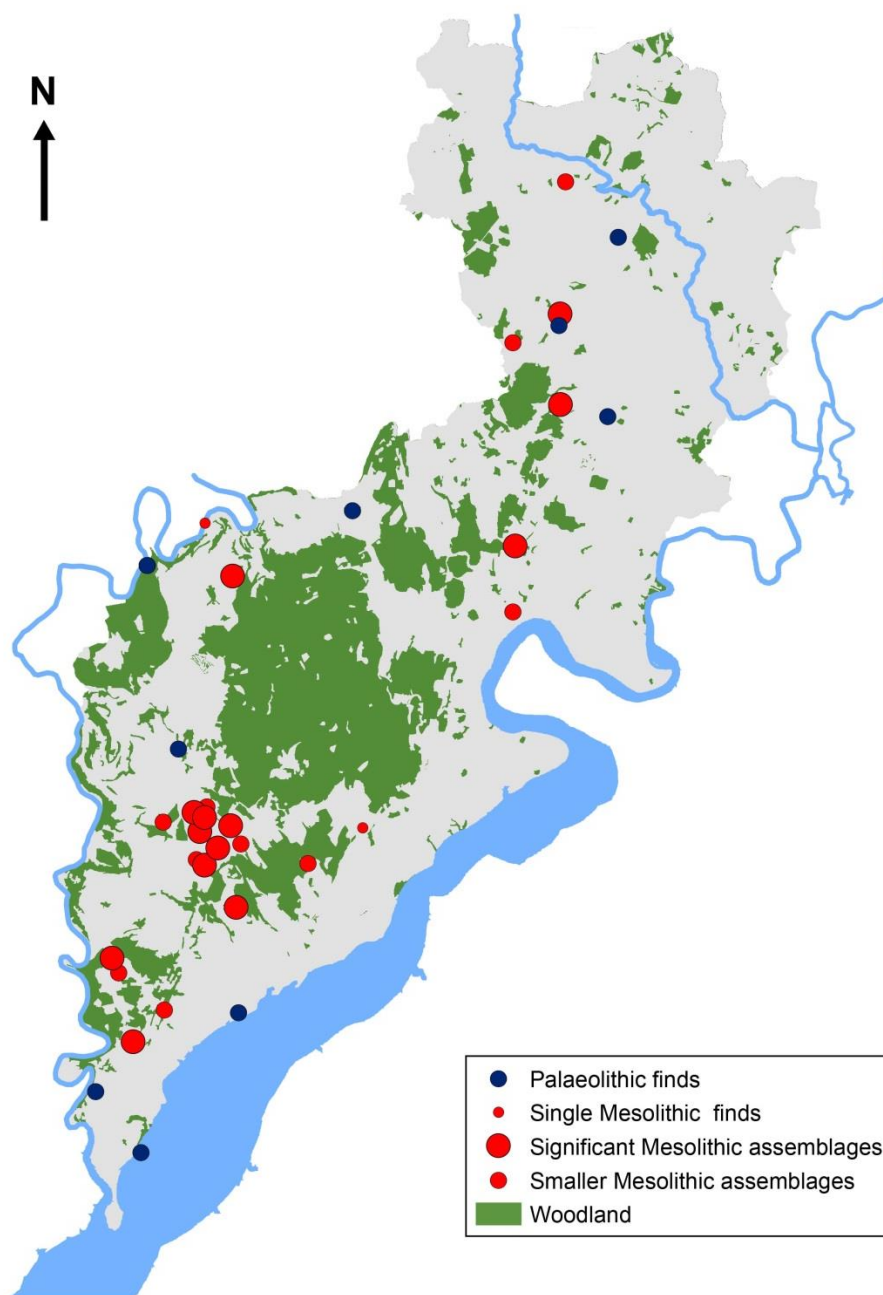
The later Mesolithic (about 6,000BC–4,000BC) is characterised by a move away from the relatively broad-bladed implements of the earlier Mesolithic towards an increase in smaller geometric microlith forms. This change in tool technology possibly reflects changes in the species available as temperatures increased and pine and birch woodland was gradually replaced with lime, hazel, elm and oak (Mellars 1974). More mobile hunting groups may also have preferred the size and weight advantages of smaller implements (which could be used to create composite arrowheads) and as flint was a scarce commodity, broken tools may have been re-worked rather than replaced (Darvill 2011, 51). As recently as 1984 evidence for later Mesolithic activity was completely unknown in the Forest of Dean (Saville 1984, Fig 4), although there are currently almost 80 known sites, scattered throughout the district where flint flakes or implements probably dating to this period have been found.

The only excavated evidence for later Mesolithic occupation is from King Arthur's Cave (ApSimon *et al.* 1992, Barton 1997) and at other rock shelters in the upper Wye Gorge in Herefordshire (Barton 1993, 337), although residual Mesolithic flints were found during the excavation of Soldiers Grave Round Barrow, Tidenham, (Scott-Garrett and Harris 1955, 34) and at Littledean Hall (Walters 1992a, 18, fig 8). King Arthur's Cave is a particularly significant site and recent excavations have recovered a number of typical later Mesolithic artefacts along with some perforated shell beads from both this and from Madawg Rockshelter (Barton 1997). The similarity of both assemblages suggests that they were both used by the same group of people who must have had contact with the coast, as the shells are all of marine origin.

Some chance finds, such as a Mesolithic flint adze found in the River Wye at Symonds Yat (Price 2001, 72), are also known, although the bulk of the evidence is surface scatters of flint which include Mesolithic microliths, cores and other diagnostic waste flakes, which have been recovered from the surface of ploughed fields (Walters 1989, 36). Extensive later Mesolithic flint scatters (within assemblages from the Mesolithic to the Bronze Age) are recorded on Barse Common (between St Briavels and Bream) in the area between Closeturf Farm, Barse Farm, Hathaway Barn, Noxon Farm and Nedge Cop Wood (James and Walters 1988, 39-44; Walters 1987b, 50) and also just to the south of Blaisdon in Westbury on Severn parish (Walters 1992a, 19, fig 8). More recently large assemblages containing worked Mesolithic flint artefacts have been recovered from the northwestern part of Tidenham Chase in the area to the southwest of Madgetts Farm, and also from Taynton and Newent Parishes, whilst smaller assemblages (between 50-100 flints, not all of which are necessarily Mesolithic) have been found near Boughspring, Tidenham (Webb 2005, 25), Cottage Farm Alvington (James 1996), in Newland parish, and at Eastbach Court, English Bicknor (Walters 1989, 11). Smaller assemblages of between 10 and 50 flints (again not all of which are Mesolithic) have also been found in Huntley, Westbury on Severn, Tidenham, Newland, St Briavels, Lydney, Pauntley and West Dean parishes. Scatters of Mesolithic flint have also been found at Huntsman Hill (near Symonds Yat) and Great Howle just outside Forest of Dean District in Herefordshire (Walters 1992a, 16-18, fig 8).

Evidence from other parts of the county (principally the Cotswolds to the east) suggests that both relatively long-term settlement sites and temporary hunting camps would be expected in a given area during the later Mesolithic (Darvill 2011, 56-57) and there may have been a preference for well-drained soils in elevated positions (Saville 1986, 229). Substantial later Mesolithic settlement sites have now been excavated on the Severn Estuary Levels and are proving interesting due to them having excellent organic preservation. Excavations in the intertidal zone at Goldcliff, Monmouthshire have provided evidence for discrete activity zones, including a butchery area and a tool production zone (Bell 2007).

In the district the majority of known Mesolithic sites lie on higher ground (between 135 and 195m AOD) and overlie the well-drained soils over limestone bedrock (Hoyle 2008a, 74-75). The evidence is, however, almost certainly skewed in favour of areas which are currently under cultivation (and therefore can produce collectable surface scatters) and few Mesolithic finds are known from areas currently in woodland.



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Figure 6: Palaeolithic and Mesolithic evidence

3.3 Mesolithic to Neolithic transition (3,500BC to 4,500BC)

Evidence for the transitional period between the late Mesolithic and early Neolithic is generally elusive (Darvill 2006, 18), although to the east of the Forest of Dean a rectangular pit at Frocester has produced a fragment of animal bone with a radiocarbon date of 4500-3500BC (Price 2000a, 39-43 cited in Darvill 2006, 19-20) and there is also evidence for minor woodland clearances in the Windrush Valley in the later 5th and early 4th millennia BC (Marshall and Allen 1998, cited in Darvill 2006, 18). Evidence for both early Neolithic and Mesolithic activity has been recorded from the buried ground surface below Hazleton North Long Barrow, (constructed around 3800BC) although a spatial separation between artefact concentrations suggested a chronological gap between the two phases (Saville 1990, 14-22, fig 163).

Both Mesolithic and Neolithic flints have been found at over 30 sites in the Forest of Dean, with significant concentrations at Bearse Common between St Briavels and Clearwell, on Tidenham chase between Tidenham and Madgetts Farm and in the Taynton and Newent areas (see below). As with the finds from beneath Hazleton Long Barrow (see above) these need not signify continuity of occupation, but they do suggest long-lived sites where early Neolithic activity is likely to have taken place.

At least one probable early Neolithic flint flake has been found within woodland to the north of Cannop in the southern part of the district suggesting that activity was not limited to areas currently under cultivation, although this was not associated with any other early Neolithic evidence (Hoyle 2013a, 40).

Mesolithic and Neolithic flints were also found around the Soldiers Tump round barrow on Tidenham Chase, southeast of Chase Farm (Scott-Garrett and Harris 1955, 34-35), and two pottery sherds from the barrow's fabric may be 'Neolithic A' or early Neolithic in date (H N Savory in Scott-Garrett 1955, 30-31), although this identification was far from certain at the time and the sherds would need to be reviewed before this was accepted as evidence for early Neolithic activity.

In the Severn Estuary at Woolaston evidence for the burning of reed swamp, possibly as recently as 4230-3970 Cal BC suggests human activity, perhaps to create clearings to attract browsing animals, in the transitional period between the late Mesolithic and early Neolithic (Brown *et al* 2006, 80-81). The extent and frequency of periods of burning would suggest deliberate human activity (Brown 2009, 40) although it is not clear if the communities undertaking the burning were living as late Mesolithic hunter gatherers or were beginning to adopt a more Neolithic lifestyle.

3.4 The Neolithic (4,000BC to 2,200BC)

As with the Mesolithic, evidence for the Neolithic in the Forest of Dean consists almost exclusively of Neolithic artefacts, the majority of which were collected from the surface of ploughed fields, generally during the same fieldwalking operations which recorded the Mesolithic flint assemblages above. A significant spread of more than 2000 flints (ranging in date from the Mesolithic to the Bronze Age, but including large Neolithic assemblages) have been recorded on the Bearse Common between St Briavels and Bream in the area between Closeturf Farm, Bearse Farm, Longley Farm, Hathaway Barn, Noxon Farm and Nedge Cop Wood, northeast of Bearse Farm (James and Walters 1988, 39-44; Walters 1987b, 50) and in Westbury on Severn parish just to the south of Blaisdon (Walters 1992a, 19). These have been interpreted as evidence for extensive temporary campsites, perhaps established during hunting expeditions over an extended period (Walters 1988, 37), but it is difficult to be more specific about what occurred at particular sites without further more detailed analysis of the nature of the known finds assemblages and the range of activities they may have represented.

A smaller assemblage of 78 Neolithic flints has been found at Longley Farm, Newland, whilst a mixed assemblage, also of 78 Mesolithic and Neolithic flints, has been recorded at Cottage Farm, Alvington (James 1996). Assemblages of between 10 and 50 flints (not all of which are necessarily Neolithic) have been recorded in a number of areas in St Briavels, Newent, Ruardean, Tidenham, English Bicknor, and Newland parishes (Walters 1985; Walters 1987a, Price 1989; National Monuments Record; PAS database; Glos HER 2015). A further 36 sites produced between one and eight diagnostically Neolithic flint flakes or artefacts, whilst at six sites the number of Neolithic implements (and indeed the whole flint assemblage) is not clear, although probably fairly small.

Other Neolithic finds from the Forest of Dean include five complete stone axe heads and a number of axe head fragments. Two of the complete axes, from Newland and Mitcheldean, were made of polished flint, whilst of the remaining three; two (from Longhope and Clements End) were made of Greenstone from the Cornwall area, whilst the third (from Viney Hill, Awre) was from the Great Gable axe factory in Cumbria. There

is also anecdotal evidence for a 'celt' made of a 'slatey coloured material' which was found on Tidenham Chase (Scott-Garrett 1918-1956, entry for 19th November 1952) although this artefact, which was presumably an imported stone axe, is now lost.

Just outside the Forest of Dean, Cornish and Cumbrian stone axes have also been found at Welsh Newton and English Newton, Herefordshire respectively, others from Oxenhall near Newent and Walford, Herefordshire (Walters 1991, 39) are from a currently unrecognised source, whilst one from Great Doward Hill in Herefordshire, on the opposite side of the River Wye, was from a Scandinavian source (Walters 1992a, 26).

In addition to the unstratified finds a small number of exclusively residual Neolithic flints have been found within later features during excavations at Blakeney, Pingry Farm, Coleford, Littledean Camp, Littledean Hall, Newent, Stowe and Ruardean (Hoyle 2008, 79-80) and also at Soldiers Tump round barrow Tidenham (see above) 'Traces' of Neolithic settlement have also been recorded from the excavation of an early post-medieval blast furnace in Knockall Enclosure about 1.5km to the south of Staunton near Coleford, although no records of this discovery appear to survive, and precisely what these 'traces' represented is not clear (Glos HER 2015).

Most of the known Neolithic assemblages from the Forest of Dean are from areas of arable cultivation and relatively few are known from woodland. Neolithic communities may have favoured the lighter well-drained soils (generally overlying a limestone geology) which were preferred as farmland in later periods, but Neolithic finds have also been recovered from woodland (for example Neolithic flint work has been found from woodland in Tidenham, Staunton near Coleford, Ruspidge and Soudley, and more recently in Sallowvallets Wood, West Dean) and the known distribution of Neolithic sites may be skewed by the relative ease of recovery of artefacts from cultivated land and need not indicate a Neolithic preference for areas which were cultivated in later periods.

3.4.1 Field monuments and evidence for ritual and religion

The Forest of Dean is notably lacking in known field monuments dating to the Neolithic period.

Long barrows are known not only from the Cotswolds to the east but also Wales to the west (Darvill 2004, fig 34) where topographical conditions are similar to those found in the Forest of Dean, although none are known in Dean. A possible long barrow has been recorded by dowsing survey in Awre parish, although the validity of this record has never been tested, whilst another was identified, but later discounted, by Scott-Garrett in Oakhill Wood just north of Tidenham Chase in the early 1950s (Scott-Garrett 1918-1958, entries for 19th September 1950 and 12th May 1951; Hoyle 2008a, 79).

Large-scale surveys such as the 2006 lidar survey and National Mapping Programme have failed to identify earthworks or cropmarks in the Forest of Dean which seem likely to represent long barrows (Hoyle 2008c, Small and Stoertz 2006; Crowther and Dickson 2008; Priest *et al* 2008), and although the Forest of Dean Archaeological Survey identified 69 field or place names containing elements derived from 'tump', 'berry', 'barrow' or 'loe' (see Hoyle 2008a, 133-136, figs 16 and 17) these do not necessarily indicate the site of prehistoric burial mounds, let alone Neolithic long barrow sites.

Later Neolithic field monuments such as causewayed enclosures are also unknown in the district, although the area is at the western edge of their known distribution (Darvill 2004, fig 78). A few possible causewayed enclosures have, however, been identified to the west (Oswald *et al* 2001, 80), and it must be remembered that none of the causewayed enclosures in Gloucestershire had been recognised prior to the early 1970s (Darvill 2011, 64).

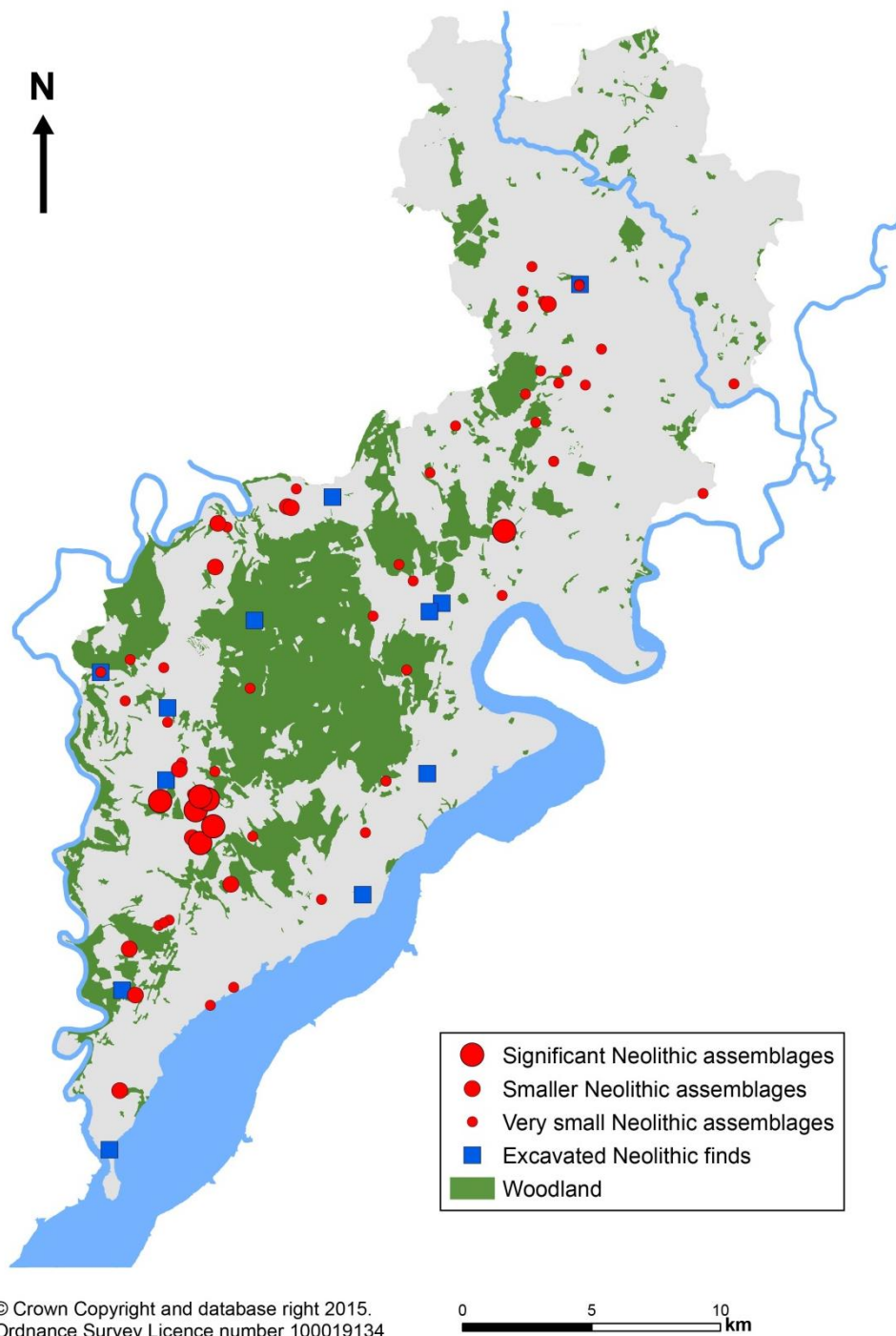


Figure 7: Neolithic evidence

3.4.2 Early prehistoric trade and communications

The most common surviving commodity from the early prehistoric period is flint, which is not a natural product of the area's geology, the nearest source being the chalklands of north Wiltshire. Some flint would have been available as erratic pebbles in streams, or gravel deposits, and these were undoubtedly exploited, although flint would probably also have been introduced to the Forest through some form of exchange system (Darvill 2011, 51). This trade may have increased from the Neolithic period, by which time industrial-scale flint mining is known to have taken place in a number of places, including Durrington in Wiltshire (Topping 2011, 2), and Neolithic populations also had access to stone axes from diverse parts of the British Isles and abroad (see above).

To what extent exchange systems, particularly during the earlier periods, represented organised trade, or what other commodities were exchanged is unknown, but it is clear that by the Neolithic the Forest of Dean was part of a wide network of trade and communication. Precisely how goods were transported and by what

routes is not clear although river transport, particularly along both the Wye and Severn, is likely to have played a significant part in any Neolithic distribution systems. Neolithic log boats have been found in southern England, for example at St Albans Hertfordshire (Niblett 2001), but there is no evidence for Neolithic river transport from the Forest of Dean.

3.4.3 Environmental background for the early prehistoric period

The environment of the Palaeolithic period in the southwest of England is summarised elsewhere (see for example Hosfield *et al* 2008, 23-30) and it is not proposed to discuss it in detail here. The period saw massive climate change and huge fluctuations in sea level and drainage patterns of waterways. Glacial periods would have rendered the Forest of Dean area an uninhabitable arctic wasteland or freezing tundra, although these were interspersed with long episodes of more temperate, or warmer conditions, in which Steppe grassland or Boreal woodland would have thrived, each environment supporting a different range of flora and fauna at different times.

Much of the evidence for this derives from studies outside the district (Hosfield *et al* 2008, 27) and environmental evidence for this period from within the Forest of Dean is limited. Just outside the Forest of Dean 19th century excavations at King Arthur's Cave, Herefordshire, found animal remains including now-extinct species, such as woolly rhinoceros and mammoth (Symonds 1871), which would have inhabited the sub-arctic tundra-like conditions of the mid Devensian when the climate became colder in the lead-up to the Last Glacial Maximum. More recently excavations of a rock face immediately north of King Arthur's Cave have identified deposits containing microfauna (small mammals and land molluscs), and environmental remains have also been found at Cavall's Cave and Madawg Rock shelter, again on the Herefordshire side of the Wye Gorge (Barton 1993). On the Forest of Dean side of the Wye a 'long environmental sequence' has been identified at Coldwell Cave 4, an otherwise archaeologically sterile cave just east of Symonds Yat (Barton 1995, 158), whilst late Upper Palaeolithic flints and 'exceptionally well preserved' faunal remains (including fish and bird bones) have been recorded in cave sediments at Symonds Yat East rock shelter south of Symonds Yat (Barton 1994, 66-68).

Other faunal remains reported from caves in other parts of the Forest of Dean, include bones of auroch (*Bos primigenius*) and giant beaver (*Castoroides leiseyorum*) from Slaughter Stream Cave, English Bicknor and the tooth of a cave bear (*Ursus spelaeus*) from Pen Moel, Tidenham Chase. These may also date to the Palaeolithic period, but this is uncertain, although they do point to the potential for significant environmental remains to be found within cave deposits outside of the Wye Gorge.

The transition from the Late Upper Palaeolithic (which began c. 12,000BC) to the Mesolithic (which began c. 10,000BC) occurred during a period of improving climatic conditions from the end of the last glaciation, although this was not a continuous process and an initial warm period (the Windermere interstadial) was followed by another cold period (the Loch Lomond stadial) between about 9,000-8,000BC. This was followed by further warming, which insect remains in the Upper Thames gravels in Oxfordshire suggest may have been very rapid, as around 9500BC arctic conditions could have transformed into summer temperatures similar to those experienced today within as little as 50 years (Hosfield *et al* 2008, 30), during which the landscape of much of southern Britain, and presumably also of the Forest of Dean, was transformed from arctic tundra to woodland dominated by birch or pine (Rackham 1995, 68).

Evidence for the environmental changes leading into the Mesolithic comes largely from outside the Forest of Dean (Hosfield *et al* 28-30), although some evidence for environmental changes throughout the Mesolithic have been recovered from peat deposits in the Severn Estuary. For much of the Mesolithic period the Severn Estuary would have been a broad, low-lying wooded landscape (Allen 2001a, 26, Fig 4) until sea levels reached more or less their current levels at the end of the Mesolithic in about 4,900BC (Brunning 2009, 50). Peat and sediment deposits have been identified on the northern shore of the Severn Estuary in the Forest of Dean (Turner *et al* 2001, Fig 1; Bell 2007, Fig 1.1), and work in the Woolaston area has demonstrated that rising sea levels from about 6000BC began to flood parts of this wooded plain, gradually converting it from oak, elm and lime woodland to a waterlogged landscape of bogs and alder trees before becoming reed swamp and then salt marsh by about 4000BC (Brown *et al* 2006, 77).

Woodland clearance in parts of southwest Britain is now considered to have begun during the Mesolithic period (Wilkinson and Straker 2008, 72). Datable spreads of charcoal from a number of areas outside the Forest of Dean have been interpreted as evidence for deliberate clearing of woodland, or other vegetation. This would have been burnt to create or maintain clearings which attracted browsing animals to areas of regenerative undergrowth, making them easier to hunt (Darvill 2011, 58; Bell 2007, 322-325). There is, however, no known direct evidence for Mesolithic woodland clearance in the Forest of Dean, although

charcoal at Woolaston, with a radiocarbon date from about 4700 to 4220-3890 Cal BC, has been interpreted as the result of seasonal burning of reed swamp to increase vegetation productivity and encourage browsing (Brown 2007, 262), suggesting that further evidence of similar activities may be discovered in other parts of the Forest in the future.

To the southwest of the Forest of Dean, at Goldcliff in Monmouthshire, there is also significant evidence for Mesolithic exploitation of coastal wetland sites in what are now coastal sediment and peat deposits in the inter-tidal zone of the Severn Estuary (Bell 2007, 221). There is currently limited evidence for Mesolithic exploitation of this emerging coastal environment, and finds are limited to a number of undated and Upper Palaeolithic flints (see above) which could be interpreted as early Mesolithic (see Walters 1992a, 11 cited in Brown 2007, 259). There is, however, considerable potential for further discoveries in these areas.

Further evidence for Neolithic woodland clearance and also cultivation has been found in the southwest of England outside of the Forest of Dean (Wilkinson and Straker 2008, 73) and Hazleton Long Barrow in the Gloucestershire Cotswolds to the east of the Forest, which may have been constructed around 3800-3500 cal BC (Saville 1990, 265), occupied an area where woodland had previously been cleared for cultivation (Saville 1990, 240). Neolithic woodland and peat layers have been recorded at the mouth of Grange Pill on the banks of the Severn at Woolaston, where radiocarbon dates from two samples of oak (taken from large tree stumps) produced dates of 4096 to 3869 BC (Hillam *et al* 1990, 215), although no evidence for woodland clearance or cultivation during this period has been found in the Forest.

3.4.4 Summary of the early prehistoric period

Palaeolithic artefacts from the Forest of Dean are few in number and give us little detail about how humans were living or exploiting the landscape during this period. The natural caves and rock shelters of the Wye Gorge around Symonds Yat were occupied during this period although other sites in what are now the lower Wye and Severn Valleys and the relatively low lying parts of the Leadon valley were also exploited, although precisely in what way or for how long is not clear.

The limited number of finds need not necessarily reflect the actual distribution of Palaeolithic activity as no finds have been recovered from areas currently under woodland. The majority of Palaeolithic finds from other parts of Gloucestershire have been recovered from sand or gravel quarries, and although the Forest of Dean does contain these deposits, particularly along the northern shore of the Severn Estuary (BGS 2014; Mullin 2008, fig 2), these have not been extensively exploited, limiting the opportunity to recover Palaeolithic material from them (David Mullin pers. comm.). A small number of Palaeolithic finds have been recovered from the area of gravel terraces along what is now the northern shore of the River Severn and on the slopes at the edge of the Leadon Valley and these Quaternary deposits must have a high potential for further investigation into the Palaeolithic.

The Mesolithic within the Forest of Dean is known entirely from chance finds or artefacts assemblages and no *in situ* archaeological features or deposits are known, whilst few of the flint assemblages have been analysed by competent specialists and their meaning and significance remain unclear. Before the 1980s there was no evidence for the Mesolithic in the Forest of Dean, although the area currently has a higher density of known Mesolithic activity than any other part of Gloucestershire other than the Windrush Valley in the Cotswolds (Mullin 2008, 29; Table 34). This transformation is undoubtedly a reflection of the intensity of the fieldwalking programme since the 1980s, and it would be premature to assume that the area was particularly densely occupied during this period. The distribution of known sites is also heavily biased in favour of areas of arable cultivation where suitable artefacts can be recovered, and further evidence for Mesolithic activity may await discovery in areas, such as pasture or woodland, where fieldwalking is not possible or in other areas of arable where this has not been undertaken.

The Neolithic period in the Forest of Dean is also recognised almost exclusively from chance finds or surface scatters of finds, many of which (for example flint implements, or stone axes) are the types of implement which could have been lost on short-term hunting or foraging trips and are not clearly indicative of *in situ* settlement. A number of the larger assemblages have been interpreted as temporary campsites, although none have been subject to sufficient levels of specialist analysis for their significance or meaning to be interpreted with any confidence. The evidence has also been recovered on a piecemeal and *ad hoc* basis and the lack of specialist analysis favours the identification of clearly diagnostic pieces rather than an examination of the overall significance of a whole assemblage. The known distribution of sites is also skewed in favour of areas under arable cultivation with no comparable investigation of the large areas of woodland particularly in the southern part of the district.

Although Neolithic material is found throughout the Forest of Dean and Neolithic people appear to have been exploiting a range of terrains and land conditions possibly for a variety of purposes, field monuments, which may suggest nearby settlement, are unknown, perhaps suggesting that the area was not extensively settled in any long-term way during this period,

Assemblages of Mesolithic and Neolithic flints have frequently been found together, and often in conjunction with Bronze Age material or flint which could not be dated with any certainty (and, less frequently, with Romano-British artefacts). This may suggest that some sites were used over a considerable period of time, either as long-term settlement or for periodic visits, perhaps for relatively short periods. The evidence could, however, be skewed by artefact recovery methods which favour particular locations (i.e. cultivated fields) and too little is currently known about either the dated assemblages or the details of their spatial relationship with finds from other periods to allow for any conclusions about continuity of settlement or other activities to be drawn from this.

A possible association between Neolithic activity and Bronze Age ritual sites may be more compelling evidence for continuity, although further research would be required to assess the validity of this.

By the Neolithic the Forest of Dean clearly operated within a wide network of trade and communication links which are likely to have had their origins in earlier periods. These are likely to have involved river transport based on the rivers Severn and Wye, although details of how goods were transported or traded during these periods are not clear.

4. The later prehistoric periods: Bronze Age to Iron Age (2,500 BC – AD43)

4.1 Late prehistoric settlement and landuse

4.1.1 Bronze Age settlement

Excavated evidence for the Bronze Age in the Forest of Dean is limited and tends to be represented by small numbers of finds in later contexts which have been interpreted as residual from earlier occupation.

These comprise Bronze Age or late Neolithic/early Bronze Age pottery and a number of Bronze Age flints incorporated into the fabric of the Soldiers Tump round barrow on Tidenham Chase (H. N. Savoury in Scott-Garrett 1955, 30-31), five sherds of grog tempered pottery from the Roman site at Rodmore Farm, St Briavels, excavated in 1994, which may date to the early/middle Bronze Age but could be later (Woodward 1995, 19), a sherd of possible (but actually undated) 'pre-Iron Age' pottery from an archaeological evaluation just west of Drybrook Quarry (Chambers 1989, 6) and an early Bronze Age flint scraper recovered during rescue excavations at High Nash, Coleford (Rawes 1987, 245). Three small fragments of a handmade vessel found during the excavation of a water mains trench in Lydney in 1936 were similar in character to a Bronze Age funerary urn although their actual date is uncertain (Harris 1938, 347),

A group of small circular pits excavated to the east of Lydney contained Bronze Age pottery and may have been *in situ* structural remains, but it is not clear whether these would have supported a domestic structure or not (Barber 2009, 14, fig 7).

Earthworks to the south of Welshbury Hillfort, Blaisdon, where platforms and terraces of prehistoric fields survive (see below) have been interpreted as a possible Bronze Age settlement (McOmish and Smith 1996, 57), but this site has not been excavated and this interpretation remains speculative.

As with earlier periods (see above), the bulk of the evidence for Bronze Age occupation in the Forest of Dean takes the form of flint finds, either individual chance finds or larger assemblages recovered by fieldwalking. These have been found across the whole of the area, closely mirroring distribution of Neolithic artefacts, suggesting that Bronze Age activity was widespread. The majority are from areas of relatively well-drained soils over a limestone bedrock and outside areas of modern woodland (Hoyle 2008a, 98-100), although as all the larger assemblages have been identified though fieldwalking, this may have skewed their distribution in favour of areas currently under cultivation.

The Bearse Common between St Briavels and Bream, particularly the area between Closeturf Farm, Bearse Farm, Longley and Trow Green Farms, Hathaway Barn, Noxon Farm and Nedge Cop Wood, northeast of Bearse Farm, has produced over 2000 flints dating from the Mesolithic to the Bronze Age (James and Walters 1988, 39-44; Walters 1987b, 50; PAS database) including many broken or burnt flints (Walters 1988, 37). A number of these may represent evidence for short-stay campsites spread over a large area, but none of the assemblages has been subjected to specialist analysis and it is difficult to be more specific about what occurred at particular sites. The presence of Neolithic and Mesolithic flints amongst the assemblages may suggest that these areas were occupied, either periodically or continuously, over a considerable period of time.

Smaller assemblages of flint, including Bronze Age pieces, have been recovered from Tidenham Chase (Lee 1993, 22-25, Price 1989, 69), particularly the area to the southwest of Madgetts Farm where late Neolithic/early Bronze Age flint was recorded with some Mesolithic finds. Bronze Age flint has been found with Mesolithic and Neolithic assemblages at Bouldson to the south of Newent (Wills and Hoyle 2007, 362), whilst a scatter of flint from Ford House Lane, Newent also contained 11 Bronze Age scrapers (Fowler 1972, 19). Small assemblages of Mesolithic to Bronze Age flint have also been recorded at Perch Holly, Ruardean (Walters 1985, 24), Flaxley Woods (Hart 1967, 5, 10-11), Shot Hill, Ruardean (Hart 1967, 50), Naas Point, Lydney (Gentles 2009) and from fields to the south of Pool Court House, Hewelsfield and Brockweir (PAS database). A largely undated assemblage of 22 flints from Glebeland, English Bicknor included a Bronze Age barbed and tanged arrowhead (PastScape record 762743), whilst a small collection of Bronze Age implements has also been recovered from Barrel Lane, Longhope (Hart 1967, 9).

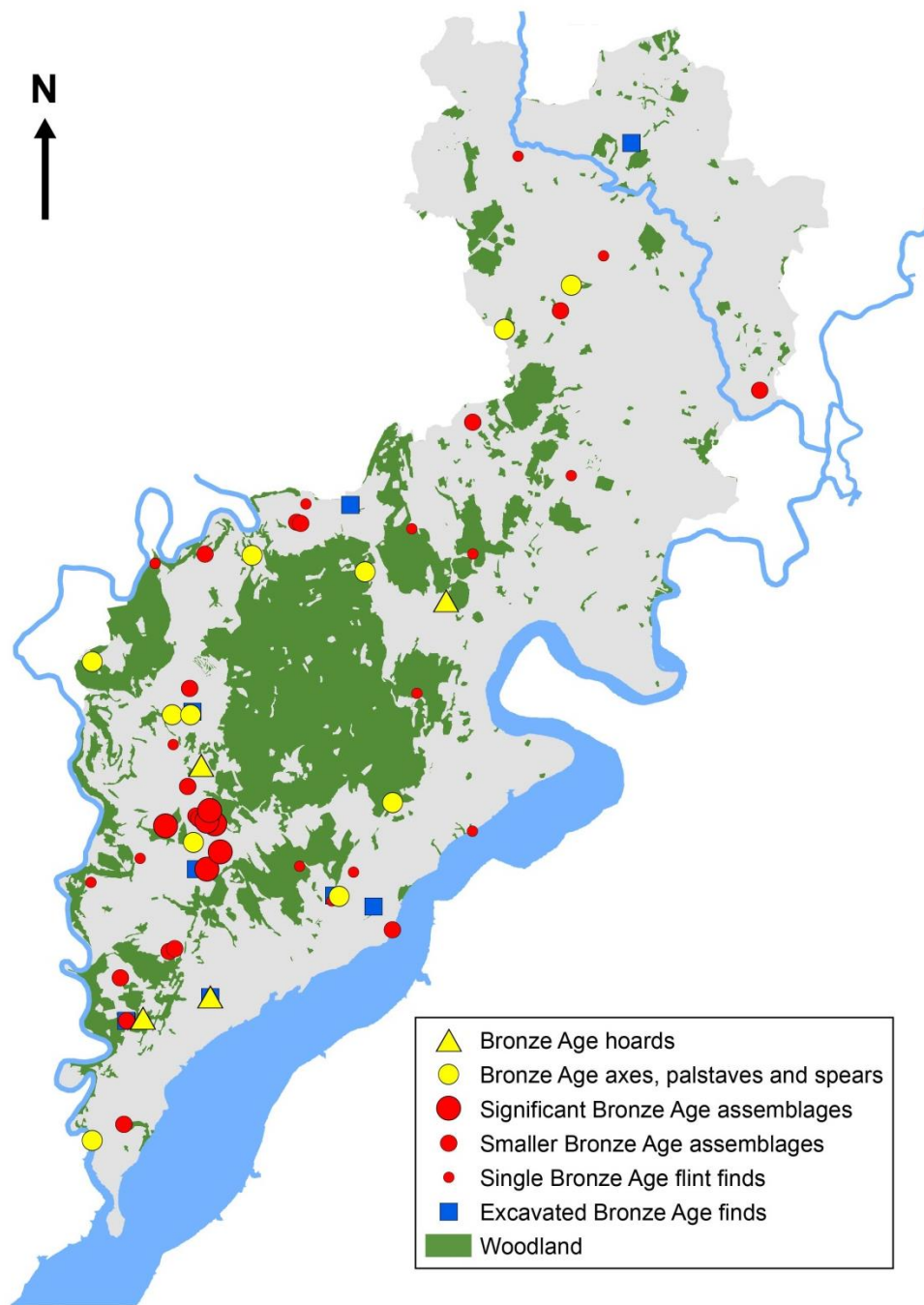
In addition, individual finds, or small groups of less than 10 diagnostically Bronze Age arrowheads or other flint implements have been recorded from St Briavels, Blaisdon, Tidenham, Hartpury, Lydney, Mitcheldean,

Huntley, Dymock, Soudley, Awre, Ruardean, Staunton near Coleford, Newent, Huntley and Symonds Yat Hillfort.

Sixteen Bronze Age axe and palstave heads from all periods of the Bronze Age have been found scattered throughout the Forest of Dean including five late Bronze Age looped and socketed axe heads from a relatively small area on Sling Common near Coleford, which may have been a founder's hoard.

Other hoards include an early Bronze Age axe head and a middle Bronze Age spear head, both found in Kilcot Wood southwest of Newent in 1854 (Hart 1961, 11-12) and eight middle Bronze Age gold bracelets discovered by metal detectorists in Woolaston, subsequently found to be associated with early to late Bronze Age pottery and a possible Bronze Age copper alloy awl (Davis and Sharples 2014, 16; Hoyle 2013b, 5; Raymond 2013, 14; Wilkin 2014, 7-8). Another possible hoard was reported from the garden of a house on Tidenham Chase (Hart 1967, 58) although no details of what was actually found at this site are known.

Other isolated finds of Bronze Age metalwork include a spear tip from a garden at Boughspring (Walters 1991a, 39), a possible miniature early Bronze Age votive axe head from near Littledean (PAS database: MGWPA.2002.46.1) and a gold bead found by a metal detectorist near Newent (PAS database: GLO-46CA05).



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0 5 10 km

Figure 8: Bronze Age finds

4.1.2 Iron Age settlement

4.1.2.1 Hillforts

Hillforts are one of Britain's best-known and recognisable field monuments and represent the most tangible evidence for Iron Age settlement. Of the 40 hillforts or promontory forts currently listed on the Gloucestershire Historic Environment Record, however, only five are in Forest of Dean District and one of these (May Hill) is not considered to be a hillfort, and may not even represent a prehistoric earthwork (see below). The remaining four (Camp Hill, Lydney, Symonds Yat, Lancut and Welshbury Hill) should not be considered isolated features as other hillforts lie just outside the district boundary in Monmouthshire and Herefordshire.

All of the Forest's hillforts have been investigated to some degree.

Camp Hill Lydney

Camp Hill Lydney was partly excavated by the Wheelers between 1928 and 1929 (Wheeler and Wheeler 1932), although their work primarily targeted the Roman temple on the southern part of the site and investigation of the hillfort was limited to two sections through the ramparts, cleaning the area around a possible entrance on its eastern side and trenching of the interior in the hope of finding 'traces of the hutments of the prehistoric inhabitants' (Wheeler and Wheeler 1932, 11). Finds established that the site had been occupied in the Iron Age, but apart from some 'prehistoric' post holes and paving below the Roman temple (Wheeler and Wheeler 1932, 2-26; Fig 2) no evidence of domestic structures was found. The Wheelers' suggestion that Lydney was a univallate hillfort during the Iron Age (Wheeler and Wheeler 1932, 6) has been questioned (Casey and Hoffmann 1999, 113) and the 2006 lidar survey supports a view that the Iron Age fort had at least two concentric ramparts (Hoyle forthcoming).

Welshbury

A detailed topographical survey was undertaken at Welshbury in 1995 (McOmish and Smith 1996). It identified a clear sequence of rampart construction (although the time lapse between construction phases is unknown) and also demonstrated an earlier phase of conjoined terraces interpreted as a late Bronze Age field system (McOmish and Smith 1996, 57). A geophysical survey of the interior, undertaken in 2005 as part of the Forest of Dean Archaeological Survey (Hoyle 2008b, 92-93) showed that the interior had been subdivided into platforms or terraces defined by linear banks or ditches, and identified some evidence for burning consistent with both domestic hearths and industrial processes such as smithing or smelting. In 2015 two small excavations (by Dean Archaeological Group and Monmouth Archaeological Society) were undertaken in the ditches associated with the entrance earthworks and the ditch of the middle rampart. The main aim of the excavations was to extract pollen samples and OSL dates as part of a PhD research project to assess the origins of sweet chestnut (*Castanea sativa*) in Britain. Full analysis and publication had not been completed in March 2017, but preliminary results indicated that earthworks leading southwards from the entrance appeared to enhance natural geological ridges, and also that the lower fills of the ditch of the middle rampart produced nine sherds of Roman Oxford colour coated ware which, although not closely dated, were probably 3rd-4th century AD in date (Webster 2015; Jarman 2015).

Symonds Yat and Lancaut promontory forts

The Hillfort at Symonds Yat and Lancaut can be categorised as promontory forts and comprise a concentric arc of ramparts which cut off roughly triangular areas of level high ground the remaining two sides of which are defined by steep slopes with no surviving evidence of additional fortification.

A series of small-scale excavations and observations at Symonds Yat have identified late Iron Age to early Roman activity on the site (Parry 1994; Walters 1992) but have not confirmed the date of the earthworks themselves or shed any real light on how the hillfort may have been used or when it was first constructed. Geophysical survey of the interior of Lancaut identified a number of 'shallow cut features' which may have been boundaries and curved gullies contemporary with the hillfort (Barker *et al* 2000, 8, Fig 10), but these have not been investigated further.

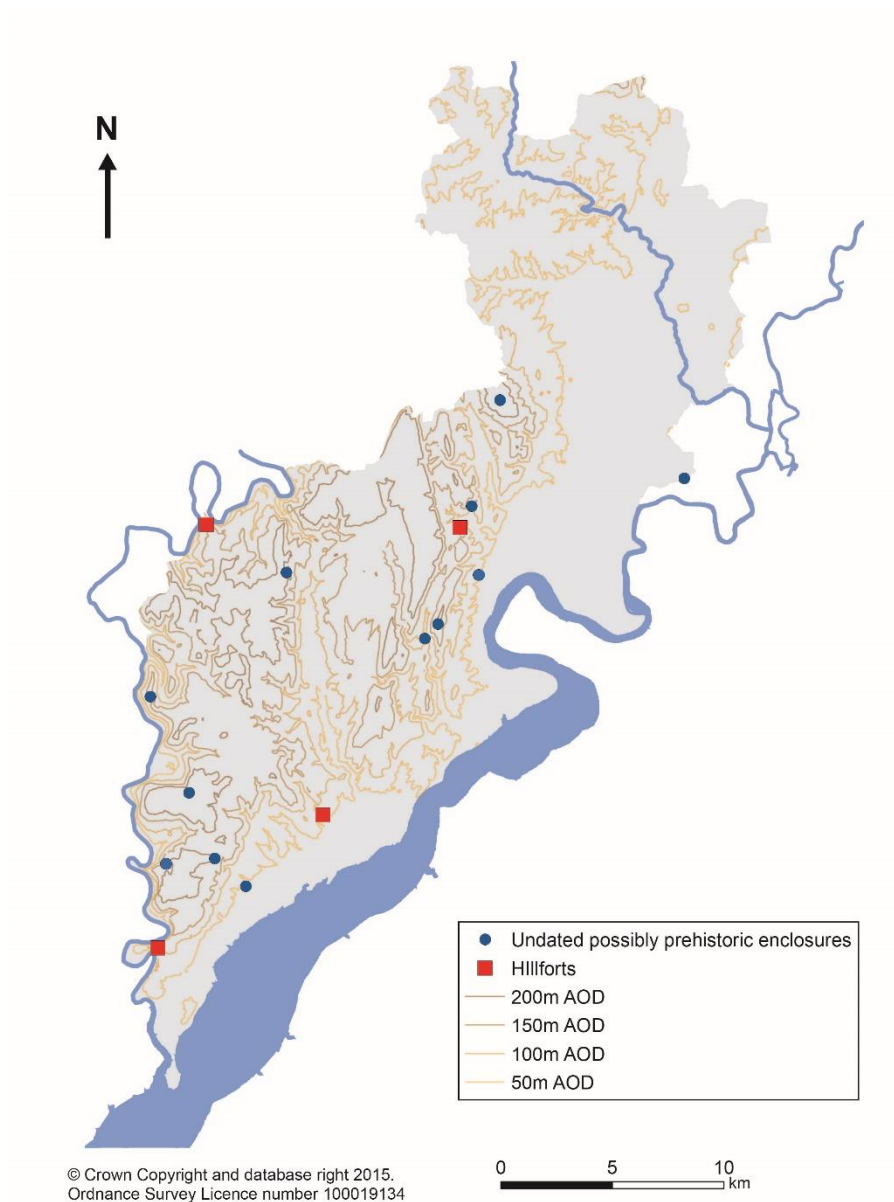


Figure 9: Hillforts and undated enclosures which may be prehistoric

Discussion of hillforts

Very little is known about the precise status, date or longevity of the hillforts in the Forest of Dean or whether they fulfilled similar functions, or were even contemporary features. All the known hillforts in the Forest of Dean have more than one rampart suggesting a middle Iron Age date although it is possible that some (particularly Welshbury and Symonds Yat) were originally built in the earlier Iron Age and subsequently updated with additional ramparts (Hoyle 2014a, 9; 2014b, 7).

All are in prominent positions overlooking the Severn or Wye with one or more sides protected by either steep slopes or sheer cliffs and this combination of defensive advantage and visual prominence must have been a factor in their siting. All also have easy access to areas which are currently farmed, and although evidence for contemporary fields is only found at Welshbury, the 2006 lidar shows undated boundary systems close to all the remaining sites and both Symonds Yat and Lancaut control access to areas of farmland within meander loops of the River Wye, both of which contain relic boundaries (visible on lidar) which seem to predate modern field patterns.

Symonds Yat, Welshbury and Lydney are also close to the iron-ore outcrops (Scowles) in the Carboniferous Limestones around the edge of the central Forest and it is tempting to suggest that this resource was also controlled from these hillforts.

4.1.2.2 Non-hillfort settlement

The four hillforts in the Forest of Dean could not have accounted for the entire Iron Age population. Numerous smaller Iron Age settlements, such as small farmsteads (either enclosed by earthworks or undefended) are known in the eastern part of Gloucestershire, but none have yet been identified for certain in the Forest, where direct evidence for Iron Age settlement is limited. Hearths and post holes have been found with Iron Age pottery at Coldwell Cave close to Symonds Yat (Barton 1995). Undated post holes excavated at Sedbury, Tidenham, which pre-dated Roman features have been tentatively interpreted as evidence of an Iron Age structure (Carew 2003, 84-85), whilst an undated palisade trench and post-pit from Hartpury are also thought likely to be late prehistoric domestic features (Bashford 2000, 6-7).

A number of other sites where evidence for late Iron Age/early Roman activity has been found (see below) may also have had their origins in earlier periods of the Iron Age

Undated enclosures

Destroyed enclosures

Small Iron Age enclosures are common to the west of the River Wye (Stoertz 2004, 27-29) and numerous sub-circular or sub-rectangular earthworks have been interpreted as small settlements or farmsteads in the west or north of Britain (see for example Walesland Wrath, Pembrokeshire (Wainright 1971) West Plean, Stirling, High Knowles, Northumberland (Cunliffe 1978, Fig 12.24) and Penycoed, Carmarthenshire (Murphy 1983), and as cropmarks throughout central and southern England (Cunliffe 1978, Fig 11.13, fig 11.6). A number of small earthwork enclosures are consistent with small Iron Age settlement sites, although none have been excavated or produced any finds which indicate their date or function.

Two sites recorded in Coombesbury Wood, Tidenham (Hart 1967, 14, fig 1) have been destroyed by quarrying and a third site in Mitcheldean, identified as a cropmark by the National Mapping Programme, is now under housing. Earthworks at Ashbury and Yewberry, Tidenham, and Oldbury and Dinnegar Camps in Stroat (Hart 1967, 14) cannot now be located with any certainty, although the 2006 lidar survey recorded a short stretch of curved bank just north of Ashberry House (Hoyle 2008c, 48) and a number of broad earthworks on the assumed site of Oldbury Camp, some of which correspond with banks recorded by Ormerod in 1841 (Hart 1967, fig 5).

Surviving earthworks

A possible prehistoric enclosure has been identified to the west of Madgetts Farm on the northern side of Tidenham Chase, where Offa's Dyke acts as the western edge of the possible early medieval settlement of Modiete or Modesgate (see below) and follows a very regular arc as if following the line of some pre-existing feature. Earlier suggestions of a pre-Offan earthwork incorporated into the line of the Dyke (Fosbroke 1831; 1832; Playne 1877) were subsequently discounted (Fox 1955, 203; Hoyle and Vallender 1997, 68), although lidar imagery supports this possibility (Hoyle 2008c, 47-48).

Small sub-circular enclosures (about 40-50m in diameter) defined by a ditch with a low bank on either side are known in Sallowvallets Inclosure to the south of Lydbrook (Walters 1987a, 78), and Flaxley Woods north of Littledean (Hoyle 2008b, 75). A larger sub-circular enclosure (c. 74m in diameter) in Dry Wood to the southeast of Soudley (Small and Stoertz 2006, 24) was visible as a bank and external ditch on a 1946 aerial photograph although it has been heavily disturbed by post-war forestry activity. A circular enclosure on the summit of May Hill, Longhope has been interpreted as prehistoric by some authorities (Scott Garret 1918-1958, entry for 12th May 1951, Small and Stoertz 2006, 25, Fig 5), but may have been constructed to protect early 19th century tree plantation from browsing animals (Hoyle 2004, 1).

Soudley Camp, Soudley, a large bank and ditch cutting off a small (0.32ha) triangular promontory at the eastern end of a natural spur, has been interpreted as a small Iron Age defended settlement, or possibly a very small hillfort (Saville 1984, 143, Fig 1), although it is not clear that this site is prehistoric and it has been suggested that it is the remains of an early Norman fortification (Hart 1967, 53). A roughly polygonal enclosure identified by lidar to the east of Whitewalls, in the northwestern part of Woolaston parish may also be a prehistoric enclosure, but this feature, parts of which have been severely compromised by later quarrying, remains undated.

Other features such as a large sub-circular field (divided into two fields since the 19th century (Gwatkin 1993a)) at Coldharbour immediately to the west of St Briavels, Longbrook Camp, Churcham, a large sub-

circular enclosure recognised by a combination of curved field boundaries and cropmarks (Spry and Wingham 1979, 30-31), a small sub-rectangular/sub-circular enclosure at Edge Farm, Woolaston (Hart 196, 21) and a 'rectangular entrenchment' in Highbury Wood, Newland (Maclean 1983) may be prehistoric settlement sites but none have been investigated.

Sub-rectangular enclosures defined by substantial banks and external ditches were a common form of settlement in the Severn-Cotswold area from the Iron Age to the Roman periods (Moore 2006a, 14; Moore 2006b, fig 5) and over 150 of these have been identified in Gloucestershire (Darvill 2011, 195).

Earthwork enclosures commensurate in shape and size to these have been identified by (lidar) in woodland in the southern part of the district at Ruardean Hill; Mile End, Coleford; Yorkley; Wigpool Common; High Wood Tidenham; Kidnalls Wood to the north of Lydney; Berry Hill near Drybrook and to the south of Blakeney (Hoyle 2008b, 26-34) whilst similar earthworks have also been identified at Morse Lane in Ruardean, and at Haywood Lodge, Cinderford.

The enclosure at Haywood Lodge, Cinderford was excavated in 1958, but the results are lost and a geophysical survey undertaken as part of Stage 2 of the Forest of Dean Archaeological Survey in 2005 proved inconclusive, apart from confirming the presence of an external ditch (Hoyle 2008b, 92-93).

The Yorkley enclosure has recently been shown to be medieval (Jackson *et al* 2016, 48-49) and excavation of the Ruardean Hill enclosure indicated that it had been constructed early in the Roman period. This site was provisionally interpreted as a small military fortlet constructed early in the Roman occupation of the Forest (Hoyle 2013a, 22-23; see below), but this interpretation was not conclusive.

The majority of these sites, however, have not been investigated and remain undated and some may prove to be small enclosed Iron Age settlements.

Cropmark evidence

Cropmark evidence for prehistoric occupation sites include a double- (or possibly triple-) ditched sub-circular cropmark near Russell's End Farm, Bromsberrow which has been interpreted as a 'substantial' Iron Age settlement (Bowden 2005, 25-27) and a bivallate sub-rectangular cropmark to the south of Lowbands Farm, Redmarley D'Abitot (Bowden 2005, fig 2.15). Crop marks of a large enclosure to the south of Morse's Grove, Newnham, also probably represent prehistoric settlement as, although these were thought to be natural in origin (Hoyle 2008a, 118), the cropmarks visible on more recent Google Earth images are clearly archaeological (Amanda Adams pers. comm.).

Right-angled cropmarks are also known to the south of Lowbands Farm, Redmarley D'Abitot, a small enclosure to the east of Mitcheldean and two almost square enclosures at Preston Cross, Dymock. These may represent small Iron Age settlements (see above) although these have not been investigated and other interpretations are possible.

Undated cropmark complexes north of Quabbs Cottage, Dymock may indicate late prehistoric enclosures and associated settlement features. These may be associated with a large sub-circular cropmark enclosure (c. 180m across), although this is only visible on some air photographs and was not recorded by the National Mapping Programme.

Other cropmark enclosures include D-shaped sites north of Mitcheldean and Sedbury Park Tidenham, and sub-rectangular cropmarks at Round Hill, Huntley, Newbarn Farm, Pauntley and Bromsberrow and a cropmark site southwest of Brooms Green, Dymock and sub-rectangular enclosures and pit groups at Huntsham, Herefordshire, just outside the Forest of Dean within the 'Forest' side of a meander in the River Wye (Small and Stoertz 2006, 27, fig 6). Other sites, such as a cropmark enclosure at Folly Farm, Coleford may be the remains of industrial activity or natural in origin (Hoyle 2008a, 118).

Other possible late prehistoric settlement sites

Other sites interpreted as possible prehistoric settlement are less clear.

Two small circular features in East Vaga Wood, interpreted as possible prehistoric circles (Scott-Garrett 1918-1958, entry for 24th May 1956), may be ritual rather than settlement features (see above; Hart 1967, 22; Walters 1992a, 32, Hoyle 2013a, 73), whilst sites at Wellhouse, south of Purton, Maidenham, south of Littledean and the possible 'Iron Age camp' on Naas Cliff, Lydney (Hart 1967, 14-15) are not clearly

associated with earthworks and seem to be based on place name or other inconclusive evidence. A site east of Purton is known only as a result of dowsing survey (Johns 1995, 43) and two sites at Sedbury (Borthwick 1996, 12-13) have been identified solely on the basis of modern field boundary shapes. (Hoyle 2008a, 118-119).

The Forest of Dean Archaeological Survey recorded 11 'bury' or 'berry' place names (mainly from 19th century or later maps) in the southern part of the district which are not linked to known earthworks and may indicate as yet undiscovered sites. Place name evidence is, however, open to a number of possible interpretations and none of these names are clearly associated with specific locations and could apply to fairly wide areas.

Another place name which is not clearly associated with prehistoric settlement is Berry Hill to the north of Coleford. There are no clear indications of a prehistoric fortification at this location and the name may be associated with a possible Roman fortification to the southeast of the modern settlement (see below). A large undated ditch has, however been excavated to the south of the modern settlement (Mason and Egging Dinwiddy 2014, 4), although it is not clear if this is evidence for a prehistoric rampart.

4.2 Late prehistoric landuse

From the early Bronze Age Britain gradually became generally warmer and drier leading to a longer growing season and improved harvests. Communities flourished and marginal upland areas began to be farmed in many parts of the country as more agricultural land was needed to feed a growing population (Darvill 2011, 177). There is increasing evidence that by the Iron Age much of the landscape, particularly of lowland Britain, was extensively farmed with fields and paddocks interspersed with occasional small farmsteads.

Environmental evidence for later prehistoric farming in the Forest of Dean is sparse although Scott Garret found carbonised white charlock (*Rhaphanus raphanistrum*, L.), which often grows amongst cereal crops, with the cremated bones in the subsidiary burial cist below Tidenham Chase round barrow, leading him to suggest that the cremation fire had been kindled with straw sometime following the harvest (Scott Garret 1955, 27-28).

Terraces to the south of Welshbury Hillfort have been interpreted as small (between 0.4-0.8ha) fields which pre-dated the hillfort's outer ramparts and may have been laid out sometime during the Bronze Age before the hillfort was constructed (McOmish and Smith 1996, 57).

Linear, coaxial and conjoined sub rectangular boundary systems, some of which appeared very similar to those at Welshbury, were identified by the 2006 lidar survey of the Forest of Dean. Where these were recognised outside of woodland it is difficult to be confident that they were not the remains of medieval or later field boundaries which predate those recorded on mid 19th century maps. A significant number are, however, within long-standing woodland and with a few exceptions could not readily be interpreted as the remains of known medieval encroachment into the Forest, medieval or later afforestation of former farmland, or evidence for any recognised woodland management regime (Hoyle 2008c, 55-61).

A conjoined sub rectangular system and a linear system in Sallowvallets Inclosure, south of Lydbrook, West Dean was excavated in 2011 (Hoyle 2013a, 27-43) and both shown to have been created by colluvium. Optically stimulated luminescence dating (OSL) combined with pottery dates, radiocarbon dates and Bayesian analysis suggested a right-angled system had been laid out sometime between 940BC (in the later Bronze Age) and 260BC (during the middle part of the Iron Age) and most probably sometime around 500BC during the middle Iron Age. These had fallen out of use either before or during the early Roman period. The system made up of long parallel linear terraces had been laid out no earlier than the latter part of the first millennium BC (Toms *et al* 2012, 12) and appears to have been in use (probably cultivated) well into the Roman (Hoyle 2013a, 43).

Sallowvallets is only one of the areas where lidar has identified boundary systems in woodland in the Forest of Dean. Further boundaries have been recognised in Welshbury Wood (extending those recognised south of the hillfort) and also in nearby Flaxley and Chestnuts Wood. These could all be part of a contemporary landscape in which artificial boundaries were constructed within, and may have enhanced, an area of natural geological ridges (Hoyle 2008b, 73; Jarman 2015). Other examples are known at Edgehills north of Cinderford, Worrall Hill, Brierley Hill and Great Berry Hill to the south and southeast of Lydbrook, Oakhill and Clayton Woods on the northern side of Tidenham Chase and also to both the north and south of Soudley (Hoyle 2011, 34-61). Just over half (by area) of the lidar-detected boundary systems were found outside of woodland, although examples to the northwest and southwest of Flaxley Woods appear to be a continuation of systems within woodland (Hoyle 2008c, 49).

Outside of woodland many of the identified boundary systems appear to be associated with known medieval or post-medieval features or settlements, or were a continuation of cropmark systems identified by the National Mapping Programme and interpreted as medieval (Hoyle 2008c, 49). These systems, although undated, are discussed under the medieval landscape (see below), but the possibility that some represent the remains of earlier fields cannot be discounted.

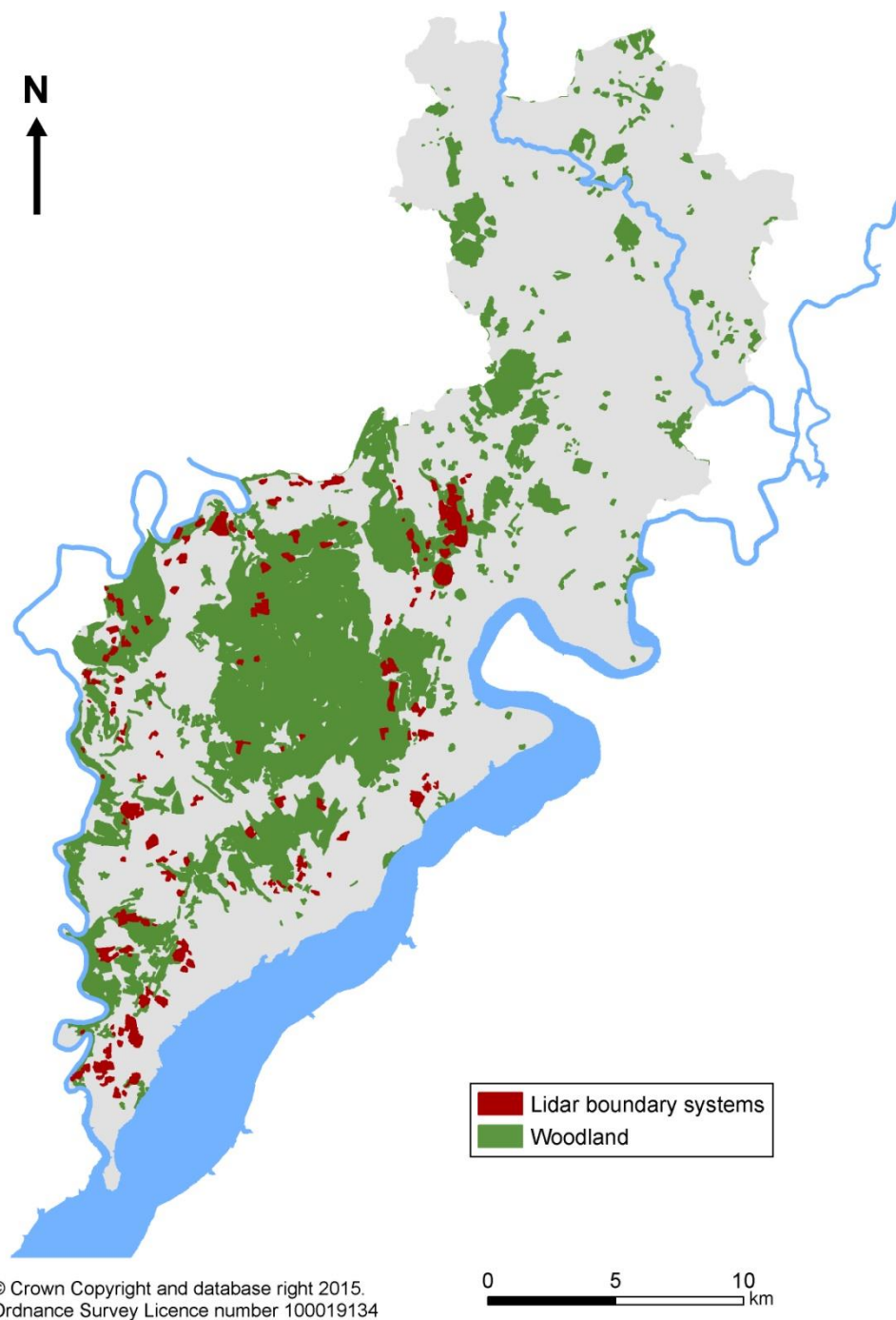


Figure 10: Boundary systems identified by lidar

4.3 Late prehistoric ritual and religion

4.3.1 Bronze Age ritual and religion

4.3.1.1 Mortuary practices

Barrows

The principal features which characterise Bronze Age ritual and religion in Gloucestershire are the numerous burial sites indicated by round barrows or ring ditches, the majority of which are found in the Cotswolds and Thames Valley to the east of the Severn (Drinkwater and Saville 1984, Fig 1). Evidence from the Forest of Dean is much thinner with only one recorded in Cyril Hart's *Archaeology in Dean* (Hart 1967, Map II), whilst as recently as 1987 a summary of the general distribution of round barrows and ring ditches in Gloucestershire showed only three, all in Tidenham parish in the southern part of the area (Darvill 1987, 95).

The best known of these is the Soldiers Tump Round Barrow, on the southern edge of Tidenham Chase, which was excavated by Scott-Garrett between 1951 and 1952 (Scott-Garrett 1955) demonstrating that the cairn, constructed of both limestone and sandstone, both readily available in the area, overlay a small roughly circular pit. This contained the cremated remains of an adult female and a very young child along with the blade of a short bronze dagger, a bronze pin, a flat shale pendant and three fossil beads found with the cremation (Scott-Garrett 1955, Fig 3, Plate IV); artefacts which suggested cultural associations with the 'Wessex Culture' to the east of the Severn (Darvill 2011, 141-142). A second cremation in a pit towards the edge of the cairn contained no grave goods.

Another low stone cairn just under 1km to the west of Soldiers Tump is accepted as a Bronze Age barrow (and is a Scheduled Monument) although there is no record that it has been excavated. A crouched inhumation burial of a young man within a stone-lined cist was recorded at Beachley in 1965, although there were no grave goods or evidence that it had originally been sealed by a mound (Barnett and Savory 1961-1964).

Possible barrows

More recent research would suggest that this considerably underestimates the number of barrows which are likely to be present in the Forest of Dean, particularly in the Tidenham Chase area in the southern part of the district.

The antiquarian Ormerod suggested a mound in Sedbury Park, Tidenham was a prehistoric round barrow (perhaps later used as a Roman beacon) and also recorded 'traces of an ancient mound' about 500m to the south (Ormerod 1861, 47, map opp. p 8) and slabs of conglomerate Sandstone, the nearest source of which is about 2km to the north or west lying on the surface, have been recorded there (Scott-Garrett and Harris 1932).

A 'small grassy tump' at Whitewalls Farm, just over the border from Tidenham in Woolaston, may also be a round barrow. (Scott-Garrett 1918-1958, entry for 31st May 1953), as could a slightly oval pile of moss-covered rubble to the west of Offa's Dyke in Caswell Woods southwest of Madgetts Farm (Rhodes 1965). A spread of stones in a ploughed field north of Sycamore Cottage, Hewelsfield is also thought to be a ploughed-out barrow (Hart 1967, 9; Scott-Garrett 1918-1958, entry for 11th October 1951), an interpretation which may be supported by its proximity to the place name 'Tumpkinhales' recorded on the Hewelsfield tithe map of 1841 (Gwatkin 1993a) and to Barrowell Lane, the modern B4228 running northwards from St Briavels.

A number of other possible round barrows have been identified in the Tidenham area by the Forest of Dean Archaeological Survey. Two small mounds immediately to the southeast of the ring cairn in East Wood (see below) are consistent in size and shape with small round barrows (English Heritage 2011, 3) and at least one appeared to include both limestone and sandstone in its fabric (Hoyle 2013a, 69-70). A large irregular ovoid and flat-topped mound (about 11m x 14m) 130m to the northwest may also be a barrow, but this is less clear (Hoyle 2011a). The majority of the remainder were identified by the 2006 lidar survey (Hoyle 2009) and consist of a small discrete sub-circular mound in open farmland on Tidenham Chase where flint flakes have been recovered, a circular mound in an area of woodland just to the east of Offa's Dyke at Madgetts (possibly the mound where a Roman Altar was found in 1825 (Ormerod 1841, 14)), a roughly circular/oval mound in woodland at the northern edge of The Park, Tidenham, and a smaller rubble mound in Oakhill Wood, on the northern part of Tidenham Chase. These sites have been ground-truthed (Hoyle 2011b), but none have been further explored.

Outside of Tidenham parish numerous mounds which could be barrows have been recorded (the 2006 lidar survey recorded over 100 mounds (Hoyle 2008c, 92)), although few of these have even been investigated (or even ground-truthed) and their status is problematic. A number of these would, however, warrant further exploration including mounds in Cadora Woods to the south of Redbrook (Thomas 2000), Sallowvallets Woods, West Dean (Hoyle 2011b, 21), Welshbury Hillfort (McOmish and Smith 1996, 57) and Blakeney Hill (Johns 1991, 5 and Fig 2). Other undated mounds include two recorded in Awre Parish (one in a field recorded as 'Barrows' on the Awre tithe map of 1840 (Gwatkin 1995b)) which may originally have been identified by Dean Archaeological Group in a 1989 aerial survey (Walters 1992a, 33), four in Blakes Wood, Staunton near Coleford, close to the Long Stone (see below) (Hoyle 1992a). Two stone spreads 'near Eastbach Court', close to scatters of Neolithic and Bronze Age flint, may also be ploughed out round barrows (Walters 1992a, 33).

Three ring ditches consistent with barrow sites are known as cropmarks at Little Heath, Dymock. Two other ring ditches at Redhill Farm, which spans the border between Dymock and Redmarley D'Abitot, have recently been evaluated and confirmed as barrows with associated cremations (Barrett 2013, 12, 18), although another from the same field was shown to be geological whilst a fourth produced no archaeological evidence when excavated (Barrett 2013, 33-34). The cropmark of a double ring ditch and associated pits at Aubrey's Farm, Bromsberrow (only 0.5km to the west of Egg's Tump, Redmarley D'Abitot) could also be the site of a round barrow although other interpretations, such as the remains of a Second World War aircraft battery, have also been suggested (PastScape record 1327266). Outside of the Forest of Dean other possible barrows are known within 5km of these at Midsummer Hill, Eastnor, Herefordshire and at Castlemorton and Castlemorton Common, Worcestershire.

Two other cropmarks of small ring ditches at Mitcheldean have now been destroyed by housing development (Small and Stoertz 2006, 23), whilst another at Plump Hill, Mitcheldean is only visible on some aerial photographs and was not recorded as a possible barrow by the National Mapping Programme. A small number of other cropmarks or earthwork remains which could indicate ring ditches have been recorded in the Forest of Dean although these are less persuasive as evidence for Bronze Age burial mounds (Hoyle 2008a, 92).

In addition to the possible barrow sites which have not been confirmed a number of recorded sites should perhaps be discounted. Amongst these are one or more burial mounds reported to the east of Tump Farm, Sedbury (Borthwick 1996, 11, 20), where no barrow-like earthworks have ever been actually recorded, and also antiquarian references to 'indications of the former mounds in Oldbury Field' (Ormerod 1861, 41) which probably refers to the earthworks of Oldbury Camp (see below) which by 1861 had been much reduced since Ormerod first recorded them in 1840 (Ormerod 1841, 9; Hart 1967, Fig 5). Another possible barrow at Parson's Allotment on the eastern side of Tidenham Chase, proved, on excavation to be the site of an 18th century summerhouse (Scott-Garrett 1954, 237-241), although this mound was only considered to be a possible barrow as it had been erroneously identified by the Ordnance Survey as the site of a Roman Altar found in 1925 (see above and Ormerod 1841, 14).

The Forest of Dean Archaeological Survey identified almost 60 sites, scattered throughout the area, with names (Barrow, Berry or Tump) which could indicate the site of prehistoric burial (Hoyle 2008a, 131-135), and more doubtless exist in the northern part of Forest of Dean District where these names have not been systematically collected. Although place name evidence is rarely conclusive in itself, and should be used with considerable caution, it is noticeable that a significant proportion of possible barrow sites appear to be associated with names of this type.

Other Bronze Age mortuary sites

Apart from evidence for barrows and a cist (which may or may not have been covered by a barrow mound) there are also suggestions that other burial customs may have been practised during the period.

Human remains of at least one individual were found with late Neolithic/early Bronze Age flints and pottery at Hollybush pothole in Willscroft Wood, St Briavels (Walters 1995), and human remains associated with late Neolithic to Roman finds are known from King Arthurs's Cave, Madawg rock shelter and Merlin's Cave on the Herefordshire side of the Wye Valley near Symonds Yat (Symonds 1871; Phillips 1931; Barton 1993-95, 1997). This type of burial is poorly understood, but there are at least 170 sites where human remains (many dating from the Bronze Age to the Iron Age) have been found in caves, fissures, swallow holes or rock shelters in England (Chamberlaine and Williams 2001). This seems to have been a long-lived tradition wherever suitable sites were available, and more sites may come to light in the Forest of Dean in the future.

Records of bones found when the Long Stone, St Briavels was destroyed in 1875 (see above and Hart 1967, 8) may be evidence of associated burial, but this is not conclusive. Three fragments of a handmade vessel found during the excavation of the water main trench in Lydney in 1939 and tentatively identified as part of a Bronze Age cinerary urn (Harris 1938, 347) is also inconclusive evidence for Bronze Age burial.

4.3.1.2 Other evidence for Bronze Age ritual

Ritual enclosures

Other possible Bronze Age ritual sites are known in the Forest of Dean. A circular enclosure recently discovered by lidar in East Wood, Tidenham, consists of an apparently continuous low bank of unordered sandstone and limestone rubble defining a circular enclosure without a visible entrance and with a number of small standing stones protruding from it. This is consistent with a ring cairn of early or middle Bronze Age date (English Heritage 1989a, 4, Lynch 1979a, 2) and the relatively narrow bank with large central space is comparable with Welsh examples of this type of monument (Lynch 1979a, 9). Its diameter of c. 25m is large for a ring cairn, but not excessive (English Heritage 1989a, 4), and ring cairns of similar dimensions are known at Morlais Hill, Pebyll and Cwm Cadlan in Glamorgan and Gwent, South Wales (Evans and Lewis 2003, 15), and at Brenig, Denbighshire (Lynch 1979a, Fig 1). This feature was closely associated with mounds which may be barrows (see above) and approximately 100m to its west is a smaller sub-circular enclosure (also found by lidar) which is consistent with a small hengiform monument (Hoyle 2011c; cf Lynch 1979a, Figs 1 and 3). Two small circular features in East Vaga Wood, just over 2km to the south, have been interpreted as the remains of undated (but probably prehistoric) hut circles (Scott-Garrett 1918-1958, entry for 24th May 1956), but could also be the remains of 'truncated round barrows' (Hart 1967, 22; Walters 1992a, 32), or small hengiform monuments or ring cairns (Hoyle 2013a, 73).

Standing stones

The Forest of Dean also contains two standing stones. One of these, the Broad Stone, Stroath, is close to the River Severn in Tidenham parish and is at the western end of an 'irregular ferry' between Stroath and Sheperdine on the opposite bank (Ormerod 1841, 9), which may have been fordable at low tide and also marks the southern end of a possible prehistoric cross-peninsula trackway from the Severn to a ford over the River Wye at Brockweir. The other is the Long Stone, Staunton which stands immediately to the east of the A4316 and to the south of Staunton near Coleford,

Another standing stone, the Queen Stone, Goodrich, Herefordshire, whilst technically outside the Forest of Dean is just over the county boundary within the Gloucestershire side of a loop in the Wye to the north of Symonds Yat.

The area also contains three lost standing stones. The Oudoceus Stone, which was last recorded as a slab of limestone formerly 3m high sometime before 1925 (Crawford 1925, 201) was supposedly sited just above the high-water mark, immediately adjacent to the River Wye, on the Gloucestershire side of the Striguil Bridge, which may have carried the Roman Road across the Wye (see below). The Long Stone, St Briavels, which may also have been known as the Caradoc Stone (Wright 1980, 24), stood in a field called Long Stone on the 1842 St Briavels Tithe map (Gwatkin 1993a) and was deliberately blown up by the tenant farmer in 1875, (Playne 1976, 105-106). Bones were reported to have been found when the stone was destroyed but it is not now clear if these were associated with the stone or not (Hart 1967, 8). Another lost standing stone was on Clearwell Meend to the south of Coleford, where an 18th or 19th century monument, known as Gattles Cross, now stands. Although this monument is traditionally thought to have replaced the earlier standing stone, known as the Cradock Stone, the 1608 map of this part of the Forest of Dean records a two-peaked monolith, marked as Cradocks Stone, approximately 450m to the south (PRO 1608; Clissold 1982)).

There may also have been a standing stone on the southern side of Wigpool Common to the north of Drybrook where the Silverstone was recorded in 1282 marking the medieval boundary of Lea Bailey. The stone survived until the early 18th century (Hart with Clissold 2000, 25), although it is not clear if this was a prehistoric standing stone, or erected at a later date.

Standing stones may have been markers for small cemeteries (Darvill 2011, 153), or the focus of ritual activity for a small community, but may have also (perhaps simultaneously) fulfilled other roles such as territorial markers, meeting places or way markers (Overy 1989, 1).

Some of the Forest's standing stones (all of which are in the southwestern part of the area to the west of the Cannop Valley) are on higher ground (around 200m AOD) close to the junction between sandstones and

limestone geologies, and towards the top of gentle slopes overlooking the heads of small valleys. Others however are adjacent to navigable and tidal watercourses (the rivers Severn and Wye), and seem to relate to river crossings and their attendant communication links in some way.

The stones on higher ground may have been associated with communications, but are also close to areas where concentrations of Neolithic, Bronze Age or undated prehistoric artefacts suggest contemporary settlement, and at least one (the Long Stone, Staunton near Coleford) may also be associated with contemporary burial mounds (see above). The significance of their proximity to geological divisions is not clear, but these may have been visible boundaries, with different soil types or terrain, which demarcated separate landuses or other activities.

Other possible Bronze Age ritual activity

A miniature votive flat axe found at Littledean, and also the possible hoard of bronze axes from Sling Common (see above) may be evidence of Bronze Age conspicuous consumption (Parker Pearson 1993, 117), although this interpretation is not definitive. The eight Bronze Age gold bracelets found by metal detectorists in Woolaston (see above) are also probably part of a hoard, although whether this was a ritual deposition or not is currently unknown.

Numerous cup stones are also known from the area, although these tend to be either one (or sometimes two) large hollows (generally about 0.20m wide and 0.07m deep), or a larger number of smaller hollows (about 0.10m in diameter and 0.03m deep) sometimes apparently randomly positioned on their surface (Johns 1990, 19-22). Similar stones from Nottingham Hill and Cleeve Hill, Swell and Yanworth in the Gloucestershire Cotswolds may be Bronze Age rock art, perhaps associated with some ritual activity (Darvill 2006, 28), although in the Forest of Dean these stones may have a more functional (and not necessarily prehistoric) interpretation. Examples from Blakeney Hill was found with rounded stones, suggesting they were effectively mortars used in some crushing process (Walker in Rawes 1991, 221, Hoyle *et al* 2007a, 104-105), whilst others, such as the Drummer Boy Stone) contain deposits of smelted iron or ore and appear to have had been used as part of the iron smelting industry (Standing and Tylecote 1977).

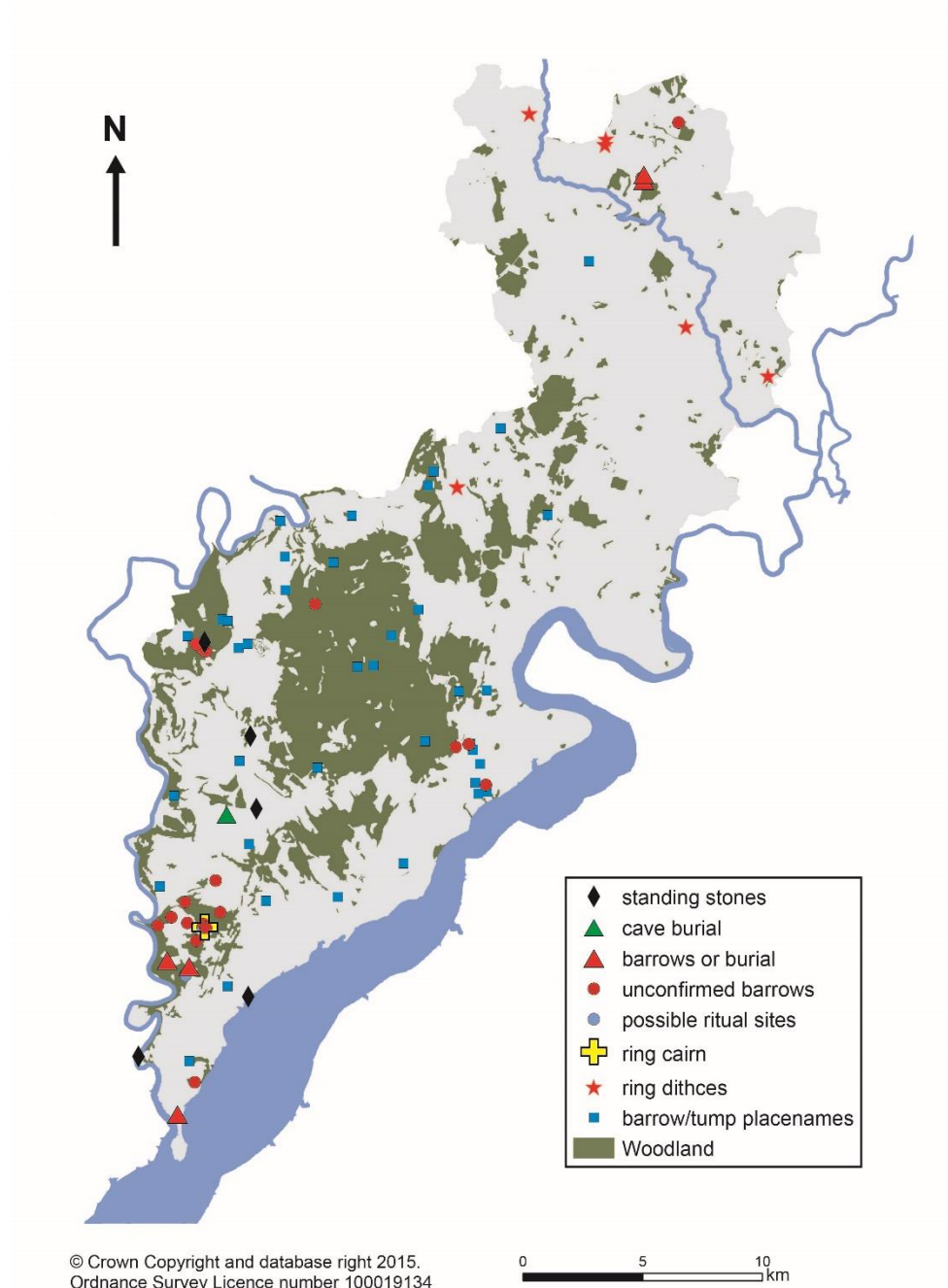


Figure 11: Bronze Age ritual sites

4.3.2 Iron Age ritual

Evidence for Iron Age ritual activity in the Forest of Dean is very limited and appears to all date to the later Iron Age. Sherds from a large coil-built Malvernian pot from Rose Cottage and Winserdine, Dymock found with calcined bone in the lower fill of an early Roman ditch may represent a late Iron Age cremation urn disturbed by early Roman activity on the site, and a truncated stone-lined box at the same site may have been the remains of a pre-Roman burial cist, although both of these could be evidence for early Roman activity (Tavener 2001, section 2.2). The burnt remains of a human juvenile found in a Late Iron Age pit at Kempley Green (see above) has also been interpreted as cremation pyre waste, deposited with either mundane domestic rubbish or waste from funerary rituals (Cruse 2013, 90). A fragment of human skull (with cut marks suggesting decapitation) was excavated from the late Iron Age/early Roman enclosure ditch at Reddings Lane, Staunton near Coleford, whilst a second skull fragment (from a separate individual) was recovered from a Roman pit on the same site (Ellis 2013, 9). The significance of these is not clear, although they may represent residual remains from burials which were incorporated into later features.

Perhaps the most enigmatic evidence is a group of weapons and equipment (an iron sword, which had been bent double, the remains of an iron shield boss, three bronze rings and fittings for a decorative sword belt)

from rescue excavation at High Nash, Coleford (Sindrey 1990, 25) which probably date to the late Iron Age (Webster 1989, 30-31; 1990, 294-5). These were found within an area which may subsequently have been used as a Roman ritual complex and, despite the absence of human remains (which may not have been preserved within the acidic clay on the site), have been interpreted as evidence for a late Iron Age warrior burial (Walters 1999, 42).

The late Roman temple at Lydney Park was dedicated to the God Nodens, a British deity probably associated with healing, but possibly originally with hunting (Wheeler and Wheeler 1932, 40-41). The dedication to a British, and therefore presumably pre-Roman deity may suggest a pre-Roman predecessor to the temple on the site, although despite finding 'abundant traces of prehistoric occupation' below the Temple the Wheeler's found no evidence for Late Iron Age ritual activity (Wheeler and Wheeler 1932, 25). Similarly, it has been suggested that the putative Roman temple at Littledean Hall (see below), was built on the site of a pre-Roman water shrine, although this interpretation was based largely on the shape of the earliest structure which had parallels with other possible late Iron Age ritual sites and may have reflected cultural affinity rather than actual dating (Jones and Maude 1987, 41).

An undated square ditched earthwork enclosure, northwest of Haywood Lodge, Cinderford, which measures c. 53 x 53m is consistent in form and size to a *Viereckschanze*, a late Iron Age ritual enclosure. Few of these have been identified with any certainty in Britain and those which have tend to be associated with larger contemporary settlements such as *oppida*, or multiple ditch systems (Edmonds 1989). This enclosure is not related to any known late Iron Age settlement and is consistent with other types of sub rectangular earthworks such as Roman military fortlets (Hoyle 2013a, 22-23) or medieval hunting lodges (Smith 1999, fig 4). However, although *Viereckschanzen* may be genuinely rare features, a number of these ritual sites may have been misinterpreted as other forms of rectangular enclosures, particularly Roman military structures (Cotton, 1961). Other rectangular earthworks in the Forest of Dean which have mainly been identified by lidar and interpreted as Roman or later (see below) may also be the remains of late prehistoric ritual sites, but, in the absence of association with contemporary settlement, this interpretation would seem unlikely.

4.4 Late Prehistoric trade and communication

4.4.1 Bronze Age trade and communications

The Forest of Dean contains none of the raw materials necessary for making Bronze, and although metalworking undoubtedly took place within Gloucestershire during the Bronze Age (Darvill 1987, 115; 2011, 168), there is no clear evidence for this from the Forest of Dean. During part of the Bronze Age one production model may have been local metalworkers producing everyday items such as tools, perhaps on a part-time basis, whilst more specialist items, such as weapons, were produced by highly skilled professional craftsmen in regional production centres (Darvill 1987, 117) and it is highly likely, therefore, that at least the lower level industry was practised in Dean.

Quern stones made from May Hill Sandstone or Upper Old Red Sandstone have been excavated from Iron Age contexts at a number of locations to the east of the River Severn (Roe 2013, 50) and also possibly from Lydney Park Hillfort (Wheeler and Wheeler 1932, 7). Outcrops of these geologies are found in the Forest of Dean (although not restricted to the modern political boundaries) and it is likely that the raw materials were extracted from the Forest during the Iron Age (and perhaps earlier) and also that the quern stones themselves were manufactured on site prior to export as was the usual practice in later periods (Herbert 1996b, 220). Surface evidence for small-scale quarries survives in a number of areas, including May Hill itself, where outcrops occur, although none are known to date to the later prehistoric period and no discarded rough-outs of late prehistoric querns have been recorded. Later exploitation of the same outcrops may have obscured evidence for workings of this period.

The Forest of Dean also contains no evidence for late prehistoric pottery manufacture, although assemblages from this period are few, and many that do exist (such as the assemblage from Camp Hill, Lydney (Wheeler and Wheeler 1932)) have not been subject to recent analysis. Pottery was manufactured in the Malvern region to the north of the Forest of Dean from at least 400BC (Bowden 2005, 27) and late Iron Age/early Roman period Malvernian native ware has been recorded from early Roman contexts at Ruardean Woodside (Timby 2012, 213) and Dymock (Timby 2007, 162). Although this trade is likely to have existed in earlier periods, some pottery may also have been manufactured locally during the later prehistoric period.

Perhaps the most significant industry in the Forest of Dean during the later prehistoric was the mining and processing of the iron-ore derived from the scowles in the Carboniferous Limestones of the southern part of the district and perhaps also from outcrops in other areas. The iron industry (and ancillary industries such as

charcoal production) is discussed more fully below, but although this industry is essentially linked with the Iron Age or later periods, it may have begun during the Bronze Age (or possibly earlier). Ochre, which is derived from iron oxide, has been used as a pigment from the earliest periods of prehistory (Bray and Trump 1982) and is a feature of the iron-ore deposits in the Carboniferous Limestones which would have been relatively accessible as either surface or near-surface deposits within scowles (Hoyle *et al* 2007a, 86). Limestone tools from the Drybrook area have tentatively been interpreted as evidence for pre-Iron Age ochre exploitation (Timberlake 2001), although this interpretation is not universally accepted (see below).

Other domestic-scale industries, such as flint knapping or weaving, were almost certainly undertaken in the Forest during the later prehistoric period, although no flint knapping waste has been definitely identified as late prehistoric, and no spindle whorls or loom weights from this period have been found.

The late prehistoric inhabitants of the Forest must have had trading links with communities in other areas from whom they sourced commodities which were not available in the area (apart from the occasional flint nodule in gravel deposits) and exported other items such as iron. As with the earlier periods (see above) it is not clear precisely how goods were transported and by what routes, although rivers such as the Wye or Severn are likely to have been significant transport links.

There may be a correlation between the Forest's standing stones and communication routes, although these are unlikely to have simply been way markers, and probably also fulfilled other ritual purposes (perhaps associated with deep-seated human anxieties around the dangers of travelling, particularly where this involved crossing alien environments such as water). The Oudeceous Stone was at the Gloucestershire end of the Striguil Bridge which carried the Roman Road across the Wye (see below) and could be on the line of an earlier route, whilst the Broad Stone, Stroait is at the western end of an irregular ferry between Stroait and Sheperdine on the opposite bank (Ormerod 1841, 9), which is reputed to have been fordable at low tide, and also marks the southern end of the 'Stonerow', thought to have been a prehistoric cross peninsula trackway linking the Severn and Wye across the high ground of Tidenham Chase. Both these stones are close to river crossings, but those on the higher ground may also have been associated with communications links as all are less than a kilometre from the line of the B4228. This modern road follows relatively level high ground and is the natural north/south route through the western part of the southern Forest of Dean to the west of the Cannop Valley (Hoyle 2008a, 96). None of these communications were necessarily contemporary with the standing stones, although the association between standing stones and later communications which follow logical routes through the landscape is striking.

4.5 The Late Iron Age to Roman transition: About 100BC to AD100

The distribution of Iron Age coins has been used to argue that the Forest of Dean was within the western part of the territory of the Dobunni during the later Iron Age (Allen 1944, Map1), although whether the Dobunni were a distinct tribal group with boundaries which can be reconstructed through the distribution of artefacts is questionable (Moore and Reece 2001, 25).

In the Cotswolds (and much of southeast Britain) hillforts appear to have been abandoned as political focus shifted to large defended lowland sites such as Salmonsbury, or territorial oppida such as Bagendon (Cunliffe 1995, 69), although it is not clear how these political changes impacted on the Forest of Dean. The area's hillforts may have declined by the late Iron Age and although there are suggestions of late Iron Age activity at some of the district's hillforts, the significance of this is not clear. Evidence from Camp Hill, Lydney has been interpreted as indicative of occupation by only a 'residue' of the Iron Age population by the mid 1st century AD (Wheeler and Wheeler 1932, 16-17). Late Iron Age/early Roman pottery from Symonds Yat Hillfort (Parry 1994), Chestnuts Wood, immediately to the south of Welshbury Hillfort and an undated 'Roman type' spearhead from the hillfort itself (Walters 1992a, 62) suggests activity at these sites during this period, but does not mean they were continuously occupied or retained anything of their original status. Political influence may have shifted to *Ariconium* (the modern Weston under Penyard, Herefordshire), only 4km to the northwest of the Forest of Dean. This was a thriving civilian settlement during the late Iron Age, and may have been an important economic centre (Fulford 2003, fig 1; Jackson 2012, 180) and possibly also a Dobunnian regional centre controlling the production and distribution of Forest of Dean iron (Jackson 2012, 208).

Evidence for late Iron Age settlement can be difficult to identify as the arrival of the Romans may not have had an immediate impact on the day-to-day lives of the majority of the population (Booth *et al* 2007, 42). Ditches excavated at Rectory Meadows, Church Lane, Rudford may be evidence for late Iron Age occupation (Macpherson Barrett 2007) and a small number of large pits containing late Iron Age and early Roman pottery near Kempley Green (southwest of Dymock) have been interpreted as evidence for an Iron Age settlement which continued into the Roman period (Cruse 2013, 88). Dymock may also have been a late Iron Age

settlement, although much of the evidence, based on Dobunnic coins and transitional late Iron Age/Early Roman native wares is equivocal (Catchpole *et al* 2007a, 132-33; Brown and Timby 2007; 226; Timby 2011, 17). Belgic pottery, a Dobunnic silver coin and a floor were recorded below the level of the Roman road at the Cricket Pavilion in the 1950s (Gethyn-Jones 1991, 95).

A polygonal enclosure at Reddings Lane, Staunton near Coleford has produced evidence for occupation which spanned the late Iron Age and Early Roman periods between the 1st century BC to the 3rd century AD (Ellis 2013, 10-12, Table 2). Some early Roman sites (for example a farmstead at Sedbury, Tidenham and iron working sites at Ruardean and Drybrook (see below)) may also have had their origins in the late Iron Age.

Just outside the district an Iron Age farmstead on the same site as a Roman villa at Huntsham, Herefordshire (see above) may also be evidence for continuous settlement and transition from an Iron Age farmstead to Roman villa,

Late prehistoric field systems in Sallowvallets Inclosure did not definitely fall out of use until the latter part of the 1st century AD and may have been used during the late Iron Age, whilst others which were cultivated into the Roman period may have originated in the later prehistoric period (see above).

4.6 Environmental background for the late prehistoric

A recent review of the environmental background of the late Prehistoric period in the southwest of England identified no evidence which related specifically to the Forest of Dean (Straker *et al* 2008). The environmental background for the late prehistoric Forest is largely reconstructed from evidence in adjoining areas, or inferred from the interpretation of contemporary sites.

The environmental potential of alluvial deposits, particularly in wide flat-bottomed river valleys, in the southern part of the district was assessed as part of the Forest of Dean Archaeological Survey (Hoyle 2008b, 81-90), although no similar research has been undertaken for the northern section. Subsequent limited palaeoenvironmental sampling of selected areas in the Cannop and Flaxley valleys, whilst providing useful data for later periods, has, however failed to identify environmental information for the late prehistoric period (Head *et al* 2005, Pearson *et al* 2012). Pollen analysis of peat deposits on Walmore Common demonstrated a sequence of alder carr woodland, a subsequent reduction in canopy cover (perhaps through harvesting rather than clearance) to grass and fern-rich fen, perhaps with some willows and hazel and with cereal cultivation on the drier ground at the edges of the common (Bartlett 2004, 10-12). No dating evidence for this sequence has, however, been published and the late prehistoric status of Walmore Common is not clear. A small quantity of charcoal and poorly preserved iron slag was recovered from colluvial deposits in Sallowvallets Wood, north of Cannop which had accumulated between the mid 1st millennium BC and the mid first century AD (Toms *et al* 2012, 190) was predominantly Alder (*Alnus* sp) and Hazel (*Corylus avellana*), although occasional oak (*Quercus robur/petraea*) apple/pear/whitebeam/hawthorn (*Maloideae* sp) and guelder rose/wayfaring tree (*Viburnum* sp) were also found. The charcoal assemblage was small and, although it may have derived from woodland cleared to create the enclosures in the area (Pearson *et al* 2012, 120), it may simply have been the remains of hedgerows or small areas of scrub within an area of small fields or paddocks.

The Bronze Age is generally considered to have been a period where a warmer and drier climate led to a longer growing season enabling the colonisation and cultivation of upland areas, such as Dartmoor, supporting increased population levels and reducing competition for agricultural land (Darvill 2011, 133). In the southwest there is evidence for an increase in cereal cultivation from the Early Bronze Age (Wilkinson and Straker 2008, 73), although evidence for this is limited in the Forest of Dean. Carbonised white charlock (*Rhaphanus raphanistrum*, L.), a plant which grows amongst cereal crops, has, however, been found with one of the cremations below Tidenham Chase round barrow, and interpreted as evidence that the cremation fire had been kindled with straw sometime following the harvest (Scott Garret 1955, 27-28).

Field systems have been identified in modern woodland of the southern Forest (see above) in areas which are currently considered unsuitable for cultivation, and these may have been the result of woodland clearance and colonisation of more marginal areas during this period. This can, however, only really be reasonably inferred at Welshbury Hillfort where small leaved lime woodland seems to have been at least partially cleared to create small fields or paddocks prior to the construction of the hillfort (McOmish and Smith 1996, 57). Other relic boundary systems in woodland (see 4.2 above), and possibly some of those outside woodland), may also have their origins in the Bronze Age. Although the majority of these are undated, OSL dates of between about 1000BC and 600BC (which Baysean analysis refined to between 940BC and 260BC and most probably sometime around 500BC during the middle Iron Age) suggest that these systems may have originated during the latter part of the late prehistoric (Toms *et al* 2012). Colder and wetter conditions are thought to have

occurred during this period (Darvill 2011, 178) and abandonment rather than colonisation of marginal land might be expected, although it has been suggested that there is no clear evidence for this late Bronze Age/early Iron Age climatic deterioration in the southwest (Straker *et al* 2008, 115) and a direct correlation between climate and landuse change during this period may be over simplistic.

4.7 Summary of the late prehistoric period

The late Prehistoric period in the Forest of Dean is not well understood, although unlike earlier periods physical evidence in the form of earthworks is known.

The earliest of these are Bronze Age ritual monuments (known or possible barrows, standing stones and other ritual monuments) which are known throughout the Forest of Dean. These appear to be concentrated in the Tidenham area in the southern part of the district and also the Upper Leadon Valley, and more specifically the northeastern corner of Dymock and Bromsberrow parishes.

Evidence for Bronze Age settlement is, however, limited. Earthworks on Welshbury Hill have been interpreted as a late Bronze Age settlement within a contemporary field system, and some possible *in situ* settlement remains have also been found but the evidence is essentially made up of chance finds or artefact scatters, the majority of which have been recovered from ploughed field surfaces throughout the area, but with concentrations recorded around Bearse Common to the east of St Briavels. This distribution favours areas of modern arable cultivation where suitable artefacts can be recovered, and few finds have been made in pasture and woodland, or in areas of arable where fieldwalking has not been undertaken. Many diagnostically Bronze Age flints have been found with artefacts from other periods (particularly the Mesolithic and Neolithic) suggesting sites were occupied (either continuously or intermittently) over considerable timescales, but little else can currently be drawn from this.

There also appears to be some correlation between Bronze Age settlement evidence and some ritual sites, particularly in the Tidenham and Bearse Common areas and where standing stones have been recorded. The significance of this should, however, be treated with some caution as fieldwalking in these areas may have skewed the evidence for Bronze Age activity (Hoyle 2008a, 152-153) and a similar correlation is less evident in the Upper Leadon Valley. There has been much less systematic investigation in this area and a number of undated cropmarks sites in the area, particularly to the south and west of Bromsberrow Heath, could prove to be evidence for contemporary settlement (PastScape records 01326882, 01326705, 01326723).

Iron Age settlement evidence is dominated by the four (or possibly five) hillforts. All of these could be classified morphologically as Middle Iron Age developed hillforts (probably attaining their present form c. 400-300 BC), although these may have been developments from simple late Bronze Age/early Iron Age defended hilltop settlements. Hillforts may have developed as a response to land hunger caused by a deteriorating climate in the Late Bronze Age/early Iron Age (Darvill 2011, 178; Savory 1976), although the impact of climate deterioration in the southwest is not clear (Straker *et al* 2008, 115), and a transition from undefended Bronze Age settlement to early hillfort is only really suggested at Welshbury where a field system and possible undefended settlement and round barrow appear to predate some elements of the hillfort (McOmish and Smith 1996). More research is needed to determine how these hillforts related to each other, what their function and significance was, and even when they were constructed or fell out of use (Moore 2008b, 88).

Throughout the late Prehistoric period the majority of the population are likely to have lived in a range of small enclosures or undefended farmsteads and there is an increasing body of evidence for smaller enclosures and cropmark sites which may represent prehistoric settlement, although these are poorly understood and few investigations have taken place. Other settlement types (for example within a cave at Coldwell Rocks, Symonds Yat) also existed at this time, but these are likely to be atypical.

Colonisation of marginal areas and population expansion may have occurred during the Bronze Age and there is evidence suggesting late prehistoric farming to the south of Welshbury Hillfort and other areas currently under long-term woodland in the southern part of the Forest. None of these sites have been fully explored, however, and much more research would be needed before the distribution of late prehistoric field systems and their relationship with contemporary settlement is understood.

The late Prehistoric within southern Britain is often seen as a period in which society became 'increasingly hierarchical and class-based' (Parker Pearson 1993, 13), dominated by powerful elite groups. Little is known about the nature of society within the Forest of Dean during this period, however, and Walters has cited the lack of major late Neolithic or early Bronze Age monuments as evidence that powerful elites did not dominate this area at that time (Walters 1992a, 31). The Soldiers Tump round barrow, Tidenham produced evidence of

a dagger grave, a feature of high status Wessex Culture burials (Darvill 2011, 141-142), implying that social division was a feature of late prehistoric society in the Forest of Dean. The presence of hillforts may also suggest hierarchies in Iron Age society although this is not well understood and requires further investigation (Moore 2006b, 88). The possible hoard of Bronze Axes from Sling Common, the small votive axe head from Littledean and the gold bracelets from Woolaston may also be evidence for late Prehistoric (or at least Bronze Age) conspicuous consumption designed to increase the prestige of a powerful individual (Parker Pearson 1993, 117). Iron weapons and equipment found at High Nash, Coleford have been interpreted as evidence of a late Iron Age warrior burial, suggestive of some form of social division, although how typical this was or what it actually tells us about late Iron Age society in the Forest of Dean is far from clear.

The Forest of Dean in the late Iron Age and into the early Roman period is also not well understood. Hillforts may have declined before the arrival of the Romans (although a number of the district's hillforts have produced some evidence for late Iron Age/early Roman occupation or other activity (see above)) and political influence refocused towards territorial centres, perhaps *Ariconium* at Weston under Penyard, Herefordshire, although the lives of ordinary people may not have been greatly transformed by these political changes. Evidence for late Iron Age settlement (and to lesser extent ritual activity) has been found at numerous sites throughout the district, although none are fully understood. Many of these appear to continue, apparently unchanged, into the Roman period supporting views that the immediate impact of the Roman invasion did not influence the majority of the population in ways which can easily be discerned in the archaeological record.

5. The Roman period

5.1 The early Roman period 1st– 2nd Centuries AD

By the mid to late 40s AD, within a few years of the Claudian invasion of AD43, the Roman army had established a military fort at Kingsholm, Gloucester. This was a strategic crossing of the River Severn, and at the border of what is now the Forest of Dean (Copeland 2011, 37).

5.1.1 Ethnicity and territoriality

The ethnicity or political allegiance of the Forest's population at this time is not clear. The distribution of Dobunnic coinage (Fulford 2003, fig 1) suggests that the area between the Severn and Wye was within the sphere of influence of the Dobunni, centred around the catchment areas of the Rivers Severn, Wye, Bristol Avon and the upper Thames (Darvill 2003, 3-5, Fig 2B) and perhaps administered from a tribal centre at *Ariconium* (see above). It is not, however, clear if coin distribution can define the boundaries of political territories, or establish whether these were rigid or fluid, or whether the inhabitants considered themselves to be a single coherent group (Darvill 2003, 5-6; Copeland 2011, 17). The suggestion that the Forest of Dean was within the eastern part of the territory of the Silures (Manning 1981) may be based on an over literal interpretation of Tacitus' *Annals* (XII, 32) (Hurst 1985, 121), whilst the proposition that the people of the Forest of Dean had no allegiance to neighbouring tribes (Walters 1992, 60-61), reflects 20th century notions of the area's isolation and independence rather than the available evidence.

5.1.2 Early military sites

Although the Dobunni were relatively compliant to Roman rule (Copeland 2011, 31), the Silures of South Wales were more resistant and were only suppressed after a 25 year military campaign between about AD49 and AD74 (Millett 1990, 51). The vicissitudes of imperial policy with its changing priorities towards military needs in other parts of the empire may also have contributed to the length of this campaign (Tim Copeland pers. comm.).

The early Roman fort at Kingsholm may have acted as a supply hub or winter quarters for this campaign, linking the main route into Wales through the Leadon Valley (Margary 610, see Margary 1957, fig 2) with the military road network to the east and also with river transport up the Severn (Millett 1990, 51, Copeland 2011, 35-36). Any such base would probably have been set back from the actual frontier with forward military positions to the west of the Severn (in what is now Forest of Dean District) within a buffer zone of friendly territory. Early Roman military forts are known just outside the district to the west of the Forest of Dean at Monmouth, and perhaps also at Chepstow, whilst the legionary fortress at Usk was established by about AD 57 (Copeland 2011, 36, fig 12).

Dymock in the northern part of the district is often suggested as a likely candidate for the site of an early Roman military installation (Leech 1981, 30; Webster 1993, fig 37). The evidence for this is elusive, but recent excavations at the Sewage Treatment Works suggest that there was an early Roman (from at least AD 70) *mansio* or official guest house on the military road between Glevum and Stretton Grandison, Herefordshire which, although not military in itself, would have been within the sphere of Imperial administration with ready access to the commodities available to, and expected by, the Roman Army (Catchpole 2007, 217-218).

A number of other possible early military sites in the district have been identified more recently.

Trial excavation of a small lidar-detected sub-rectangular enclosure (measuring 27m x 36m) in woodland at Ruardean Hill indicated that it had been constructed early in the Roman period and appeared to have been deliberately slighted sometime in the 2nd century AD. Although the evidence is not conclusive, the site has been provisionally interpreted as a small military fortlet constructed early in the Roman occupation of the Forest, perhaps constructed as part of the consolidation of Roman control west of the River Severn to support the advance westwards into Wales in the latter part of the 1st century AD (Hoyle 2013a, 22-23). Other interpretations for the Ruardean Hill site are, however, possible and small sub-rectangular enclosures in other parts of Severn-Cotswold region have been interpreted as settlement sites with a date range from the Iron Age to the Roman period (Moore 2006a, 14; Moore 2006b, fig 5), whilst a number of sites previously interpreted as Roman forts in the north of England have been re-interpreted as late Iron Age/early Roman high status farmsteads (Neil Holbrook pers. comm.).

Other small sub-rectangular earthworks (the majority identified by lidar in areas of woodland (Hoyle 2008c, 38-46) are consistent with small Roman military fortlets and examples are known at Mile End, Coleford; Wigpool Common; Haywood Lodge, Cinderford and High Wood, Tidenham (Hoyle 2011b, 26-34) and in open farmland close to Willsbury Farm about 2km to the east of St Briavels, where a sherd of 1st century AD pottery has been recovered (Riches 2011/2012, 35). Lidar has also detected the partial remains (two sides with hints of a third) of what could be a square enclosure with at least one distinctly rounded corner at Oldcroft to the south of Blakeney (Bryn Gethin pers. comm.). None of these have been tested, and a similar enclosure at Yorkley, which was originally included as a possible Roman fortlet (Hoyle 2013a, 22-23) has recently been shown by excavation to date to the medieval period (Jackson *et al* 2016, 48-49), and all of these enclosures could be the remains of other features (for example Iron Age settlements or medieval Forest Lodges) rather than Roman military sites.

Other sub rectangular enclosures (identified by lidar or cropmarks) may also represent Roman military installations, but, like the examples above, this interpretation is far from clear. These include cropmarks to the south of Lowbands Farm, Redmarley D'Abitot, a small enclosure to the east of Mitcheldean and two almost square enclosures at Preston Cross, Dymock. Lidar-detected earthworks are known at Morse Lane in Ruardean, Kidnalls Wood to the north of Lydney, Berry Hill near Drybrook and to the south of Blakeney (Hoyle 2011b).

A possible Roman military fortlet or signal station at Castle Meadow, Staunton near Coleford was recorded in the late 19th century (Maclean 1882-3, 227), although the precise location of this site is no longer clear and no diagnostic earthworks are known. Similarly, two contiguous sub-rectangular enclosures in Sedbury Park Tidenham, whilst undoubtedly representing Roman occupation, are not unequivocal evidence for a military base overlooking the River Sever as suggested by the excavator (Ormerod 1861, 43, fig opposite p 48).

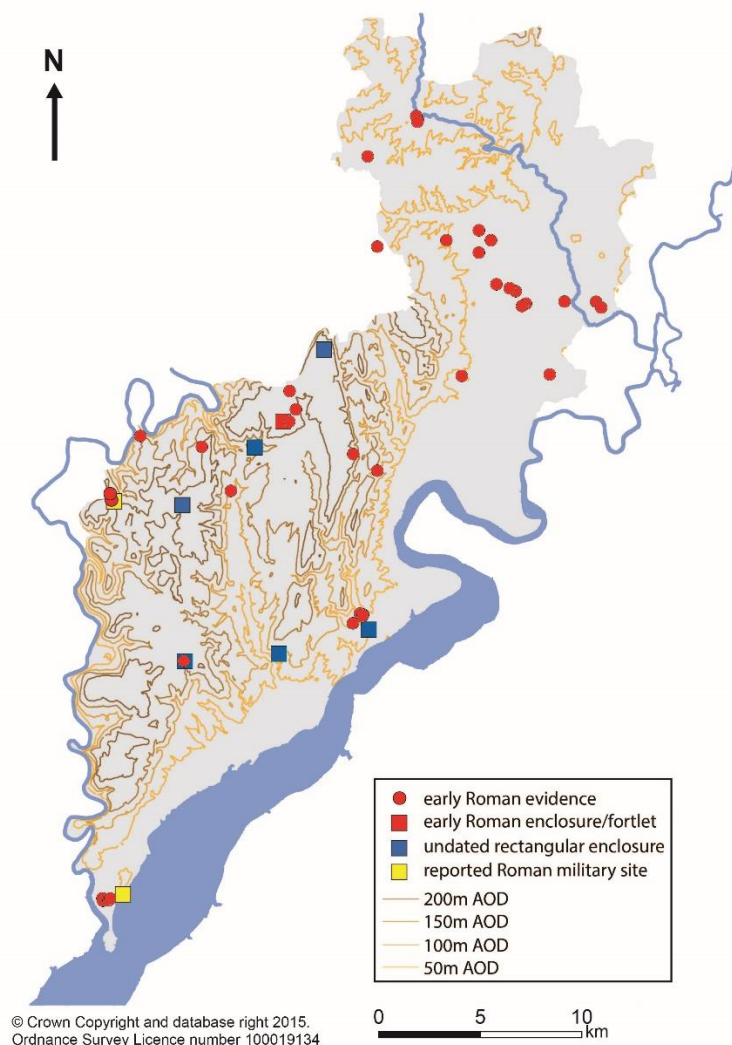


Figure 12: Early Roman evidence and undated enclosures which could be early military sites

5.1.3 Military Roads

Soon after taking control of the Forest of Dean, the Roman army would have begun to build military roads through the area. These provided a rapid, direct and all-weather surface for the army to move men and supplies, to facilitate speedy and efficient official communications (Salway 1993, 385) and also acted as a tangible symbol of the power of the Roman state over their newly conquered territories (Copeland 2011, 45). The Roman road network is discussed more fully below although the actual date of construction of none of the Roman roads in the area is known for certain, it is generally considered that the main network of military roads was completed by about AD81, with secondary roads being completed by the end of the 2nd century (Ebbatson 1989). The earliest road through the Forest of Dean may have been the road through the Leadon Valley from Gloucester to Dymock and beyond to Stretton Grandison in Herefordshire (Margary 611, see Margary 1957, fig 2) as this may have been the most obvious route for the Roman army in their campaign against the Silures of South Wales between about AD49 and AD74 (Copeland 2011, 35-36). Other main military roads through the area (for example the road following the northern shore of the Severn between Newnham and Caerleon (Margary 60a) and between Gloucester and Mitcheldean (Margary 61) and its branch from Huntley to *Ariconium* (Margary 611) are likely to have been constructed by the army in the early years of occupation.

5.2 Roman settlement and landuse

Compared with some earlier periods, there is a considerable amount of evidence for Roman activity in the Forest of Dean, although this has tended to be disproportionally focused on higher status sites, such as possible villas or temples. Numerous scatters of pottery, roof tile or other Roman material on field surfaces, and an increasing body of evidence from development-led excavations and evaluations is, however, beginning to reveal evidence for a more populated contemporary landscape of lower status sites ranging from isolated farmsteads to small settlements.

5.2.1 Early Roman civilian rural settlement

5.2.1.1 Continuity from the Iron Age

In the upper Thames Valley to the east of the Severn there is considerable evidence of continuity of settlement and agricultural practice from the late Iron Age leading into the Roman period (Holbrook 2006, 102), suggesting that the arrival of Roman administration may not have had an immediate impact on much of the rural population, or at least not in ways which are readily discernible in the archaeological record (see above). Just outside the Forest of Dean continuity has also been demonstrated at other rural sites, such as the Great Woulding just north of *Ariconium* in Herefordshire, and also at Thornwell Farm near Chepstow, Monmouthshire (Holbrook 2006, 114-115) whilst cropmark evidence suggests that the Roman villa in the loop of the Wye at Huntsham, north of Symonds Yat, developed from a middle Iron Age settlement (Small and Stoertz 2006, Fig 6).

Within Forest of Dean District the available evidence is much less clear, and although there are hints at a similar degree of continuity it is often difficult to disentangle evidence for late Iron Age to early Roman occupation from early Roman activity which used native wares in the late Iron Age ceramic tradition.

Pits excavated at Kempley Green southwest of Dymock contained both mid/late Iron Age and 1st century AD Roman pottery (Cruse 2013, 75-78) and the earliest ditches excavated at Reddings Lane, Staunton near Coleford (see above), an iron working site which continued into the mid 3rd century AD, produced limestone tempered pottery spanning the late Iron Age to early Roman periods, but no pottery which definitely pre-dated the Roman period (Ellis 2013, 8). Evaluation to the west of Drybook Quarry also produced what may have been late Iron Age/early Roman native ware pottery with post-conquest material close to where iron slag and 1st century Roman wares have been recovered from the surface (Chambers 1989, 6-7; Walters 1999, 4, 54), although no indications of settlement were found.

'Belgic' pottery and iron slag has also been reported at Holm Farm Lydney, where later Roman pottery (2nd to 3rd century AD), 3rd century coins and a stone hammer have also been recovered (Harris 1936, 283-4; Harris 1937, 327) suggesting this may also have been a late Iron Age iron working settlement which continued into the 2nd or 3rd centuries AD although, again, this is not certain.

A number of small-scale archaeological evaluations to the south of Buttington Tump at Sedbury, Tidenham have identified evidence for an early Roman farmstead which may have fallen out of use by the 2nd century AD (Carew 2003, 40-40, 79-92; Clarke 2008, 10; Riley 2010, 5). Evidence for pre-Roman occupation at this

site is 'ambivalent' [sic] and limited to five post holes or pits which were cut by an early Roman ditch but contained no dating evidence (Carew 2003,84).

Late Iron Age/early Roman pottery in the late Iron Age tradition in conjunction with early Roman Severn Valley Ware has also been found at Symonds Yat Hillfort (Parry 1992, 11-12), although precisely what this means in terms of activity at that site is not clear. Two conjoining sherds of late Iron Age style cordoned ware have also been found with Roman Grey Ware, and a 4th century coin close to Taynton church (Webb 1998a, 7), although there is no other evidence for early Roman settlement at this site. 'Malvernian' type pottery, tiles and masonry remains have also been reported at the Grange Newnham (GADARG 1982b), perhaps indicating an early Roman site which could have originated in the late Iron Age, although the site has never been investigated.

The early Roman settlement at Dymock (see below) may also have had pre-Roman origins, but evidence is limited (Catchpole *et al* 2007a, 131-133), and based largely on Dobunnic coins and transitional late Iron Age/Early Roman native wares (Brown and Timby 2007; 226; Timby 2011, 17), and a possibly residual late Iron Age cremation urn from the lower fill of an early Roman ditch (Ratkai 2001, section 4.2.3). The evidence of 'Belgic' pottery, a Dobunnic silver coin and a floor found below the Roman road at the Cricket Pavilion in the 1950s (Gethyn Jones 1991, 95) may be more compelling, although subsequent excavations did not produce evidence for any activity which definitely pre-dated the early Roman period (Waters 1969, 9).

5.2.1.2 New Roman sites

Despite hints at continuity at some sites, there is also evidence that some new settlements were established in the early Roman period, or at least developed to such a degree that any pre-Roman settlement on the same site was no longer recognisable.

Early Roman non-military (but none the less semi-official) settlement has been identified at Dymock where excavations at the Sewage Treatment Works, on the eastern side of the modern settlement, found evidence suggesting a *mansio* (or guest house for officials travelling on Imperial business) had been constructed close to the military road between Gloucester and Stretton Grandison, Herefordshire sometime before AD70. Although this structure was short-lived and may have been demolished early in the 2nd century AD, it appears to have been at the eastern edge of a small settlement involved in agriculture, iron and copper smelting and the manufacture of brooches and probably also pottery (Timby 2007, 167; Crooks 2014, 16-17). There may have been a slight hiatus in activity at the site between c. AD100 and AD120 following the demolition of the *mansio* (although this is difficult to establish) and by the mid 2nd century it was used as a small cemetery (Catchpole 2007, 215-218). Excavations to the west of the Sewage Treatment Works at Rectory Meadow (Simmonds 2007), Kyrleside (Williams 2011a) and Western Way (Crooks 2014) broadly support this model and it has been postulated that Dymock represents an early Roman roadside settlement which may have been deliberately founded as part of imperial policies associated with the functioning of the official road and postal system (Catchpole 2007, 235).

There is no clear definition of what constitutes a small town in the Roman period, although the degree to which the inhabitants adopted the trappings of Romanisation may be a measure (Copeland 2011, 105) and whilst Dymock was, in some ways, fairly typical for an early Roman rural settlement it appears to have been more than usually Romanized for the period. Although pottery assemblages tended to be dominated by Severn Valley and Native wares, they also included some exotic imports and Samian (cf Timby 2007, 167), whilst personal and household items found during excavations suggest a degree of pretension amongst the inhabitants (Cool 2007, 177). The remains of sheep or goats tend to be most common on Roman rural sites, whilst cattle and pig are more prevalent on Military or Romanised sites. At Dymock, although sheep were an important part of the diet, beef appears to have been the most frequently consumed meat and became more so over time, whilst pork (which may have been imported rather than bred on site) was also consumed, suggesting the population had a Romanized diet (Ingrem 2007, 201-202, Evans 2007, 229).

Excavation at Legg House, Blakeney produced evidence interpreted as an early Roman timber structure which by the late 1st century AD had been replaced with a stone structure. This may have had a bath house and was demolished by the mid 2nd century AD. A stone structure of this date would have been unusually early, but was interpreted as the residence of the Roman government's administrator of the iron industry in the period immediately following the Roman conquest (Walters 1990, 42). Even if the late 1st century date for a masonry villa-like structure at Blakeney is accepted, its association with an important government official connected with imperial iron production is entirely hypothetical and is not necessarily supported by the evidence for imperial involvement with this industry (Hoyle *et al* 2007a, 112). An alternative suggestion is that this represents the remains of another early Roman *mansio* which, like the Dymock Sewage Treatment Works

site (see above), was planted in an area with little or no substantive Iron Age occupation and close to a Roman road, in this case the road between Newnham and Caerleon (Margery No 60a) (Hoyle 2008a, 159; Copeland 2011, 133).

Although short lived, the favourable communication links may have attracted other civilian occupation and 1st and early 2nd century pottery has been found during pipe laying between Legg House and Brook House about 70m to the west (Walters 1987a, 82). Early Roman pottery (1st and 2nd century) has also been reported about 170m to the south (Johns 1995, 40), and over an extensive area about 500m to the southwest where a glass bead (also 1st-2nd century) and burnt clay and Iron slag have been recorded (Fitchett 1987; Johns 2005). A late 18th century reference to undated structures in a field called Church Croft, only about 100m to the southeast of Legg House have been interpreted as evidence for a Roman bath house (Walters 1992b, 10) although it is not clear if these are Roman and even if they were they could be associated with later Roman occupation at Blakeney.

There are other suggestions of early Roman activity in the Forest of Dean, but this is sparse and difficult to interpret for certain.

A ditch excavated at Buttington Terrace, Beachley, Tidenham contained sherds of a 1st-2nd century grog tempered vessel, and a nearby pit (interpreted as probable tree throw) produced sherds of a Severn Valley Ware storage jar and another vessel which could be dated to the Roman period. The ditch was interpreted as an agricultural land division or other boundary, and although the relatively unabraded condition of the pottery suggested nearby settlement no direct evidence for this was found (Riley 2010, 5-6).

Early Roman smelting waste (radiocarbon dated to 50 cal BC to 90 cal AD) associated with early Severn Valley Ware (1st – 2nd centuries AD) has been found in Sallowvallets Wood north of Cannop (Hoyle 2013a, 31), although this was not associated with any further evidence for settlement (see below). Surface scatters of 1st century AD pottery and iron slag have also been found to the east of Ruardean (Walters 1999, 418) and also at Round Hill, Huntley (Walters 1999, 54). Field walking at Cinders Field, Tibberton has also found 1st century Roman pottery along with a range of artefacts and pottery from the 2nd to 4th centuries (Charlesworth 2003).

Other early Roman finds from the Forest of Dean include a 1st century Roman lamp found near an undated wall foundation at Elmcote, Staunton near Coleford, an early Roman coin from a section of the Roman road between Gloucester and Mitcheldean (Margery 61) at Queen's Farm Churcham (Rawes 1978a, 84) and an early 1st century denarius of Augustus found close to a later Roman iron smelting site at Barnfield, English Bicknor, although none of these are clear evidence for early settlement. Chance finds of 1st to 2nd century coins are also known from Corsley, Newent (one of which was a Republican denarius pre-dating the Roman invasion of Britain (PAS database)), Littledean and Tibberton and 1st-2nd century brooches have been found at Newent, Taynton, Hartpury, Littledean, Rudford, Highleaden and Tibberton, although none of these are associated with evidence for contemporary settlement.

5.2.2 Decline of early Roman settlements

Dymock appears to have declined considerably during the 2nd century AD and although occupation at Stallards Place on the western side of the settlement may have continued into the early 3rd century (Simmonds 2008, 31) there is virtually no evidence for 4th century activity (Catchpole *et al* 2007a, 136; cf Timby 2007, 168). Former areas of occupation at the sewage treatment works and Rose Cottage were used for adult burials by the mid 2nd century and the settlement seems to have shrunk to a much smaller area somewhere between the two (Catchpole 2007, 236-237).

The early Roman rural settlements at Kempley Green, Reddings Lane, Staunton near Coleford, and Buttington Tump, Sedbury also declined during this period and may have been abandoned by the 3rd century (Carew 2003; Clarke 2008, Riley 2010, 5), whilst other possible settlement sites (for example Holm Farm Lydney and the areas to the west of Drybrook Quarry have produced no evidence for later activity.

Although the building at Legg House, Blakeney was also demolished in the 2nd century, it is not clear if this represented a hiatus in Roman settlement there as later Roman activity identified in the vicinity (see below) may be the result of continuous occupation.

5.2.3 Later Roman settlement

As these settlements declined others began to emerge and numerous sites have been identified throughout the Forest of Dean where rural settlement of some type appears to have taken place in the later Roman period (from about the mid 2nd century AD). The majority of these appear to have been associated with iron smelting in some way, although the evidence for these sites is extremely variable and few have been archeologically investigated.

5.2.3.1 Sites associated with iron working

Excavated sites

Excavation and geophysical survey have identified an iron working site at Rodmore Farm, St Briavels (Blake 2001, 7; Blake 2002a, 15; Blake 2003, 8-11; 2004, fig 3), although it is not clear if this was an isolated iron smelting site or part of a larger complex, such as a villa or a small rural settlement (Blake 2002a, figs 1 and 2).

A 2nd century terrace and stone cobbled surface was replaced by further surfaces, a stone structure and a pit filled with iron slag in the 3rd to 4th centuries AD at Rossilyn, Alvington where a relatively high proportion of Samian suggests that a reasonably high status building, perhaps a villa, was nearby (Hood 2011, 16-19).

At Blakeney slag filled pits at Legg House cut through the floors of structures demolished in the mid 2nd century (Walters 1990, 40) which may have been contemporary with a 3rd and 4th century iron smelting site at Millend about 200m to the west (Barber and Holbrook 200, 35-39). Roman pottery (not closely dated) has also been recorded from Brook Cottage less than 100m to the north east (Fitchett 1987), and surface finds of 3rd and 4th century pottery and bloomery slag have also been reported to the south of Blakeney, suggesting that smelting extended over a wider area during this period (Johns 1995, 40-48). Low levels of Roman pottery (which has not been closely dated) and bloomery slag have also been found over an extensive area between the village and the River Severn to the southeast (Johns 2008), although it has not been established that the slag is contemporary with the pottery finds (Hoyle *et al* 2007, 349).

In the vicinity of English Bicknor evidence for 3rd to 4th century settlement associated with Iron smelting has been excavated at Cow Meadow Farm (Walters 1999, 6), White House Farmhouse (Milford 2000, 1), and at Eastbach Court (Rawes 1987, 246; Walters 1987b, 50, Walters and Walters 1987, 50). It is not clear whether these sites were related, or even operated at the same time, but they may represent evidence for a dispersed rural settlement associated with iron smelting or perhaps outlying parts of a villa estate.

Evidence for 2nd to 4th century iron smelting at Pope's Hill Littledean (Scott-Garrett 1926, 200-202), and on the northern side of Chestnuts Wood about 550m to the south (Scott-Garrett 1956, 199) may be discrete self-contained sites or perhaps part of a larger settlement or villa estate centred in the vicinity.

Pottery from the 3rd century AD, a small quantity of iron slag, two fragments of iron ore and part of a saw blade have also been found in the upper fill of the ditch of the small sub-rectangular earthwork enclosure excavated at Ruardean Hill (see 5.1.2 above). This site was constructed early in the Roman period (perhaps as a military installation) and appears to have been abandoned in the 2nd century, at which time the earthworks were slighted. The later pottery, slag, iron ore and a saw blade fragment have been interpreted as evidence for later re-occupation of the site by a civilian population who may have been involved in charcoal production and iron smelting (Hoyle 2013a, 25).

There is also increasing evidence for 2nd to 4th century iron working overlying the gravel terraces to the southeast of Lydney with sites at Lydney golf course (Brett 2004, 13-14) and about 400m to the northeast (Barber 2009, 14-15) and about 250m to the northeast (Cooke 2003, i).

Rescue excavation at High Nash Coleford found robbed out foundations, bloomery slag and 3rd and 4th century pottery (Walters 1987a, 50), and 2nd to 4th century pottery (including some Samian) has been found with residues of both iron and bronze working at The Mount, Lydbrook (Walters 1985b, 24). The possible early Roman fort at Ruardean Woodside (see above) was also reoccupied in the 3rd century by people involved in iron smelting (Hoyle 2013a, 25).

There is increasing evidence for later Roman iron smelting centred around Newent (contra Walters 1999, 93) where surface finds of bloomery slag (including some furnace bases) have been found with 2nd century pottery and evidence for structures at the Moat, approximately 1km to the south of Newent (Walters 1990c, 27).

Pottery of the 2nd to 3rd century (and coins from the 1st to 4th century) have also been found with bloomery slag at Newent Business Park just over 1km to the northeast (Erskine 1996; Derham 2001, Mullin 2005).

Other sites

Roman iron smelting is also suggested at a number of sites where pottery from the 2nd, 3rd and 4th centuries AD (or which has just been classed as Roman) has been found (generally as surface scatters or chance finds) along with bloomery slag or other evidence for smelting. These include Cherry Orchard Farm, Newland; Whitescourt, Awre; Hangerberry Hill, English Bicknor; Broom Hill to the south of Soudley; Holm Farm, Lydney; Popes Grove, Lydbrook (Hoyle *et al* 2007a, 348-349), and Huntley (Rawes and Rawes 1977, 26). Field walking in Cinders Fields, Tibberton has also produced a range of Roman (1st to 4th centuries) pottery and other occupation debris from an extensive area 'heavily littered' with bloomery slag (Charlesworth 2003) and Roman pottery (not closely dated) and bloomery iron slag have also been found at Green Bottom, Littledean (Scott-Garrett 1918-1958, 14th November 1953), Tidenham (Walters 1999, 20), Hagloe southeast of Blakeney (Johns 2005) and also at Horse Pill, Woolaston (Walters 1999, 27) and Ley Pill, Woolaston (Allen and Fulford 1987).

5.2.4 Sites not associated with iron working

Although the majority of known or possible Roman sites appear to be associated with iron working in some way, this is not always the case and there are a significant minority of sites where Roman material (generally pottery) has been found, but where there is no evidence for iron working.

Excavated sites

In the 19th century two ditched enclosures, interpreted as a Roman military installation, were recorded at Sedbury Park, Tidenham. Finds included animal bone (cattle and sheep), coal, 'cinders of coal', lead, glass and corroded iron along with a wide range of pottery, including Samian and a probable 2nd or 3rd century colour-coated hunt cup. Ceramic tiles suggested a reasonably established building with at least some degree of comfort, although no evidence for masonry foundations was recorded (Ormerod 1861, 46-48 and fig opposite p 48). More recent research has suggested that the site may be part of a larger complex of occupation centred on Sedbury Park. Aerial photographs have identified cropmarks of rectangular and D-shaped enclosures and geophysical survey has found a number of anomalies which could represent ditches and pits, (Stratsacan 2013, 5, fig 03), although none of these features have been dated with any certainty and some may represent remains of later garden features associated with the early 19th century house. The military interpretation of this site cannot be substantiated and the site has produced no evidence for iron working as 'cinders of coal' is coal ash rather than bloomery slag (contra Walters 1999, 20). Pottery may, however, have been manufactured as the remains of a Roman pottery kiln and associated clay pits were recorded about 350m to the northeast (Ormerod 1861, 46, fig opposite p 48).

There was also no evidence for iron working associated with Roman ditches and spreads of Roman ceramic building material recorded immediately to the east of Rodley Manor, Lydney where the remains of agricultural timber buildings, at least one of which was substantial enough to have a tiled roof have been recorded. A small assemblage of abraded 3rd and 4th century pottery, which included some fine table ware (Samian), may have been domestic refuse from nearby high-status occupation (Cooke 2003, 24, 30-31, fig 4).

Small quantities of Roman pottery, but no bloomery slag, have also been recovered in watching briefs at Hartpury (Goult 1995), within linear features at Lassington Court, Highnam (Witchell 2012) and also at Station House, Barbers Bridge, Rudford (Witchell 2011), close to a site where metal detectorists have found 58 3rd and 4th century coins, a number of 1st – 2nd century brooches and a small figure of a bird (Webb 1998b, 13). Ditches excavated at Clipper Bank, Rodley, Westbury on Severn also produced a small amount of Roman pottery (Thomas 1998). The ditches were interpreted as land divisions rather than occupation, but they do suggest Roman settlement in the near vicinity.

Extensive scatters of Roman pottery which has not been closely dated have been recorded as surface finds at Nedge Cop, St Briavels (Walters 1986, 36) whilst smaller assemblages and two 4th century glass beads have also been found in the vicinity, (Walters 1987a, 70, 7). Pottery and tile (again generally classed as Roman but including 2nd and 3rd century wares) has also been found during fieldwalking at Bearse Farm, Newland (Walters 1987b, 50), where prehistoric flints have also been recovered (see above). There is, however, no record of bloomery slag at these sites.

In the Newent area, a number of sites have been found either by fieldwalking, metal detecting surveys or as chance finds, where bloomery slag has not been recorded. These include Lower Bouldson, to the southwest of Newent, where a range of Roman pottery (again not closely dated), has been found by field walking (Wills and Hoyle 2007, 362), close to where other finds, including 3rd and 4th century coins and a furniture mount have been reported by metal detectorists (PAS). Roman pottery, a brooch and 3rd and 4th century coins have been found by fieldwalking and metal detecting to the north and south of Nelfield Farm less than 1km to the southeast of Newent (Phelps 1996; PAS) and Roman pottery has also been reported at Malswick 1.5km to the east of Newent, whilst pottery and coins have been found at a variety of locations in the modern town.

Small amounts of Roman pottery, none of which has been closely dated, have also been recorded during evaluations or watching briefs at Corse, Pauntley and Staunton near Corse (Holgate 2002) and to the southwest and north east of Lydney (Hoyle 1992; Vince 2002), and also as surface finds to the southwest of Nibley Green, (c. 1km to the southwest of Blakeney) (Johns 2005) and at a number of locations in Hartpur (Glos HER 2015). The significance of these is not, however, clear and they may be manuring debris on Roman fields rather than direct evidence for settlement. Sherds of Roman pottery from Darken Lane, Aylburton have also been interpreted as an occupation site (Hart 1967, 41) although there is no supporting evidence for this.

Isolated chance or surface finds

Isolated finds of Roman coins, pottery, jewellery and other miscellaneous items are known throughout the Forest of Dean. Many of these are surface finds, either collected randomly or as the result of metal detector surveys and are difficult to interpret as indicators of contemporary settlement. Many could have been lost in locations far from centres of settlement or other activity, although they do indicate that Roman activity was widespread throughout the Forest of Dean, and closer analysis of the relationships between these items and other contemporary features may suggest areas where Roman settlement is to be expected.

5.2.4.1 Place names

Place name evidence can suggest sites of potential archaeological significance but similar place names can have a range of meanings and derivations. This evidence is rarely conclusive, and should be used with considerable caution.

Names which contain the element *Chester* may indicate the sites of Roman settlement and eight of these (Chester Field, Churcham; Chess Grove, Longhope; Castors, St Briavels; Chesnals, Ayleburton; Chestley Furlong, Newnham; Blackhall Colchesters, Drybrook and Chesla Field Awre) are not related to known Roman sites, were identified during Sage 1 of the Forests of Dean Archaeological Survey in the southern part of the district (Hoyle 2008a, 173, Table 55) although others may exist, particularly in the northern part of the district where systematic searching of map sources was not undertaken. Roman coins have been found during road widening at one of these sites (Chesla Field, Awre close to Oldstreet House, Blakeney), but no other finds or features suggestive of Roman occupation have been reported there. In addition, two *Castle* place names (Shutcastle, Bream and Doncastle Farm, Alvington) are also known which are not linked to known Roman or medieval sites (Hoyle 2008a, 175, Table 53).

5.2.4.2 Coin hoards

Although there have been many finds of individual or small numbers of Roman coins from throughout the Forest of Dean, in 21 cases sufficient quantities of coins have been found to be classed as a hoard. These are extremely variable, ranging in size from under 50 to over 3000 coins, and 12 were found in the 19th century and the details of their discovery, the numbers or dates of the coins, or even their precise location is not always clear. Some were deposited in pottery containers or cloth bags, or were found in a discrete group suggesting they had originally been contained in some way, whilst others were more dispersed and in some cases, it is not clear whether they represent a hoard or just a large number of coins recovered from a particular site.

Four of the hoards contained no coins later than the 2nd century AD, including the smallest of less than 50 coins from Chepstow Bridge, Tidenham, one of 100 coins from Lydney, 155 coins from Bream, and a large hoard of more than 1000 coins from Kidnalls Wood. Five of the hoards, from Crabtree Hill, Cinderford, Perrygrove Wood and Tufthorn, Coleford, near the Dean Road in Ruspidge and Soudley, Parkend contained only 3rd century coins, whilst the remaining 12 contained mainly coins from the 4th century. Four of these were from Lydney (two from the temple site), two from Woolaston (one from The Chesters Villa and one which may represent two separate hoards), and one each from Cinders Field, Taynton (which may represent two

separate hoards), Barber's Bridge, Tibberton, Tidenham, Littledean Hall (which may also represent two separate hoards), Lydbrook and Yorkley. Another possible 19th century hoard from Tidenham contains only 3 4th century coins, and it is no longer clear whether these are all that survives of a separate hoard or whether they were originally part of a hoard (or one of the hoards) found at Woolaston in the same year.

The true meaning of coin hoards is rarely clear and a diverse range of complex processes can have contributed to the deposition, location and lack or recovery of individual hoards (Reece 1987, 46-49). It is not possible to generalise about the significance of these finds, or their relationship to features or settlement patterns in the contemporary landscape.

5.2.4.3 Masonry structures

The Forest of Dean contains evidence for a number of masonry structures dating to the Roman period, which have been interpreted as villas or industrial or agricultural structures, although in many cases they are not fully understood.

Villas

The Forest contains five sites which can reasonably be classed as villas, suggesting a site of with a high status domestic building generally associated with outbuildings and forming the centre of a rural estate (RCHME 1998).

Three of these, The Chesters, Woolaston; Boughspring and Park Farm, Aylburton are sited in the Severn Valley in the southeastern part of the district.

The Chesters, Woolaston was first identified as a possible villa in the mid 19th century (Ormerod 1861, 38), but was not investigated until the 1930s when a series of trenches revealed the ground plan of an extensive domestic building and other associated structures. A 2nd century tripartite corridor villa which included a bath house with under-floor heating, wall plaster and mosaic floors was considerably remodelled and extended during the 4th century, and remained occupied until the early 5th century, or possibly later (Scott-Garrett and Harris 1938, 94-95; fig 2). Ancillary structures included a boundary wall, two possible gateways, a large rectangular building, possibly a barn with integral labourers' accommodation and a small square building interpreted as a light house to guide shipping through a gap in Guscar Rocks at the mouth of Ley Pill (Scott-Garrett and Harris 1938, 108-110; fig 2). The remains of a hearth on a broken flagged floor suggested some sort of temporary or squatter occupation after the villa had been abandoned (Scott-Garrett and Harris 1938, 100). Further investigation to the southwest in 1987 and 1991 revealed the foundations of a large timber-framed building and evidence for iron smelting dating from the mid 3rd to the late 4th/early 5th centuries AD (Fulford and Allen 1992, 169-181).

Scott-Garrett's excavations at Park Farm, Aylburton in the late 1950s largely consisted of exposing the lines of sandstone wall footings, but did identify four structures on the site. The main villa building was also of tripartite corridor type. It was probably at least two storeys high (a possible stairway base was recorded) but only three of the rooms had tessellated floors (one described as 'coarse') and the remaining floors were stone flagged, mortared gravel or *opus signinum*. There was also no evidence for under-floor heating or of painted wall plaster. Two possible outbuildings included a 'much burnt brick-lined furnace and a sump connected to a drain. There may have been further buildings and/or courtyards although this was not clear. A small rectangular structure may also have been a beacon to guide shipping to a wharf close to the villa, which may have been closer to the Severn than it is now (see Herbert 1996c, 47-48), and there was also some evidence for a boundary wall demarcating the villa compound (Fitchett 1986). Most of the pottery has been dated to the 2nd or 3rd centuries AD (Fitchett 1986, 25), although it is not clear if the villa continued beyond the 3rd century AD. Iron slag was only recorded in the make up to the floor of one building (Fitchett 1989, 27), but later field survey (in the 1980s) reported 'much furnace slag and hearth bases' on the site (Walters 1999, 10).

The villa at Boughspring was discovered in 1969 when masonry foundations with 3rd and 4th century AD pottery, *tesserae*, *tegulae*, floor tiles, fragments of hypocaust tiles and a considerable quantity of bloomery slag were found (Bridgewater 1973, 7-8). Further excavation between 1979 and 1985 identified four phases of construction. A simple early 2nd century rectangular stone building was enlarged in the later 2nd century and decorated with painted wall plaster and a geometric mosaic floor in at least one room. This was further extended in the later 3rd century by adding a corridor with a porch/entrance hall. In the 4th century major refurbishment almost doubled the size of the building with the addition of two new wings with under-floor

heating, painted wall plaster and *opus signinum* floors, but no evidence for mosaics (Neal and Walker 1988). Further structural remains have been identified to the southwest of this villa, although these are poorly understood and they may be ancillary buildings similar to those identified at The Chesters, Woolaston. The width of the footings, however, suggests substantial structures of more than one storey and these may represent a massive 4th century remodeling of the villa with an extensive new building to the southeast of the original building which may have been converted into a bath house at that time. The villa probably fell out of use in the late 4th or 5th centuries AD, following which two human burials were placed within the abandoned structure (Pullinger 1990, 13-16, 18-19).

These three villas are similar in a number of ways. All appear to have originated sometime in the 2nd century, although the dates in which they fell out of use are less clear, and all are close to the River Severn, although only Park Farm and The Chesters appear to have had a direct navigable link to the River (including navigational aids). The Chesters and Park Farm both had evidence for industrial or agricultural outbuildings, (although the evidence for this at Boughspring was much less clear) and the inhabitants of The Chesters Woolaston were clearly involved in iron smelting in the 3rd and 4th centuries, although this was probably part of a mixed economy and this industry need not have been central to the economy of the site (Hoyle *et al* 2004). Spreads of bloomery slag suggest that iron smelting also took place at Park Farm, Aylburton, and perhaps

also at Boughspring, although excavated evidence for Roman smelting has not been identified at either of these sites.

A fourth villa has been identified at Stock Farm, (immediately north of a field recorded as *Carwaie* on a map of 1608 (PRO 1608; Clissold 1982)) to the north of Clearwell on the higher ground in the central southern part of the district. Cropmarks show the outline of a tripartite corridor villa similar in layout and size to Park Farm Aylburton (see above and Blake 2004, fig 3) set within a complex of boundaries and ancillary buildings (Small and Stoertz 2006, 28, fig 7). Small-scale excavations have confirmed the presence of sandstone walls and recovered pottery dated to the mid/late 3rd to the 4th (or possibly 5th) centuries AD along with some animal bone (pig, sheep and horse) and a small quantity of bloomery slag (Atkinson 1986, 29, 30-35). The site is very close to major outcrops of iron-ore in the form of scowles and extraction or smelting may have been undertaken, although a relatively small amount of slag has been recorded on this site and its economic basis is not well understood (Blake 2004, 15, Catchpole 1996, 5; Cook 1995, 2).

The fifth villa, at Huntsham, Herefordshire, just outside the district boundary on low ground within a meander of the River Wye, comprises the main villa building (with only modest levels of luxury), an aisled-barn and a separate small house or cottage enclosed within a boundary wall. The villa was occupied from late 2nd to late 4th centuries AD, although the barn appears to have been operational only between the late 3rd and mid 4th centuries AD. Agriculture may have been the main economic basis of the villa, although brewing and wool preparation took place. Slag and iron-ore were also found at the site, suggesting that smelting had taken place, although this was from mid 1st century deposits which predated the villa (Taylor 1995, 240).

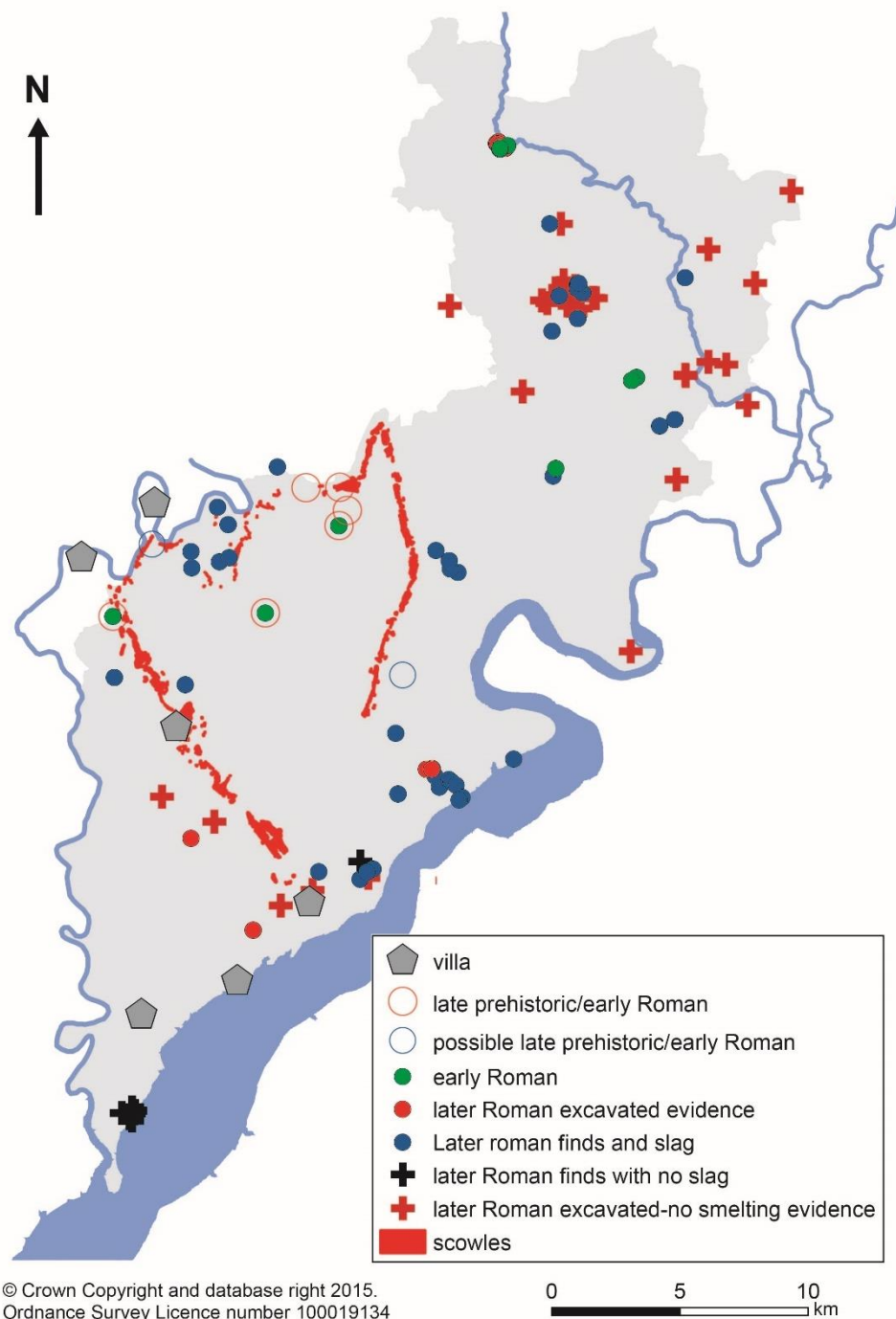


Figure 13: Evidence for Roman settlement

Other Roman structures which may be associated with villas

A number of other Roman remains in the Forest of Dean may be associated with villas, although these could represent other forms of rural settlement associated with either iron smelting or agriculture

The 1st-2nd century stone structure, perhaps with an associated bathhouse and hypocaust, at Blakeney, has been interpreted as a villa (Walters 1990, 42), although this may have been an early *mansio* on the Roman road between Newnham and Caerleon (see above). Third and 4th century iron working sites at Rossilyn, Alvington, Pope's Hill near Littledean, Rodmore Farm, St Briavels, Millend Blakeney, and agricultural buildings at Rodley Manor, Lydney may also have been associated with nearby villas.

Structural remains or architectural debris from English Bicknor Church and Tibberton Court, Tibberton may also indicate the site of villas, whilst the probable 3rd and 4th century building at High Nash Coleford, which has been interpreted as a small temple (see below, Sindrey 1990, 25-29) may also be the remains of a domestic

structure such as a villa. A villa has also been alleged at Clearwell Castle, although this appears to be entirely hypothetical and not based on any known structural remains or other evidence (Glos HER 2015).

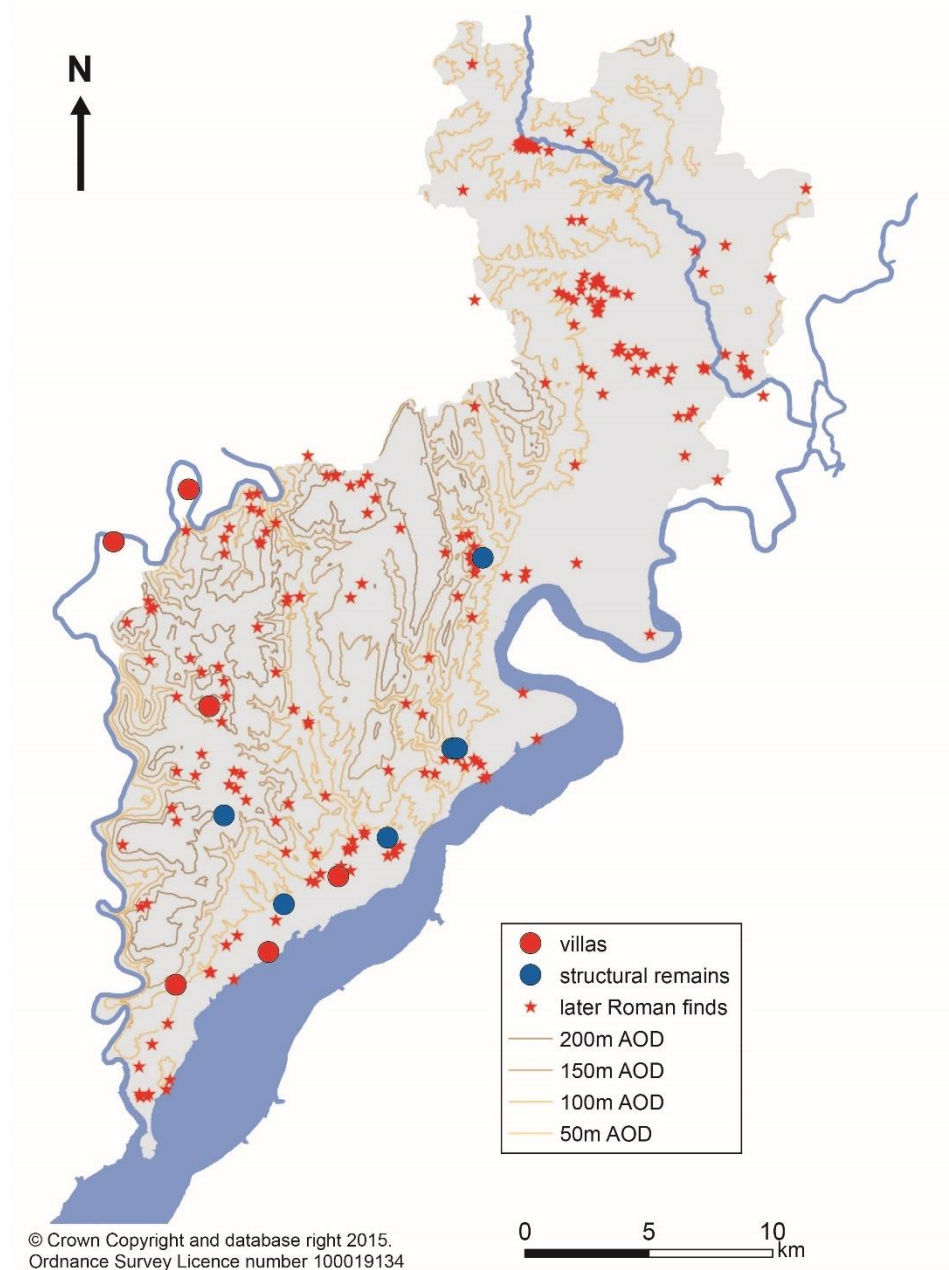


Figure 14: Later Roman evidence

5.3 Roman ritual and religion

The Forest of Dean contains some evidence for Roman ritual and religion.

5.3.1 Temples

Four sites in the district have been interpreted as possible Roman temples, and although three of the sites have been excavated, the evidence is variable and two of these are not universally accepted as temples.

The late Roman temple within the earlier Iron Age hillfort at Lydney Park comprised an extensive range of buildings, including temple, baths, a guesthouse and *abaton* or healing centre, and has produced a considerable number of ritual artefacts, including coins, jewellery, small figurines of dogs and human body parts and also a number of lead curse tablets. The site has been known since the 18th century and was excavated by the owner, the Right Hon. C. Bathurst, in the early 19th century (Bathurst 1876) and, again, by the Wheelers in the late 1920s, who added little detail to the ground plan of the building but dated it to the late

4th century. They interpreted it as a thriving pilgrimage centre dedicated to a local God, *Nodens* (who was associated with healing) which flourished well into the 5th century (Wheeler and Wheeler 1932). Since that time further research has suggested that the temple may be earlier than the Wheelers suggested, dating to the second half of the 3rd century AD, although with considerable embellishment in the later 4th century, and may have begun to decline towards the beginning of the 5th century (Casey and Hoffmann 1999, 114).

The status of the other two excavated temple sites is much less clear.

One of these, at High Nash Coleford, was discovered and excavated by volunteers in advance of road construction in the mid 1980s. The site has only been published as interim notes, but the partial footings of a rectangular stone structure with a semi-circular apse positioned centrally on its western side was discovered in association with pottery dating to the 3rd and 4th centuries AD (Sindrey 1990, 25-29, Fig XI). No ritual objects were found, but the site was interpreted as a temple partly on architectural grounds and partly due to its proximity to finds which may have accompanied a Late Iron Age warrior burial (see above) found less than 100m from it (Walters 1992a, 93-94). In the absence of detailed analysis of the results of this excavation the interpretation of this structure as a temple site must remain conjectural, although it would seem likely that structural remains of a 3rd-4th century AD building of some sort were present on the site.

The other reported temple is in the grounds of Littledean Hall, Littledean. This excavation has only been published in summary form, but a site plan shows a rectangular structure with a small apse attached to its western side. The structure has been interpreted as a Roman temple which superseded an Iron Age water shrine (Macer-Wright and Fitchett 1984, 7, Sindrey 1990, 24-25; Walters 1992a, 103). A hoard of Roman coins has been reported from the site, but Roman pottery was relatively scarce and no clearly ritual or votive objects were found. From the outset, a number of authorities have questioned the site's interpretation as a temple, and a report by inspectors from the Historic Buildings and Monuments Commission suggested that the remains were actually those of an early post-medieval farmhouse (Smith 1985). Like the putative temple site at High Nash (see above), the interpretation of this site is unclear and there appears to have been no detailed analysis of the excavation results. There is some evidence for Roman activity on the site, including pottery and a number of coins, but the status of the structural remains is not clear.

The fourth site, at Blackrock Farm, Lydney, was identified in 2015 from Google Earth images which showed cropmarks of two concentric square enclosures, the inner measuring about 69m x 69m with the outer a further 10 to 13m from it. The site has not been investigated but is consistent with the 'double-box' plan of a Romano-Celtic temple, or *temenos* enclosure common in the northwestern provinces of the empire (Salway 1993, 474-477) with similar examples known in Gloucestershire at Sapperton, Nettleton and Uley to the east of the River Severn (Moore 2012, 6).

Other undated enclosures (particularly the concentric sub-rectangular earthworks at Willsbury east of St Briavels (see 5.1.2 above) and perhaps also the rectangular enclosures at Haywood Lodge, Cinderford and Morse Lane Ruardean (see 6.2.7 below)) may also represent Roman temple sites but are currently thought most likely to be other types of site.

5.3.2 Other evidence

5.3.2.1 Burial

The only direct evidence for Roman burial is known from Dymock Sewage Treatment Works. A small 2nd century cemetery was made up of five adult inhumations (one male and four female) aligned approximately north/south, and three infant burials which were outside the cemetery. Coffin nails and fittings suggested that four of the adults had been placed in coffins, whilst the fifth was probably in a shroud, and hobnails were found with two of the female burials (Cole 2007, 192). The adult burials were both crouched and stretched inhumations, burial practices which were common in rural Gloucestershire at that time, and may have been a continuation of late Iron Age traditions (Catchpole 2007, 216).

Early Roman inhumation burials of a supine adult (probably within a coffin) and a crouched juvenile have also been found at Rose Cottage and Winserdine, Dymock. Both graves cut a ditch which had fallen out of use sometime before about 120 AD and the adult contained coffin nails and early (pre 120AD) pottery, whilst the juvenile was accompanied by grave goods (including crushed pottery and an iron sheet with bronze rivets) which seemed to evoke prehistoric traditions (Tavener 2001, section 2).

A truncated stone-lined box, also from Rose Cottage and Winserdine, Dymock may have been the remains of a burial cist, and sherds from a cremation urn of late Iron Age type were also found with calcined bone in the

lower fill of an early Roman ditch at the same site. This may be evidence for late Iron Age burial, but could date to the early Roman period (Ratkai 2001, section 4.2.3; Tavener 2001, section 2).

Other Roman burial remains from Dymock include an undated skeleton found with Roman pottery to the north of the church and a Roman funerary urn and cremation found c. 290m to the west of the church. Both of these were found in the early 20th century, but they have now been lost (Gethyn-Jones 1991, 94-95).

Outside of Dymock the evidence for Roman burial is less easy to interpret.

The truncated remains of two large Severn Valley Ware vessels from Onslow Road on the eastern outskirts of Newent have been interpreted as evidence for Roman cremation burials, but although charcoal was reported, no cremated bone was found. The precise date of these is also not clear, although a 3rd century coin was found close by (Catchpole 1993b).

Two skull fragments (from different individuals) from a late Iron Age/early Roman ditch and pit at Reddings Lane, Staunton near Coleford may be the remains of early Roman burial, but are thought more likely to be late Iron Age or earlier (Ellis 2013, 13), whilst two undated inhumations within the ruined remains of Boughspring Roman Villa probably post-date the Roman period (Pullinger 1990, 19).

An undated cremation was found close to Lindors Farm St Briavels in about 1883 with sherds from two pottery vessels. This may also be a Roman cremation although these remains are undated and their current whereabouts are unknown (Glos HER 2015).

A rectangular dressed stone basin found during earth moving operations just to the west of Coleford has been tentatively interpreted as a Roman sarcophagus. This may suggest a nearby settlement and burials, although no other examples of stone sarcophagi are known west of the Severn and the object, the original derivation of which is unknown, had previously been used as a farm water trough before being discarded (Beachus 2000, 10, fig 8).

5.3.2.2 Artefacts

Other evidence for Roman ritual and religion is confined to artefacts which probably had a ritual association, but are now divorced from their original context.

Two small altars, probably used in Roman sacrificial rituals (Henig 1984, 128-131), have been found in the Forest of Dean.

One of these was found sometime in the early 19th century within a mound previously thought to have been on Parson's Allotment on the eastern side of Tidenham Chase (Scott-Garrett 1954) but was probably from close to Offa's Dyke in the Northern part of Tidenham Chase (Ormerod 1861, 4, footnote 2; Hoyle forthcoming). The second was found during clearing of an area of swampy ground to the north of Closeturf Farm on St Briavels Common, and had an unusual tapered base (Johns 2005, 38). This may not have been an original feature, as it appears to have had a secondary use as a post-Roman grave marker (see below; Bryant 2012, 241-3).

It has been suggested that the stone font at Staunton near Coleford Church may also have been carved from a Roman altar. This has, however, been questioned since the late 19th century and the font is likely to be an early (probably pre-Norman and possibly pre-Saxon) Christian font (Scarth 1880-1, 67-68).

Four crudely carved sandstone heads (in fact two heads, a bust and a stele) were found in a garden at Ruspidge in 1970 (Fowler 1971, 22, GADARG 1982a; David Rice, Gloucester City Museum pers. comm.), whilst another stone head was reportedly found in a neighbouring garden (Marlene Wilkinson pers. comm.). These heads have been thought to have been associated with a Romano-Celtic shrine, but some authorities consider them to be modern (McGrath and Cannon 1976, 94-98). Another stone head found at Dean Hall, Littledean in 1991 has been associated with the pre-Roman spring head temple at Littledean Hall (Walters 1992, 54), although the provenance of this artefact and its association with the putative temple site (see 5.3.1) is not clear.

5.4 Roman Trade and Communications

5.4.1 Roads

Major military roads were constructed by the Roman army early in the conquest to link military installations and facilitate the movement of troops, supplies and information (Salway 1993, 385). They would also have been a very tangible symbol of the power of the Roman state and of their control of the landscape of their conquered territories (Copeland 2011, 45).

Margary lists five Roman roads in Forest of Dean District (Margary 1957, Fig 2). These are the road along the northern bank of the River Severn between Caerleon and Newnham (Margary 60a), the road between Gloucester and Mitcheldean (Margary 61), a branch of this road between Huntley leading towards *Ariconium* in Herefordshire (Margary 611), the road between Dymock and Stretton Grandison, Herefordshire (Margary 610) and the Dean Road between Lydney and *Ariconium* (Margary 614). The construction date of none of the Roman roads in the Forest of Dean is known for certain, although the earliest may have been the road through the Leadon Valley from Gloucester to Dymock (Margary 611), the most obvious route for the Roman army in their campaign against the Silures of South Wales between about AD49 and AD74 (Copeland 2011, 35-36), whilst the main network of military roads was probably complete by about AD81, with the majority of secondary roads being completed by the end of the 2nd century (Ebbatson 1989).

With the exception of the Dean Road (Margary 614, see below) all of the roads identified by Margary are accepted as Roman. For much of their routes, they are followed by modern roads or fossilised as field boundaries or footpaths, although some sections are visible as earthworks, lidar detected features, or cropmarks. Visible evidence survives at Huntley (Glos HER 2015), between Linton Farm south of Highnam and Over (Glos HER 2015; PastScape 1161622, 1325937), Dymock (Gethyn-Jones 1991, 95), and close to the River Wye at Tidenham (Hoyle 2008c, 90, Fig 45). Sections have been excavated at Linton Farm, Over where the exposed road surface was shown to be made up of iron slag (Dodd and Moss 1975, 13), and to the north of Dymock where a paved surface was exposed (Glos HER 2015).

The Ravenna Cosmography indicates a road from Kenchester, Herefordshire to Gloucester which passed through *Eprocessa*, identified as Stretton Grandison, Herefordshire (Gethyn-Jones 1966, 11), and *Macatonium* which may have been Dymock (Catchpole *et al* 2007, 133). A road link between Dymock and Gloucester is generally accepted and is marked as 'inferred' by Margary (Margary 1957, Fig 1; Catchpole *et al* 2007, Fig 1). Until recently there was no evidence that this stretch of road existed, although recent geophysical survey at Linton Farm, Highnam (just to the east of the district) has identified the junction between this road and the road leading west towards *Ariconium* (Tony Roberts, Archeoscan, pers. comm.).

At Dymock there is both earthwork and excavated evidence for a Roman road (made up of gravel) leading eastwards towards Kefford, perhaps continuing to the River Severn near Haw Bridge (Gethyn-Jones 1991, 95; Newman and Newman 1990, 22-23; Morris 2004; Catchpole *et al* 2007, Fig 1), and it has been suggested that the main road from Dymock to Gloucester (Margary 611) may have joined the Kefford road at Dymock Cricket ground on the eastern side of the modern settlement (Gethyn-Jones 1991, 95). This may be supported by geophysical survey (Maxwell 2004), although lidar evidence suggests that the Kefford Road turned southwards to follow the western side of the River Leadon (via Pauntley Court, Upleadon, Highleadon and Rudford) to join the main Gloucester to Mitcheldean road (Margary 61) at Highleadon (Hugh Toller pers. comm.). This evidence has not been tested and it remains unclear whether this would represent the original line of the main road between Gloucester and Dymock (Margary 611) or an alternative route which ran parallel to it.

There may also have been a Roman road between Newnham and Monmouth, passing through Littledean, Cinderford Bridge, Broadwell and Staunton near Coleford, but much of the evidence for this is 'traces of Roman pavement' recorded in the 19th century (Hart 1967, 38-40), and a reported terrace close to the modern A4136 at Staunton.

Short stretches of putative road have been associated with Lydney Park Temple (Witts 1883, 34), identified between Tidenham and Stroat and at Boughspring Roman Villa (Bridgewater 1973, 8), and also along the edge of the Severn from Warrens Wood to Naas House east of Lydney (Scott-Garrett and Harris 1932, 7), but the actual evidence for these is also largely circumstantial. Stone paving and kerbing have been identified at Silver Street, Mitcheldean (Hart 1967, 33-34), although, again, this is not definitely evidence for a Roman road (see below).

Some sources also infer a Roman road running northwards from Newnham to link with the Gloucester/Mitcheldean road somewhere near Over to the west of Gloucester (Catchpole *et al* 2007, Fig 1), although no clear evidence for this road has been found (see Margary 1957, 55). Recent geophysical survey at Linton Farm, Over discovered a short section of parallel linear anomalies consistent with the roadside ditches where this road would be expected (Roseveare and Roseveare 2009, 6-7). Evaluation of these ditches, however, suggested they were natural anomalies rather than archaeological features (Moore-Scott and Roberts 2012, 3).

There are also numerous examples of possible Roman roads being identified as 'traces of Roman paving' on the 1st Series 25" scale Ordnance Survey maps of the area which date to around 1880, although these reports need to be treated with considerable caution (Hoyle 2008a, 169-171) and much of this paving is likely to represent the remains of extensive road repairs carried out in the Forest of Dean in the 19th century (Codrington 1905, 286).

In addition to the identified or suspected Roman roads, the Forest of Dean would have had a network of roads and tracks during the Roman period which may have been as extensive and variable as that which exists today, although evidence or many of these is likely to be extremely elusive and much more work would be needed to clarify the complete system of Roman roads in the Forest.

5.4.2 The Dean Road

The Dean Road (a paved and kerbed road) warrants special discussion as, although it is cited as Roman in a number of recently published works (Sindrey 1990; Walters 1992a; 1992b; Catchpole *et al* 2007, Fig 1) and has been known locally as 'the Roman road' since at least the 19th century (Standing 1988, 35), its status as a Roman road has been questioned. Archaeological examination of the road has, however, been limited. A section excavated by the Forest of Dean Local History Society to the south of Soudley in 1985, obtained a radiocarbon date from a charcoal layer below a portion of the kerbed road surface (Walters 1985a, 5). This produced a date no earlier than 1660, suggesting that, in this area at least, the metalled road surface is no earlier the post-medieval period (Standing 1988, 40-41). A series of test pits over the course of the Dean Road were excavated by Dean Archaeological Group to the south of Oldcroft in late 2016. No dating evidence was found but the excavations did identify two adjacent metalled surfaces (one kerbed, the other not) in some areas, although only one in others. The relationship between the two surfaces was not established, but lidar evidence suggested that one of the surfaces may have diverged to follow a course away from the Dean Road, although excavation was mostly limited to exposing metalling and it remains possible that the two surfaces represented subsequent phases of surfacing of the same route which simply diverged in places (Hoyle 2017; Izzard in draft). An archaeological evaluation at Highfield Lane Lydney included the projected route of the Dean Road, although no evidence for a road was found in that area (Haines and Sausins 2017). Standing (1988, 38-39) has pointed out that the Dean Road appears to respect post-Roman features such as churches, and, unlike many Roman roads elsewhere, was not used as a landscape feature forming parts of early parish or bailiwick boundaries. The road was not mapped as a single continuous entity on the earliest large-scale map of the Forest of Dean (Taylor 1777) and suggests that the road is in fact made up of a number of discrete paved roads constructed, perhaps by the Government, to serve increased traffic in timber and coal during the post-medieval period, and the anticipated production of timber for Naval requirements following the Dean Forest Reafforestation Act of 1668 (Standing 1988, 39-43), although it remains possible that some sections of the Dean Road followed an earlier route. Just north of Abenhall, iron slag was used to surface the Dean Road (Trotter 1936), similar to Roman road surfaces recorded in some areas of the Forest of Dean (see above) and also at Ariconium, Herefordshire only c. 5km to the north (Jackson 2012, 14-15).

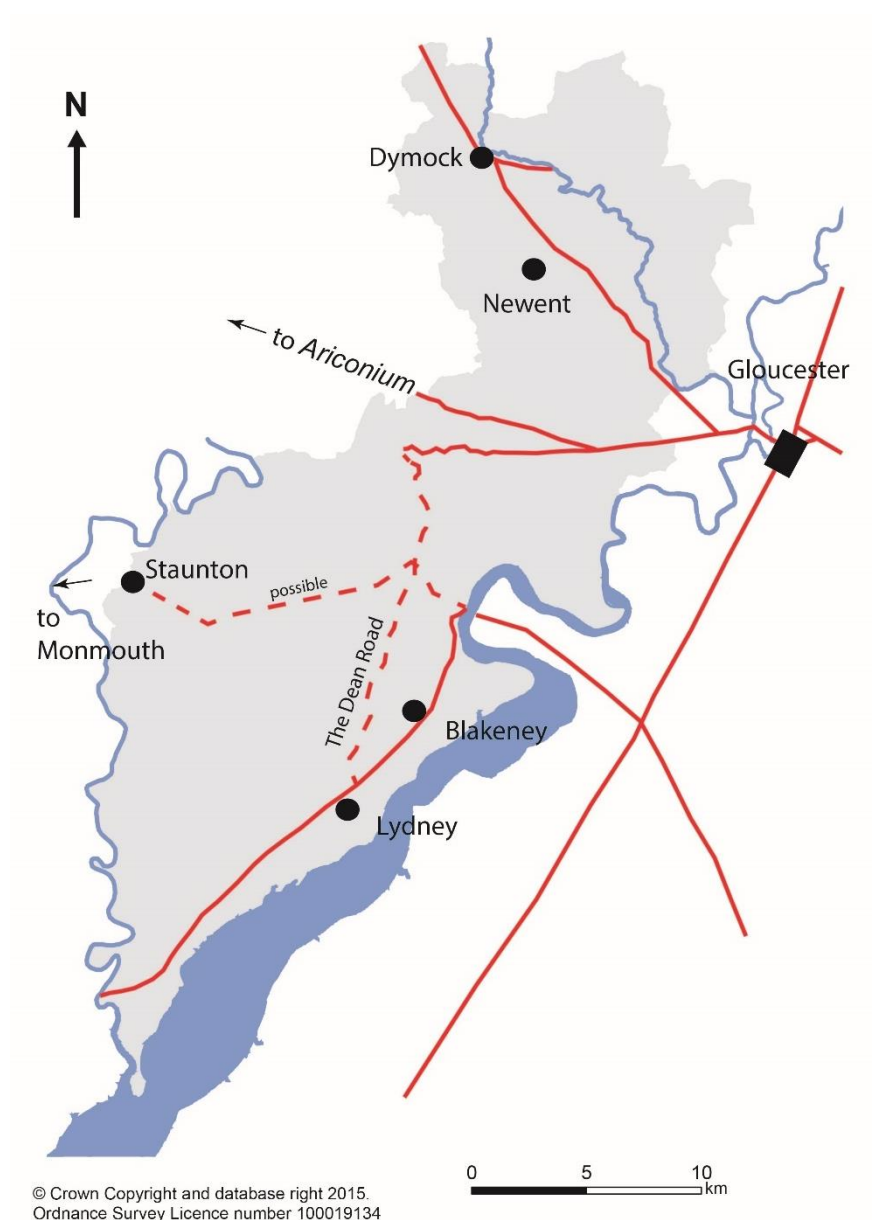


Figure 15: Known and possible Roman roads

5.4.3 River traffic

The Rivers Severn and Wye are also likely to have been important communication routes during the Roman period.

A river crossing between Newnham and Arlingham, on the Severn's eastern bank, is implicit in Margary's route for the Roman road from Newnham to Caerleon (see above) and a ford across the river here was used until 1802 when the river channel changed direction and washed away the sand bed linking it to the shore (Herbert 1972a, 29; O'Neil 1946-7-8, 420). In the medieval period a ferry linked Newnham and Arlingham at high tide (Herbert 1972a, 29) and the Romans may have had a similar arrangement.

Medieval ferries crossing the Severn were recorded between Beachley and Aust, Sedbury and Sheperdine near Oldbury on Severn and Rodley and Framilode (Herbert 1972a, 54, 57, 157) and also at Purton (Herbert 1996c, 51), and these, or similar, crossings may also have been used during the Roman period.

The River Wye was probably crossed by a timber bridge at Tutshill, Tidenham, the remains of which are still visible at low tide (Hart 1967, 31), although ferries may have crossed the Wye in other places. Apart from the ferry at Waterscross north of Lydbrook, however, (Jurica 1996a, 232), few of the known ferries are thought to be early.

The Rivers themselves were also probably used as transportation routes, although the evidence for this is largely circumstantial. The later Roman villas and settlements on the northern shore of the Severn may have been linked to the river by navigable piers and a wharf has been postulated at Park Farm villa, Aylburton (Fitchett 1986), whilst a small rectangular building and area of platforms at The Chesters villa, Woolaston has been interpreted as a lighthouse or navigation beacon to a wharf at Lay Pill (Scott-Garrett and Harris 1938). A similar structure at Park Farm, Aylburton has also been interpreted as a lighthouse (Fitchett 1986) whilst a mound at Sedbury Park may have been a beacon to guide shipping during the Roman period (Ormerod 1861). Numerous sites are known close to the Severn where Roman iron smelting is likely to have taken place and these may have traded via the Severn (Allen 2009), although there are no known wharves or landing stages of this period.

5.5 Romano-British economy

Where Roman settlement has been identified in the Forest of Dean there appears to be a close relationship with the iron industry. This is discussed more fully below although the relationship between settlements, the sources of ore and other requirements (e.g. charcoal) is not well understood. Stone was also quarried in the district as was sand and gravel. Again, this is discussed more fully below, but no definite Roman quarries have been identified and the industry is poorly understood.

There is some evidence for other Roman industries in the Forest of Dean, although this is generally limited.

Moulds for copper alloy brooches (and at least one matching brooch) from Dymock Sewage Treatment works (Cool 2007, 183, Fig 16), and crucible fragments, moulds and cupels from Kyrleside (Williams 2011a, 21) indicate that copper alloy casting, including the manufacture of brooches, and also silver refining was taking place during the first and 2nd centuries. The Mount, Lower Lybrook was also a bronze working site during the later Roman period and bronze slag has been found along with 2nd to 4th century AD pottery (including some Samian) and iron slag at the site (Walters 1985b, 24). A similar industry may have been taking place at the Moat c. 1km southwest of Newent where copper slag and lead waste (from which silver could have been extracted by cupellation) has been found with 2nd century pottery and evidence for former buildings (Walters 1990c, 27).

Pottery manufacture has also been postulated at Dymock (Timby 2007, 167), and a small updraft kiln excavated at Western Way on the southern part of the modern town may have been used for pottery manufacture in the 1st and early 2nd century AD (Crooks 2014, 16-17). A pottery kiln was also excavated to the east of Sedbury Park Tidenham (Ormerod 1861, 46), although this was excavated in the 1850, and its status as a genuine kiln site remains unclear. Pottery kiln wasters and evidence for back-filled clay pits recorded at the Moat, Newent suggest that pottery may also have been manufactured there during the 2nd century (Walters 1990c, 27), although no kiln sites have been found.

5.6 Environment and landuse

5.6.1 Farming

The Forest of Dean contains very little evidence for the Roman environment although a picture is beginning to emerge. At Dymock an ox goad and reaping hook found at the sewage treatment works (Cool 2007, 180) indicate that agriculture took place, and charred remains of cereals from that site and from early Roman contexts at Rectory Meadows and Kyrleside to the west indicate that spelt was the principal cereal crop although oats, barley, rye and free-threshing wheat were also grown. Weeds associated with crop husbandry were common in the Dymock assemblages, although grassland and meadow (and to a lesser extent woodland) were also in the vicinity (Druce 2007, 230-231, Table 22; Jones 2007, 209, Table 17; Clapham 2010, 37). Sheep were kept for both meat and wool, and cattle and pigs may have been imported for meat (Ingrem 2007, 201), although the cattle may also have been reared in the area indicating that there must have been grazing land.

Cattle was also the most common animal bone represented in the late Iron Age/early Roman enclosure ditch and contemporary pits at Reddings Lane, Staunton near Coleford, although the animal bone assemblage (which included sheep and pigs) was too small (total 164 fragments) to infer too much from this. The cattle bone included a neonatal mandible, suggesting that cattle were bred at, or close to, the site (Ellis 2013, 9-10, Table 1).

In other parts of the Forest lidar has patterns of earthworks in woodland which appear to represent deliberate land divisions not associated with, and probably pre-dating, the woodland. A system of conjoined sub

rectangular fields in Sallowvallets Wood, Cannop probably originated in the later prehistoric period between about 1000 and 600BC, and fell out of use either before or early in the Roman period. Parallel linear systems, demarcating broad terraces about 50m wide immediately to their west, appear to have been cultivated during the Roman period (see above). The two systems may represent successive enclosure patterns with the parallel terraces indicating changes in land tenure or farming practice introduced early in the Roman period, although this relationship was not established and the linear system may have originated in the latter part of the Iron Age (see above; Toms *et al* 2012, 190), the two systems coexisting side by side for a period (Hoyle 2013a, 43).

Other parallel linear earthwork systems, generally demarcating terraces of between 40-70m apart, and sometimes divided by short straight terraces or banks to create a coaxial field system have been identified in the Forest. These are known to the east and west of Brierley, to the north and south of Soudley, at Edgehills to the north of Cinderford, in Chestnuts Wood, Littledean, Flaxley Woods, Blaisdon and Clayton Woods on Tidenham Chase, whilst both linear and right-angled earthworks (which may not be contemporary) are known from Oakhill Wood, on the northern part of Tidenham Chase. Some of these may also represent fields which were used during the Roman period, although none have been securely dated.

5.6.2 Woodland and charcoal production

The widespread evidence for iron smelting associated with Roman settlement also implies a ready charcoal supply (Hoyle *et al* 2007a, 90) suggesting that woodland, perhaps deliberately managed for charcoal production, was a feature of the landscape during this period.

The evidence for the charcoal industry is discussed more fully below, but, although a range of deciduous trees were used, charcoal from oak heartwood appears to have been most common at early Roman sites (Gale 2007, 213-214; Challinor 2007, 233; Pearson *et al* 2012, 118) whilst charcoals from small deciduous round woods (typically hazel, elm, birch or hawthorn) became more common in the later Roman period. Oak roundwood remained dominant, however, although it is not clear whether this indicates that woodland was deliberately managed as coppice at this time (Figueiral 1992, 191; Gale 2000, 54; 2012, 167).

Cleere and Crossley (1985, 37) have suggested that there was little evidence for deliberate selection of wood for charcoal production in the Weald with species ratios simply reflecting the available timber resource. Oak may have dominated Roman charcoal assemblages in the Forest simply because it was the most commonly available tree. The preference for charcoal from oak heartwood in the early Roman period may suggest that mature woodland tended to be exploited at that time whilst the predominant use of roundwoods (particularly oak, but also a range of other deciduous trees) later in the Roman period may suggest that supplies of mature oak were diminishing, perhaps due to over-exploitation. It is not, however, clear whether coppicing was introduced at this time to maintain the timber resource, or whether charcoalers became increasingly reliant on immature underwood and scrub.

Charcoal could not easily be transported more than c. 5-6 km without considerable and uneconomic wastage (Cleere and Crossley 1985, 135) and smelting generally took place close to places where charcoal was produced (Hoyle *et al* 2007a, 91). Although oak and hazel were the most common sources of charcoal, a wide range of other charcoals were also used, including species which favoured humid riverside conditions, such as alder and willow, and heathland species, such as birch and gorse/broom suggesting that woodland existed in a range of locations (Figueiral 1992, 190; Gale 2000, 53). This supports the view that woodland was widespread and probably closely mirrored the distribution of the smelting sites which it supplied.

5.6.3 Land reclamation

Roman reclamation of tidal salt marsh has been postulated at a number of locations in the upper Severn Estuary on both sides of the river, although research has tended to focus on the eastern rather than the Forest side of the River. Within the Forest of Dean, Allen and Fulford (1990, 310-313) have postulated Roman land reclamation at Rodley in Westbury-on-Severn and also at Awre, although neither was closely dated. Allen and Fulford's dating of this reclamation has however been questioned in more recent studies (Hewlet 1997 cited in Townley 2004, 17-18), although further fieldwork by Townley (2004, 42-49, figs 19, 21) has suggested Roman land reclamation at Awre, Walmore Common and extensive areas to the west of and around Rodley in Westbury on Severn, parts of the Lydney level between Aylburton and Alvington, Bollo, and around Poulton Court, Awre.

5.7 Discussion of Romano-British period

Compared with earlier periods, there is a relative wealth of Romano-British material from the Forest of Dean and evidence for Roman activity is widespread.

There is increasing evidence, principally from lidar, of earthwork systems some of which may relate to Roman farming in the extensive areas of woodland in the southern part of the district.

Many of the excavated remains have been interpreted as evidence for high status sites such as possible villas or temples, although this is often inconclusive and a range of lower status farmsteads or industrial settlements also appear to be represented.

There is a clear clustering of Romano-British artefacts around Blakeney and Lydney, the area of Chestnuts Wood to the North of Littledean, to the south and east of English Bicknor, and also Dymock, where excavations have also identified evidence for settlement or industrial activity. Many sites have, however, been recognised only as artefact scatters with concentrations known at the Bearn, to the east of St Briavels, around Newent and in the area between Taynton and Tibberton. These tend to have been the result of intensive fieldwalking or metal detectorist surveys and lesser concentrations or dispersed groups of finds from other, less-explored, areas (for example from around Lower Lydbrook, to the north of Ruardean and in the area to the southwest of Coleford) may prove to be equally significant in terms of settlement distribution.

As with earlier periods, with the exception of the sites identified by lidar, there is also a tendency for Roman sites and artefacts to have been found outside of woodland and particularly outside the larger areas of woodland in the southern part of the district. Where finds have been identified in woodland this is generally where ground disturbance has taken place and someone was on hand to identify and report the finds or close to settlements at the edge of the woodland where more people are present, improving the likelihood of casual observations. Given this, the overall distribution of sites and finds is almost certainly disproportionately represented outside woodland (and also long-term pasture) and it is very likely that further sites await discovery in these areas (Hoyle 2008a, 168).

A number of late Iron Age settlements (e.g. Reddings Lane Staunton near Coleford) continued largely unchanged into the early Roman period, although other settlements (for example Dymock) were either newly founded or radically altered by Romanisation, although many of these early Roman settlements appear to have declined or disappeared in the 2nd or early 3rd centuries. New agricultural or industrial settlements such as The Moat, Newent; Newent Business Park; The Mount, Lydbrook; Rodmore Farm, St Briavels or a number of sites around English Bicknor and on the gravel terraces to the southeast of Lydney may have begun to emerge at about this time.

A number of villas also appear in the 2nd or 3rd centuries and the evidence suggests many may have been involved in iron production. The actual evidence for this is, however, variable (see above) and, although some villas, such as The Chesters, Woolaston, may have produced enough smelted iron to export via the River Severn there is considerably less evidence at a number of other villas such as Stock Farm, Clearwell; Boughspring, Tidenham and Huntsham, just outside the district in Herefordshire to the north of Symonds Yat, where smelting pre-dated the recognised villa buildings.

The new settlements and villas of the 2nd and 3rd centuries might suggest some form of large-scale reorganisation of the countryside during this period, perhaps with native style farmsteads declining and being replaced with a more Romanised system of villa estates and perhaps also small settlements. The available evidence, however, suggests that settlement and land use is likely to have been more complex and diverse than this simple model might suggest and more research is needed in this area.

Small discrete industrial sites, such as the 2nd to 4th century bronze working site at the Mount Lower Lydbrook, do not seem to easily fit into this pattern, and many sites are too poorly understood to support any overarching theory. In addition, a number of early Roman artefacts have been recorded at sites where 2nd–4th century assemblages predominate. These are often chance finds of 1st century coins or brooches, which could be items retained into later periods, but fieldwalking at Cinders Fields, Tibberton recorded a pottery assemblage with a 1st – 4th century date range suggesting continuity of settlement at that site (Charlesworth 2003), and some sherds of 1st century pottery were also recorded at the Moat, Newent amongst a predominantly 2nd century assemblage (Walters 1990c).

The network of communication routes which would have existed in the area during the Romano-British period is also not clear. A number of major roads are known (see above) although their construction sequence and

actual routes are often poorly understood whilst little is known about the network of minor roads or tracks which would have served the settlements and industrial sites within districts throughout the Roman period.

The majority of identified Roman sites from all periods appear to have been involved in iron working in some way, although this is not always the case. Settlement evidence without evidence for iron working has been found at Sedbury Park, Tidenham; Rodley Manor, Lydney; Hartpury; Lassington Court, Highnam; Barbers Bridge, Rudford; Rodley, Westbury on Severn and also Nedge Cop and Bearse Farm, St Briavels. Other industries were also taking place in the Forest at this time and there is evidence for pottery manufacture at Dymock, Sedbury Park Tidenham and the Moat, Newent, and Bronze casting at Dymock; the Moat, Newent and the Mount, Lydbrook.

What little environmental evidence exists for the Roman period indicates that cereal crops (principally spelt, but also oats, barley, rye and free-threshing wheat) were grown in many areas. Pigs were kept for meat, although sheep (kept for both meat and wool) and increasingly cattle appear to have been more significant, and grazing must have been an important part of the landscape. Linear (and possible also some of the conjoined and coaxial) boundary systems identified by lidar in some areas of woodland may represent Roman field systems and other Roman boundaries have been discovered by excavation. Despite this, the full extent and nature of Roman land divisions, or to what extent areas were favoured for grazing or agriculture, is unknown. Woodland would also have been widespread as evidenced by the extent of smelting which would have been fuelled by charcoal. The Roman period may have seen a decline in mature woodland, perhaps due to charcoal production, although whether this was replaced with widespread coppicing to ensure a steady charcoal supply or whether charcoalers simply made use of immature underwood remains unclear, and information about the full extent, nature and location of Roman woodland is lacking. A landscape of frequent discrete areas of woodland (similar to areas such as the Weald in Kent) interspersed with enclosed fields or paddocks may have been the norm, with the very large areas of almost continuous woodland which currently exist in some areas of the Forest not developing until later periods.

6. The medieval period

6.1 Settlement

6.1.1 Early post Roman: 5th and 6th centuries AD

Very little is known about the Forest of Dean during the period immediately following the withdrawal of the Roman army sometime around AD410 and before the establishment of Anglo-Saxon rule sometime in the 6th century AD, and the picture is confused by both a lack of research and difficulties surrounding the interpretation of available evidence. Pottery and coins may have had a greater longevity than is generally thought, and evidence for decline (such as for example the re-use of derelict sections of villas as agricultural buildings, or apparent cultivation in previously urbanised areas) may be as much about localised changes in function or fashion as indicators of a more impoverished or collapsing society.

As with other areas of Gloucestershire, however, the villas in the Forest of Dean do not seem to have continued beyond the 5th century (Highway 1987, 5). A hearth in the broken floor of a domestic room at The Chesters, Woolaston, may have been evidence for post-Roman squatters in the former villa building (Scott-Garrett and Harris 1938, 99), whilst at Boughspring, burials in the former domestic buildings (Pullinger 1990, 19) have parallels with other Gloucestershire villas (e.g. Frocester and Barnsley Park) where they have been interpreted as evidence that official burial sites had ceased to function and people were now being buried close to their farms (Heighway 1987, 3).

Some hillforts in western Britain seem to have been re-occupied and re-fortified during the early post-Roman period and this has been suggested for Lydney Park Hillfort (Wheeler and Wheeler 1932, 6-9) and also for Welshbury Hillfort (McOmish and Smith 1996, 61), although in neither case is this certain (see 6.4.1.1 below).

The only other find which may date to this period is a Roman altar from Closeturf Farm, St Briavels Common (see above), which appears to have been reused as a grave marker with crude markings. These may be approximate copies of letters produced by someone who was semi-literate, but which may include the word *fecit* (or *ficit*) which was used on memorials in southeast Wales from the 5th to the 9th centuries AD (Bryant 2012, 241-3). This find was not, however, associated with any other evidence for either occupation or burial.

6.1.2 The arrival of the Anglo-Saxons

6.1.2.1 Ethnicity

Precisely when the Anglo-Saxons arrived in the Forest of Dean area is not clear but the Anglo-Saxon Chronicle records that three British kings (Conmail, Condidan and Farinmail) were defeated and killed at the Battle of Dyrham in 577AD by the West Saxons who also captured three of their cities, Bath, Cirencester and Gloucester. Although this cannot be regarded as reliable history the record does suggest that West Saxons had begun to take control of the Severn Valley by the later 6th century (Heighway 1987, 18-19), and recent excavations at Bishops Cleeve, Cheltenham and Uckington in the Severn Valley have produced evidence for early Anglo-Saxon settlement dating to this period (Lovell *et al* 2007, 104; Sheldon *et al* 2010, 4; Williams 2011b, 9).

The ethnicity of the population at this time is unknown and there is still considerable debate over whether ethnic Angles or Saxons moved into the area displacing large sections of the local population, an Anglo-Saxon elite extended their political and cultural influence over a native population or whether ethnic Saxons assimilated the local population into Anglo-Saxon culture through a combination of cultural dominance and interbreeding.

There is an increasing body of evidence for early Anglo-Saxons (whether ethnically Germanic or culturally assimilated natives) in the Severn Valley, the Cotswolds and the Upper Thames Valley to the east of the Forest where pre-Christian cemeteries and distinctive buildings such as timber halls or sunken-featured buildings are no longer uncommon. None of these are known in the Forest of Dean, although evidence suggesting early Anglo-Saxon influence and possibly settlement is known.

6.1.3 Early Saxon settlement

There is currently no excavated evidence for early Saxon settlement in the Forest of Dean. An early 7th century coin has been found at Newent (along with an Anglo-Scandinavian brooch which may be slightly later) and spear heads of pagan Saxon style have been found at Tutshill in Tidenham and at Mork to the west of St Briavels (Hart 1967, 49; Webb 1997a, 15; Webb 1997b, 291).

The bulk of the evidence for early Saxon settlement takes the form of place names and the Forest of Dean is included in large-scale studies of place names which may indicate early Saxon or contemporary settlement (Hooke 2009, 31-50) and a number of these names have been identified in the area. With very few exceptions (see below) the earliest references to these are in the Domesday survey of 1086, although many of the settlements would have existed long before they were first recorded.

6.1.3.1 Tun names

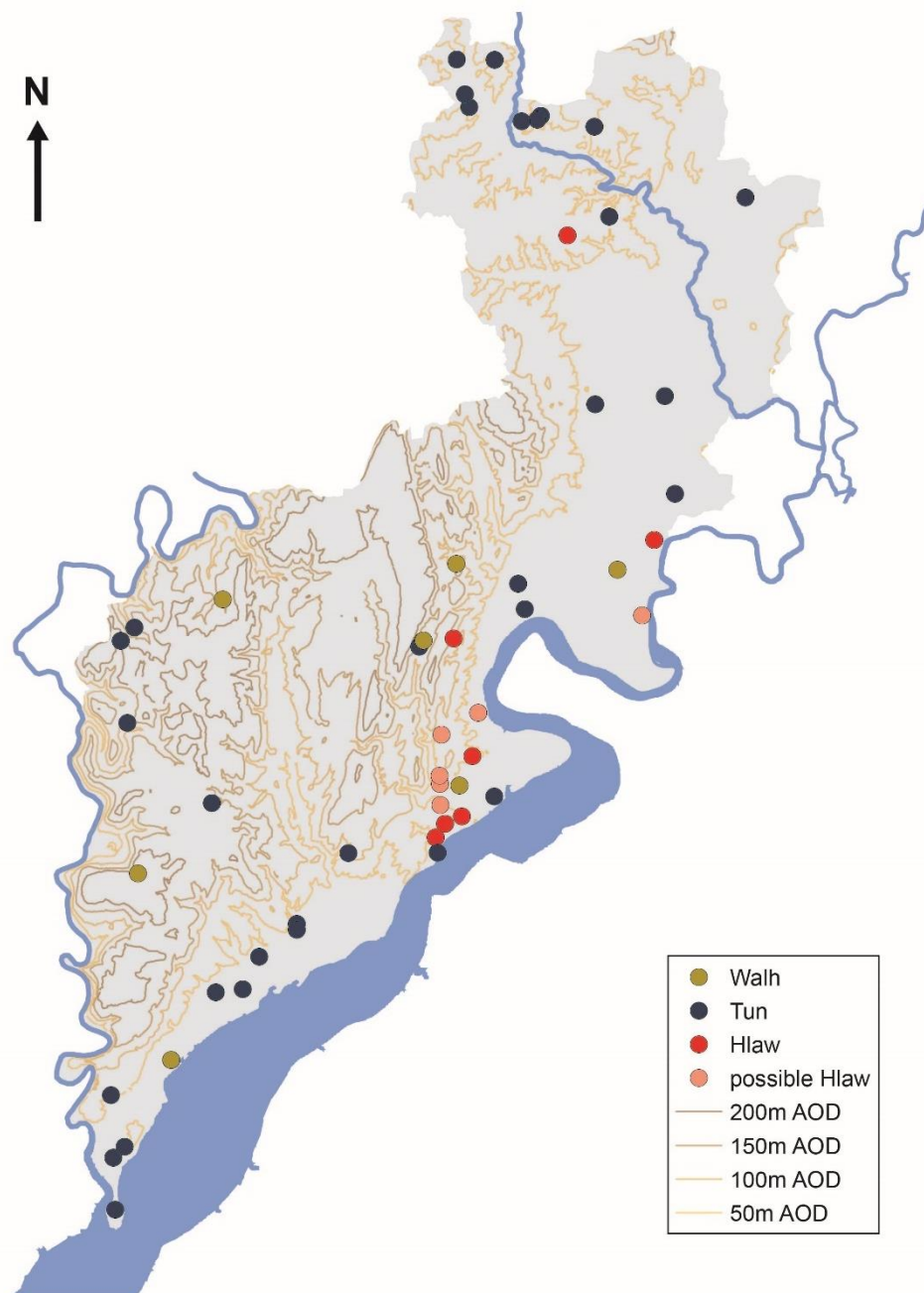
The Forest contains several names suffixed 'ton' which are derived from *tun*, meaning farmstead (Smith 1964a, 1964b), although only one of these (Staunton near Corse) is recorded before the Norman conquest of 1066 (Smith 1964a) and only eleven recorded in the Domesday survey of 1086 (Moore 1982).

The majority of the names mentioned in Domesday are either on the northern shore of the Severn Estuary or in the Leadon Valley, either close to the Leadon or a tributary of it (cf. Hooke 2009, Fig 11), suggesting that the early Anglo-Saxons used these rivers as routes into the area and settled close by them. Many are also close to former Roman roads which may also have been a factor in the siting of early settlements.

The exception to this is Staunton near Coleford which is on high ground overlooking the Wye Valley (although over 2km from the river itself) in the western part of the Forest. This may suggest early incursion along the River Wye, although Staunton is on a Roman road which leads through the Forest towards Monmouth, and may also have been associated with access through the later Saxon Mercian frontier in this area (Hoyle and Vallender 1997, 71). Other place names

Names containing the element 'loe' or some derivative of it, from the Old English *hlaw* can simply denote a natural hill, but can also indicate an artificial mound or tumulus (Smith 1964, IV, 139; Gelling 1997, 134-137) either associated with the meeting places of hundreds (Moots), burial mounds of the early Anglo-Saxon period (Hooke 2009, 41) or earlier mounds re-used at this time (Heighway 1987, 25). Hooke (2009, 43) has used the distribution of *hlaw* place names to indicate an early Anglo-Saxon presence in the Severn Valley as far north as Worcestershire and Herefordshire. Botloe's Green between Dymock and Newent (which may have been a hundred meeting place (Charlesworth 2010, 15)) and Baglaw, the modern Bagley Farm, Westbury on Severn, are both *hlaw* place names and there is a concentration of these names either in, or close to, the parish of Awre, a low-lying headland protruding from the eastern side of the Forest into a bend in the River Severn (Hoyle 2008a, 135-6). This concentration may suggest evidence for pre-Christian Anglo-Saxon burial activity and early settlement, although there is no clear evidence for this and the partial excavation of a mound at one of these sites (Bledisloe Tump) demonstrated that it was probably constructed sometime in the 13th century (Dornier 1966, 61-63).

Place names derived from *walh* meaning a serf or Welshman (Smith 1964b, 183) may refer to people who spoke a Celtic rather than Germanic language (Gelling 1997, 93) and may have denoted early medieval settlements of the native population when two different cultural groups were living side by side. Place names with this derivation are known in Awre parish; Welshbury Hillfort, Blaisdon; near Coldharbour to the southwest of St. Briavels; Newnham; English Bicknor; Tidenham and at Walmore Common, Westbury on Severn (Smith 1964a; 1964b), although none were recorded before the later medieval period (Smith 1964a). The majority of these are on the eastern side of the Forest close to the River Severn, although there are some in the southwestern part of the area overlooking the River Wye.



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Figure 16: *Tun*, *Hlaw* and *Walh* place names

By the early 7th century AD much of the Forest of Dean may have been part of the Anglo-Saxon kingdom of the Magonsaetan, a predominantly Anglian dynasty whose territory included much of Herefordshire and South Shropshire, although by the later 8th century it fell within the southwestern part of Mercia (Stenton 1998, 201). The precise western boundaries of Mercia at any time are still unclear, particularly in the Tidenham area, where the Kings of Gwent granted land and the church to the Bishopric of Llandaff sometime around 700 (Herbert 1972a, 73), and although Offa is thought to have consolidated his western boundary with the construction of Offa's Dyke (Stenton 1998, 211-212), the status and date of this monument in Gloucestershire has been questioned (see below).

6.1.4 Later Saxon settlement

As with the early Saxon period there is no excavated evidence for later Saxon settlement, although Westbury on Severn, Tidenham, Redmarley D'Abitot, Staunton near Corse, Wyegate, Lancaut and Lydney are all mentioned in Saxon charters (Smith 1964b).

Most of the evidence for pre-Norman settlement in the district is extrapolated from the Domesday survey of 1086. This is, however, a record of property rather than a comprehensive list of settlements and small settlements may be subsumed within larger taxable holdings and not recorded by name (Hey 1996, 136) whilst the nature of settlement within the recorded manors is not always clear.

The Domesday Survey records 56 places in the district, although at the time of the survey a number of these were within Herefordshire or Worcestershire. One of these (*Dene*) has been interpreted as both Littledean (Smith 1964b, 225) and Mitcheldean (Moore 1982, 167c) and may represent two settlements which had tenurial links at that time (Jurica 1996a, 173), whilst Churcham and Morton were listed together (Moore 1982, 165c, d) and may have been alternative names for the same place (Herbert 1972b, 11). Staunton near Corse (first recorded before 1086 (see above)) is not mentioned by name, but has been identified as an unnamed holding in Worcestershire (Moore 1982, E 33). Four Domesday places (Staunton near Coleford, Upper and Lower Redbrook and Whippington) were recorded as 'waste' in the Domesday survey and appear to have been abandoned before the Norman conquest (Herbert 1996d, 272; Jurica 1996b, 101).

The distribution of Domesday holdings reflects that of possible early Saxon placenames with concentrations in the Leadon Valley and along the northern shore of the River Severn, although many more Domesday holdings are found in the southwestern part of the district, on the higher ground at the edge of the Wye Valley. The nature of these settlements is not clear and names which are now attached to villages need not have represented nucleated communities at this time, and although some settlements such as Dymock and Newent may have been recognisable villages most settlement probably took the form of solitary farmsteads (Jurica 2010f, 2).

With a single exception, no Domesday sites are found in areas currently under woodland or within the modern bounds of the Statutory Forest. Although this boundary was not ratified in its present form until 1668 (Herbert 1996b) it broadly correlates to the area of woodland and waste which formed the Royal demesne within the wider Norman Forest and which was probably used as a Royal hunting ground in the later Saxon period. The lack of evidence for pre-Norman settlement in this area suggests that it was essentially an area of woodland or waste devoid of permanent habitation by at least the later Saxon period.

The only Domesday place name which is thought to have been within what is now the Statutory Forest is *Newarne* which may have been close to the site of the modern Speech House (Moore 1982, map of Northwest Gloucestershire Ha:4, E2), although a site to the south or southwest of Cinderford has also been suggested (Smith 1964b, 218-219).

6.1.5 Later medieval settlement

Much of current knowledge of the distribution of settlement in the later medieval period (After the Norman conquest of 1066) comes from documentary sources (see for example Smith 1964a and b; Victoria County History of Gloucestershire volumes 5, 8, 10, 12 and 13) or the Domesday survey. Small-scale excavations throughout the area have found evidence for later medieval activity, although this has tended to complement documentary evidence rather than break new ground. Eight of the medieval towns in the Forest (Coleford, Dymock, Lydney, Mitcheldean, Newent, Newnham and St. Briavels) were included in the Gloucestershire Historic Towns survey (Douthwaite and Devine 1998). Knowledge of individual settlement sites, and their contemporary landscapes (see below) has also been augmented by extensive surveys such as the National Mapping Programme (Small and Stoertz 2006; Crowther and Dickson 2008; Priest *et al* 2008), the 2006 lidar survey of the southern part of the district (Hoyle 2008c) and Historic Landscape Characterisation (Hoyle 2006).

6.1.5.1 Continuity from the Saxon period

The establishment of the Norman Royal Forest sometime between 1066 and 1086 did not seem to have had a major impact on settlement patterns in the southern part of the district. The boundaries of the wider Forest (i.e. the area administered by Forest law) fluctuated enormously between the Norman period and the beginning of the 14th century (Hart 1945, Maps I, II and III), and, along with other Royal Forests, much of this area continued to be inhabited and farmed, although the inhabitants experienced a change in their fiscal

circumstances under Forest law with separate courts and taxation systems (Herbert 1996e, 295). Only the Royal Demesne within the wider Forest (an area roughly correlating with the modern Statutory Forest (Herbert 1996a, 285)) was set aside for game and would have been devoid of permanent habitation. This area appears to have been largely depopulated before the Norman conquest (see above) as only two pre-Domesday settlements (Hewelsfield and Wyegate to the north of St. Briavels) were recorded as depopulated and placed in the Forest 'by order of the King' between 1066 and 1086 (Moore 1982). These are to the west and southwest of the modern Statutory Forest (between it and the river Wye), and the Royal Demesne may have been extended into this area following the Norman conquest (Herbert 1996h, 354). This may have continued a process which was already underway as four other places to the west of Statutory Forest (Staunton near Coleford, Upper and Lower Redbrook and Whippington) were recorded as 'waste' before 1066 (Herbert 1996d, 272; Jurica 1996b, 101).

Many of the places recorded in the Domesday Survey continued throughout the medieval period and into the present day and the majority of these names are now applied to recognised settlements of some sort. These now range from small towns such as Lydney, Mitcheldean, Newent and St Briavels to isolated farms, such as Madgetts, Hayes, Bledisloe and Stears. Only one place mentioned in Domesday (Whippington, which was already waste by 1066 (see above)) cannot now be located with any certainty and survives only as a road junction (Whippington Corner) to the south of Staunton near Coleford and as Whippington Brook which forms part of the parish boundary between Staunton near Coleford and Coleford.

New Norman overlords stamped their identity on the landscape by building churches at twenty of the settlements mentioned in Domesday (Verey 1980), and also at Lancut, which was not mentioned in Domesday but was first recorded around 700 (Smith 1964b, 263). Norman churches may also have been built at Tidenham, Awre, Lydney, Bromsberrow, Huntley, Westbury on Severn, Newent and Littledean, where pre-conquest or 12th century churches are recorded or where other evidence suggests an early foundation (Draper 2010; Herbert 1972a; 1972c; 1996c; 1996k; 2010a; Jurica 1996a; 2010d) although this is not clear.

At six of these sites (English Bicknor, Hewelsfield, Taynton Parva, Newnham, Ruardean, and St Briavels) there is also a close association between the site of the Norman church and a Norman fortification (see below), and this may also have been the case at Oxenhall, where the presence of an early Norman fortification is speculative (see below), although the early Norman castle at Dymock, which is sited on high ground overlooking the town, is some distance from the church.

6.1.5.2 Settlements first recorded in the later medieval period

A number of new settlements are first recorded in the later medieval period (although it is not always clear when these originated) whilst some earlier settlements flourished.

Staunton near Coleford and Hewelsfield, which were in the Forest (presumably within the Royal Demesne) and depopulated by 1086 (see above) were refounded by the mid 12th century when churches were built (Herbert 1996f, 150; 1996d, 272), and Newland (first recorded as Welinton in 1220) had also been created by assarting into the western side of the Royal Demesne by the early 13th century (Herbert 1996b, 195).

Some settlements developed into small towns. St Briavels, which was the centre of Crown administration of the Forest from about 1155 (Herbert 1996a, 355) had a castle by 1130 (Herbert 1996g, 247-248), a market by 1209 and was a borough by 1351/52 (Douthwaite and Devine 1998, 119-121). Newnham was granted borough status by 1187 and Newent probably by 1226 (Douthwaite and Devine 1998, 93, 104).

Other settlements, however, failed to develop. A borough created at Dymock in the 13th century was short-lived and an attempt to create a borough at Lydney in the 13th century was unsuccessful (Douthwaite and Devine 1998, 54, 65). Mitcheldean was granted a market in 1328, but did not have borough status and there is no evidence that it was a significant trading centre during the middle ages (Douthwaite and Devine 1998, 79). An attempt to establish Alvington as a Market centre in 1265 was also unsuccessful (Herbert 1996i, 6).

Although Coleford was recorded in the perambulation of the Forest in 1281-1282 (MacClean 1889-90, 364) it was only a hamlet in the 14th century and did not achieve urban status until the post-medieval period (Douthwaite and Devine 1998, 39). It is also not clear if Cinderford, which was recorded as a name in 1258, was ever the site of medieval settlement (Douthwaite and Devine 1998, 25-26).

6.1.5.3 Deserted or shrunken settlement

A recent survey by Dean Archaeological Group (DAG 1998a) listed 60 deserted or decayed villages in the Forest of Dean, although not all of these are medieval as it also lists Scowles village (a post medieval industrial squatter settlement) and a number of other sites which are not recorded before the post-medieval period. Information on deserted and shrunken settlement in the area is also available in the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13), and the Gloucestershire Historic Environment Record, which has assimilated selected documentary evidence from the Victoria County History for the area covered by the Forest of Dean Archaeological Survey. The HER lists 69 sites in Forest of Dean District where there is some evidence for either shrunken or deserted medieval settlement although the evidence for these is variable and not all of them are necessarily represent archaeologically significant sites.

Earthworks have been recorded at 47 sites and 27 of these have also been recognised from aerial photographs. Two sites (at Kempley and northwest of Sedbury Park) have been identified only as cropmarks, although neither of these sites was recorded by the National Mapping Programme. Although much of the southern part of the district was covered by the 2006 Forest of Dean lidar survey (Hoyle 2008c, Fig 1) only two possible new sites (at Drybrook and Tidenham) were recorded and two sites (Bishton Farm, Tidenham and a possible site adjacent to Woolaston church) were enlarged as a result of the survey (Hoyle 2008c, 70-71). It should be noted that the preliminary transcription of this lidar data was focused on identifying new sites (Hoyle 2008c, 22) and this data remains to be used as a resource for augmenting existing knowledge of known sites.

Very little proactive fieldwork has been undertaken on any of these sites. Topographical survey has been undertaken at Taynton Parva (Williams 1996; Walsh 2012), Lancut (Iles 2017), a site close to Hartpur Church (Derham 2000a; Hughes 2002) and at Bishton Farm, Tidenham (Bryant *et al* 1981). Small-scale excavations at Madgetts, Tidenham, (Stratford 2006) and Moor End, Hartpur (Bashford 2000), and watching briefs at Hurst Farm, Lydney, (Goult 1994a) and Oxenhall, (Vallender 1998) did not produce any significant results. Linear anomalies have been identified by geophysical survey at Lancut, Tidenham (Bartlett 1994) and close to Hartpur church (Noel 2003) but no definite outlines of buildings were found at either of these sites and the results were inconclusive.

The remains of walls and coarse red pottery reported as medieval has been recorded in a number of trial holes excavated by Scott-Garrett and Harris at Keysham Lane, Woolaston in the 1930s (Hart 1967, 56), although a concentration of post-medieval pottery from the local Stroat Kiln (mostly 17th century) has been reported at this site (Rawes 1986, 246) and so the status of these remains is unclear.

Finds of medieval and post-medieval pottery (12th to 17th century) were also recorded during a watching brief of a pipeline through the earthworks at Bishton Farm, Tidenham (Bryant *et al* 1981), and medieval pottery and occasional coins have been recorded at Taynton Parva, Brookhead Grove, English Bicknor and Drews Farm, Hartpur (Glos HER 2015).

6.1.5.4 High status settlement:

Moats

In addition to the evidence for deserted or shrunken medieval settlement, a number of medieval moated sites are known in the district. These are generally considered to indicate the sites of high status domestic buildings such as manor houses although status can be relative and these need not have been the homes of especially important personages (Bowden 2005, 40) and not all moats necessarily enclosed a domestic building, or a building at all (Darvill 1988, 5-6).

An inventory of moated sites in Gloucestershire listed 28 moated sites in the Forest of Dean (Rawes 1978b) and a survey of moated sites (which included a brief statement of their historical background and the results of a site visit) was undertaken by Dean Archaeological Group in the late 1990s (DAG 1998b)). This recorded 77 sites in the district, although this survey was not restricted to medieval moated sites and included a range of water features such as fishponds or post-medieval ornamental lakes.

The Gloucestershire HER records 62 medieval moated sites in the Forest of Dean, although, as with deserted settlements (see above), the evidence for these is variable and 16 are thought most likely to be features such as fish ponds or relic field boundaries rather than medieval moated sites and the status of a further six is equally unclear (DAG 1998b; Glos HER 2015).

The remaining 42 are a diverse range of sites which includes square (e.g. Moat Farm, Taynton), polygonal (e.g. Taynton Parva) and circular (e.g. Scar Cottage Redmarley D'Abitot) moats and also moats which do not, and may never have, form a complete circuit (e.g. Highleadon Court). Four are also designated as deserted or shrunken settlement sites (see above), although all the remaining are close to medieval settlement. Twenty-eight are visible on aerial photographs (although only 23 have been recorded by the National Mapping Programme) and 33 have discernible earthworks, although one at Drew's Farm Upleadon has now been completely filled in (Glos HER 2015).

Few of the sites have been investigated and only two have been excavated in modern times. An area of hardstanding and pottery from the 13th and 14th centuries were found at Corsend Road Hartpury (Brett 2001), although an excavation at Brecknocks Court remains unpublished (Townley 2004, 224). The possible former site of the manor of Staunton at Castle Meadow Staunton near Coleford was excavated in the 19th century although it is not clear if this site was a moated site. Only Roman remains have been found and the site has also been suggested as a possible Roman fortlet (TBGAS 1881-2, 259) and it is not included as a likely moat in this discussion.

Watching brief at Court Farm, Taynton recorded a continuation of the moat ditch and recovered 12th and 14th century pottery and iron slag (Harvard 2013), and identified an extension to the moat ditch but recovered no finds at the Hawthorns, Corse (Parry 1990a). A geophysical survey of the interior of the scheduled moat at Aubrey's Farm, Bromsberrow produced inconclusive results (Roberts 2010).

Earthwork survey has been undertaken at Scar Cottage, Redmarley D'Abitot (Wootton and Bowden 2002; Bowden 2005, Fig 3.13), Little Box Farm, Awre (Townley 1998) and also at Taynton Parva (Walsh 2012), whilst the moated site at Brecknocks Court, Coleford has been intensively studied as part of a Bristol University course on practical archaeology (Rawes 1986, 233; Walters 1985b, 33) and the results have been published as a monograph (Standing 1985).

Manor houses

Not all manor houses were within moats and the sites of at least 20 manor houses are known in the district which do not appear to be associated with a moat.

Buildings survive on ten of these, although in three cases (Wibdon, Tidenham; Bury Court at Rodley, Westbury on Severn, Rodley Manor, Lydney and Tidenham House, Tidenham) they have been demolished and replaced by more recent buildings. At the others (Naas Court, Lydney; Poulton Court, Poulton; Grange Manor, Dymock; Brockweir Manor, Brockweir; Churcham Court, Churcham and Stowe Grange, St Briavels) the medieval structures have been modified and added to during later periods.

The history of the manors and information about former manor houses is found in general histories of the area and in particular the relevant volumes of the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13) and surviving structures are described in Verey and Brook (2002). Five of the surviving medieval buildings are also Listed Buildings and are summarised in the relevant listing documentation (English Heritage 2014). More detailed architectural surveys have also been undertaken at Grange Farm, St Briavels (Morris 2008) and Naas Court, Lydney (Bagg 2011). Archaeological investigation has taken place at Tidenham House where excavation in advance of the construction of a new manor house identified medieval walls, probably of the original 13th century manor house which appears to have been demolished in the 15th century when a new manor house was built to the south (Stone 1998, section 4). A geophysical survey undertaken at the same time identified possible pits and ditches which may be associated with medieval activity at the site (Bartlett 1998, 3).

Large-scale excavations at Rodley Manor, Lydney have identified significant remains of the medieval manor house and a range of associated structures, although post-excavation analysis was still underway in January 2017 and the results have not been fully published (Charles Parry, pers. comm.)

At Highmeadow, Newland the medieval manor house was demolished in the 17th century and replaced by a large mansion, although some surviving structures on the site, which are Listed Buildings, contain medieval elements and have been the subject of architectural assessment (Hicks and Morris 1999).

The fortified manor at Ruardean, which is a Scheduled Monument and may have been constructed within an earlier ringwork (see below) survives mainly as earthworks, although some ruined remains of the house, which was probably demolished by the mid 17th century, survive. Some remains were uncovered by local treasure hunters in the 1930s (Herbert 1996j, 236) but no systematic modern excavation has taken place at

the site, although a survey has been made of the standing structures and remaining earthworks (Vallender 2002; Hickling 2006; Ruxton 2006).

A further eight manor houses have no surviving structures and the majority of these are known from documentary sources.

The only excavated site is at Bledisloe Tump, Awre where evidence for a 14th century building on top of the earlier mound was interpreted as a domestic dwelling belonging to Bledisloe manor (Dornier 1966, 68-69). These remains were too disturbed to allow for the recording of these structures and it remains unclear whether it was the main manor house or just an associated structure.

Earthworks and cropmarks have also been identified at Hathaways Mansion, St Briavels, (Glos HER 2015). No further investigation has taken place and it is not clear whether these represent the remains of the manor house or associated boundaries.

None of the other sites of former manor houses have been investigated and their precise locations are not always clear. Two of these (Clearwell and Mitcheldean) may be under modern housing, three (Pauntly; Wyseal near Newland and Westbury on Severn) may have been superseded by modern farms whilst the remaining site at Whitecliff, Coleford may be under modern industrial development.

Other medieval houses

Apart from the evidence for high status dwellings, Forest of Dean District also contains at least 41 dwellings of either later medieval or post medieval date. These are found throughout the district and information about them is largely derived from general historic works (for example the Victoria County History of Gloucestershire volumes 5, 8, 10, 12 and 13, and Verey and Brooks 2002) or appropriate designation description (English Heritage 2014), although some are also listed in a general survey of church houses in Gloucestershire (Martin 2013). It is very likely that this number, which is derived from the Gloucestershire HER, underestimates the actual number of surviving medieval structures and more are likely to have been recorded in the general published works (above). Such structures, particularly where masked by later additions, frequently come to light as more detailed research is undertaken.

Only eight of these are not Listed Buildings, although one of these (at Brierley Farm, Staunton near Corse) is a ruin encased within a later agricultural building. Of the unlisted sites, one (the Grange, Littledean) was demolished in 1927 whilst another (Anwards House, Tidenham) was described as a ruin in 1969, and it is not clear if any structural remains survive (Glos HER 2015).

With the exception of general histories and descriptive works, very little research has been undertaken on these buildings. An evaluation at the site of the Grange, Littledean failed to find any significant remains (Arnold and Sherlock 2007) although a dendrochronological survey of Swan House, Blakeney did identify early post medieval roof timbers in an extended staircase tower (Miles *et al* 2009, 122).

6.2 Environment and landuse

The agricultural and landscape history of the Forest of Dean area has been researched and published in the Victoria County History of Gloucestershire volumes 5, 8, 10, 12 and 13, and large-scale surveys such as the Gloucestershire and Wye Valley AONB Historical Landscape Characterisation (Hoyle 2006), the National Mapping Programme (Small and Stoertz 2006; Crowther and Dickson 2008; Priest *et al* 2008) and the 2006 lidar survey of the southern part of the district (Hoyle 2008c) have identified surviving evidence for the medieval landscape. Much of this, however, relates to the landscape history of the later medieval period and virtually nothing is known for certain about the medieval environment of Forest of Dean District before the Domesday survey of 1086.

6.2.1 Woodland and waste

The charcoal from 8th -9th century smelting at Clearwell Quarry, St Briavels was dominated by oak with a secondary use of hazel, birch, wild cherry or ash but there was no direct evidence that the woodland was managed as coppice at that time. This assemblage was consistent with the wood pasture landscape envisaged for this area in the Roman period (Pine *et al* 2009, 36) in which areas of open woodland would have been interspersed with small enclosed fields used predominantly for pasture (Hey 1996, 505).

The central part of the southern Forest of Dean, the area approximately corresponding with the modern Statutory Forest, appears to have been largely depopulated and used as a Royal game reserve by the late Saxon period. This area of woodland and waste was ratified as the Royal Demesne within the wider Forest before 1086, and possibly extended westwards to include much of the land between the modern Statutory Forest and the River Wye (see above). New or re-founded settlements (such as Newland, Staunton near Coleford and Hewelsfield), which would have had associated areas of farmland, emerged in this area in the 12th-13th centuries. Although Crown land, this part of the Forest was not used only as a game reserve and revenues were collected for grazing cattle (herbage) or feeding pigs on beech mast (pannage) in the late 12th century, and by 1223 the local inhabitants had rights to collect brush wood (estover) in the Forest (Herbert 1996h, 360). The production of charcoal was also a feature of the Forest's woodland, and throughout the medieval period the Crown grappled continually with illegal (or semi legal) charcoal burning in the Forest (Jurica 1996f, 346).

Woodland was not restricted to the Royal Demesne and the Domesday survey recorded woodland at Bromsberrow, Churcham, Dymock, Huntley, Lydney, Newnham, Redmarley D'Abitot, Tibberton, Tidenham, Alverston (probably southwest of Lydney), St Briavels and Upleadon (Moore 1982), although details of these woods is unclear. Later sources add further information about the extent of medieval woodland (Victoria County History of Gloucestershire volumes 5, 8, 10, 12) and the Gloucestershire and Wye Valley AONB Historic Landscape Characterisation project identified extensive areas of Ancient Semi-Natural Woodland or former Ancient Semi-Natural Woodland throughout the area. There were extensive tracts along the Wye Valley, to the northwest of Lydney, on the northern side of Tidenham Chase, to the west of St Briavels, in Newent Woods to the west of Taynton and in Dymock Wood to the west of Oxenhall (Hoyle 2006).

The extent of this woodland was not constant throughout the medieval period and historic records of assarting are known for a number of areas such as Tidenham Chase (Herbert 1972a, 51), Flaxley, Elwood, Bream (Herbert 1996a, 298-299), Dymock (Jurica 2010a, 152) and other areas throughout the district (see Victoria County History of Gloucestershire volumes 5, 8, 10, 12). The National Mapping Programme has recorded a number of undated possible assarts, including some to the south of Mitcheldean (Small and Stoertz 2006, 47, Fig 15) and lidar has identified undated boundaries in Flaxley Woods, some of which may be related to 14th century land grants to Flaxley Abbey (Herbert 1996e, 298-299) and also in Clayton Wood, Tidenham, and Oakhill Wood, Tidenham, an area where assarting was recorded in 1282 (Herbert 1972a, 51).

In other areas, woodland may have become more widespread in the Medieval period. A palaeoenvironmental sample from the Flaxley Valley immediately to the east of the Statutory Forest (the only palaeoenvironmental sample which sheds any light on the medieval landscape) identified an intact organic deposit, the base of which was dated (through radiocarbon dating) to the late Saxon period (cal. AD 880 to 1030). Pollen analysis of the sample indicated that in the Late Saxon period the environment of this area, which is currently a narrow valley with woodland on both sides, was characterized by an open, cleared landscape of dry grassland which subsequently became increasingly wet with alder and hazel woodland (Hoyle 2008b, 89-90).

6.2.2 Farming

The Domesday Survey records of agricultural land suggest that the Leadon Valley (particularly around Dymock) in the northeastern part of the district to the east and northeast of the Statutory Forest, the Tidenham area and the low-lying land along the northern shore of the River Severn contained the most extensive areas of cultivated land in 1086. A much lower density was recorded in the southwestern part of the district on the higher ground above the Wye Valley to the west of the Statutory Forest and between the settlements of English Bicknor and St Briavels (Moore 1982), and much of this area may have been largely woodland and waste within the royal Demesne at that time (see above). The distribution of former open fields recorded on the Gloucestershire Historic Landscape Characterisation (Hoyle 2006), ridge and furrow recorded by the National Mapping Programme and historical evidence for open fields recorded in the relevant volumes of the Victoria County History (volumes 5, 8, 10, 12 and 13), indicate that these areas of relatively level fertile ground continued to be largely cultivated throughout the medieval period. This evidence also suggests there was some open field cultivation in the southwestern part of the district, particularly around Hewelsfield between St Briavels and Newland and to the north and south of English Bicknor, where new or growing settlements had converted former woodland or waste to agriculture.

Smaller field patterns are also known in the district particularly in areas of high or steep ground surrounding the Statutory Forest in the southwestern part of the district. These have been recorded on the Gloucestershire Historic Landscape Characterisation (Hoyle 2006) suggesting that small paddocks or enclosures which were not cultivated as open fields were common in this area. The National Mapping Programme and lidar have also identified cropmarks or relic earthworks of small enclosures in these areas. These have been interpreted as

evidence for medieval enclosure patterns (although none have been dated) and they have been found close to the medieval settlements of St Briavels, Hewelsfield, Brockweir, English Bicknor and between Newland and Redbrook and also around the former medieval settlements at Lancut, north of Tidenham, Harthill west of Hewelsfield, Highmeadow Farm, Staunton near Coleford and Madgetts, Tidenham (Small and Stoertz 2006; Hoyle 2008c, Fig 25).

Pasture and grazing would also have formed a significant part of the medieval agricultural economy. Pigs, cattle and sheep were commoned within the woodland and waste of the Royal demesne (see above) and also within open fields during fallow periods, although there may have been more permanent areas of pasture or waste, particularly the higher ground of Tidenham Chase and Bearse Common and on the slopes of the Severn Valley at Woolaston and Aylburton Commons and north of Lydney in the southern part of the district. In the northern part of the district May Hill, Botloes Green north of Newent, Howler's Heath north of Bromsberrow, Solomon's Tump near Huntley and Corse Lawn to the east of Staunton near Corse and Hartpury may also have been long-term pasture. Extensive areas of meadow or rich grassland have been identified close to the River Leadon and its tributaries at Kempley, Kents Green north of Tibberton, close to the River Severn at Churcham, Walmore Common and Rodley to the south and east of Westbury on Severn and along the Longhope Brook between Longhope and Westbury. In the southern part of the district meadow land was more restricted although there were extensive areas close to the Severn at Awre, Aylburton and Alvington, with smaller areas at Whitecliff west of Coleford, Hewelsfield and along the Westbury Brook west of Flaxley and the Valley Brook (a tributary of the Wye) between Lower Redbrook and Clearwell, and suitable areas where ridge and furrow has been recorded may also have been used as meadow during some periods (Hoyle 2006).

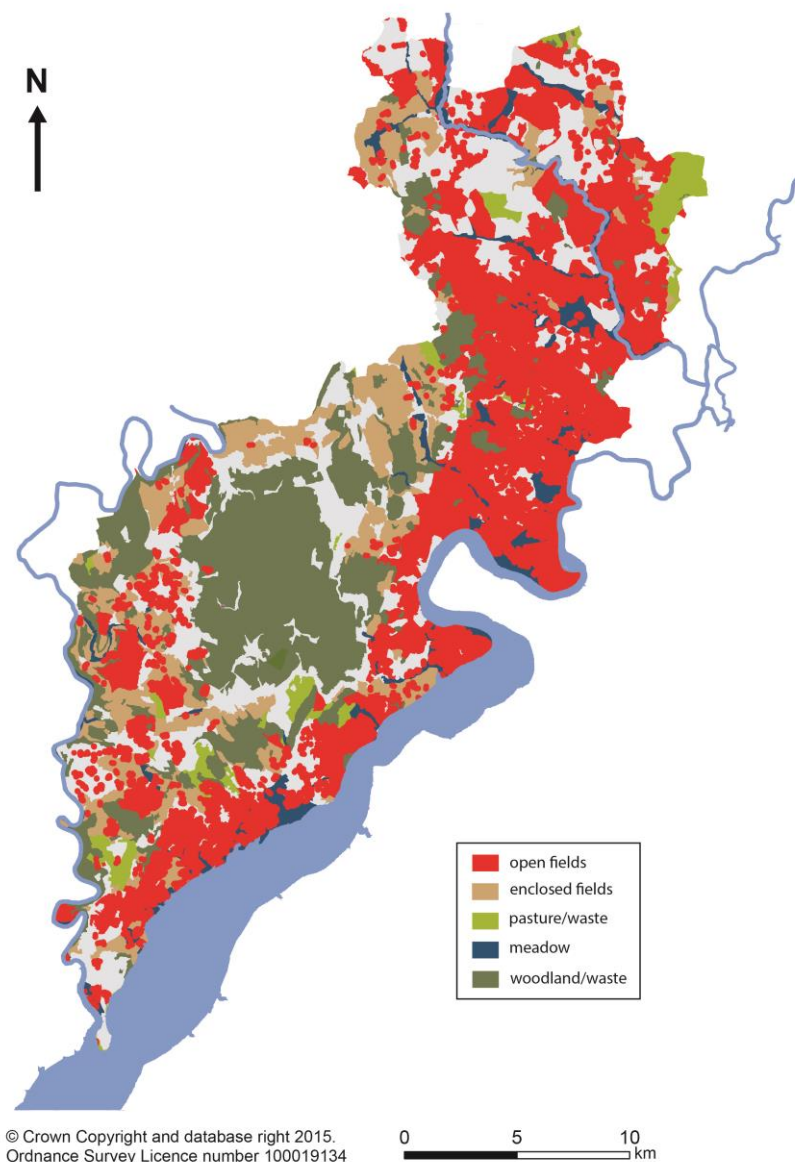


Figure 17: Principal components of the medieval landscape from cropmark evidence and historic landscape characterisation data

6.2.3 Land reclamation

As with the evidence for Roman reclamation of tidal salt marsh, research into land reclamation has tended to focus on the eastern rather than the Forest side of the River Severn. Allen and Fulford (1990, 310-313) have, however, suggested medieval land reclamation at Chaxhill and Rodley in Westbury on Severn, where salt marsh was reclaimed before the 14th century, at also at Awre where former Roman reclamation was extended eastwards. Work by Townley (2004, 42-49, figs 20, 22) has also suggested medieval reclamation at Awre, Rodley to the south of Westbury on Severn and also in the area of the Lydney levels to the south of the harbour, where the former Roman reclamation was extended to both the north and south.

6.2.4 Fish ponds

Fish were an important part of the medieval diet and fish ponds were a common feature of the medieval landscape. These were not only food production units but their ownership was a significant status symbol and fishponds were generally associated with high status sites such as monastic or secular estates (Hey 1995). Ponds were sometimes associated with high status dwellings and water-filled moats surrounding manor houses could also be used as fish ponds (Townley 2004, 224). In these, or similar, contexts the aesthetic value of ponds may have been as much appreciated as their economic significance (Mark Bowden pers. comm.).

Historical records of medieval fishponds in the district are summarised in general histories such as the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13) and also discussed in research into the medieval economy of the Forest of Dean (Townley 2004, 220-226; Fig 65a). Although the precise location of all recorded medieval fishponds is not known, 17 sites currently interpreted as medieval fishponds are listed in a survey of moats, fishponds and other water features, which includes a brief statement of their historical background and the results of a site visit (DAG 1998b), whilst a further 18 are listed in the HER. Townley (2004, Fig 65a) also identified 16 fishponds within the district, seven of which are not currently included on the HER, suggesting that at least 42 such sites may have existed in the district.

Monastic fishponds were found at Flaxley and at Newent, whilst a further four, at Woolaston, Walmore, Dymock and Littledean were attached to monastic granges (see below). Extensive ponds to the north of Soudley have sometimes been identified as monastic fishponds of Flaxley Abbey, but this is unlikely (Pope 1990, 38).

Other ponds were secular and tended to be associated with high status sites such as moats or manor houses (for example the now-dry ponds north and west of Stank Farm Clearwell which were probably associated with Breckness Court). Other ponds (for example Noxon Farm, Bream and Park Farm, Aylesmore) may have been within deer parks, and Royal ponds (for example Kings Pool, Coleford) were also maintained.

The majority of these features are now dry, although earthwork remains are visible at some sites (for example at Flaxley Abbey and Redmarley D'Abitot). Standing water is still visible at 15 sites, although few of these (with the possible exception of Woolaston Grange (Townley 2004, Fig 66) and Park Farm, Aylesmore) seem to represent their original medieval form.

Few of these sites have been investigated, although earthwork survey has been undertaken at Woolaston Grange (Townley 2004, Fig 66), Taynton Parva (Walsh 2012) and Redmarley D'Abitot (Wootton and Bowden 2002).

Excavations to the west of the surviving pond at Newent identified evidence for a deep concave-based feature with a silt lower fill which was interpreted as a backfilled monastic fish pond, although no dating evidence was found (Parry 1990c). A trench through one of the drainage channels at Woolaston Grange showed it to be an unlined square-cut channel 0.90m deep which appeared to correspond with the depth of an adjacent pond which had been determined by auguring (Townley 2004, 222).

The siting of fish ponds is determined by a combination of suitable topography and available water source and these factors reflect their distribution within the district. There is a major concentration immediately to the southwest of the Royal Demesne (the modern Statutory Forest) particularly along the Valley Brook and the Park Brook between Newland and Lydney, and also close to the northern shore of the River Severn where they are fed by tributaries of the Severn. A small group to the north of the Royal Demesne follow the Westbury and Longhope Brooks between Drybrook and Westbury on Severn, although the largest group is found in the Leadon Valley in the northern part of the district, between Preston and Highleadon, where they are fed by tributaries of the Leadon.

6.2.5 Rabbit warrens

Rabbits, which are thought to have been introduced to Britain by the Normans (Hey 1996, 387), were an important part of the medieval farming economy as a source of both meat and fur, and were kept in artificial warrens from the 13th century until well into the post-medieval period (Dennison 1987, 5-8; Williamson 2007). The warrens themselves consisted of a series of low mounds (generally oblong pillow mounds) or other shapes and enclosed by ditch. Rabbit Warrens are notoriously difficult to date, even when excavated, although medieval warrens, which were for manorial use, tended to be smaller (both the warrens and the individual mounds) than post-medieval warrens which were generally a commercial enterprise (Mark Bowden pers. comm.). Comparative analysis of warren size has not, however, been undertaken in the Forest of Dean District and all known rabbit warrens are discussed as potentially medieval features unless known to date to later periods.

The Forest of Dean District contains surprisingly few records of rabbit warrens with only 15 recorded on the County HER. Ten of these were identified by the National Mapping Programme on aerial photographs, and none have been dated with any certainty, although a walled rabbit warren at Clearwell was recorded in the 17th century (Glos HER 2015). Only one of these sites (Conigree Hill, Bromsberrow) has been excavated although the excavation did not target the warren features and no dating evidence was found (Hill and Worthington 1996). An additional rabbit warren was recorded at English Bicknor in 1608 (Standing 1997, 6.2).

Stage 1 of the Forest of Dean Archaeological Survey identified 11 place names which contain derivatives of either 'coney' or 'warren' and suggest the sites of warrens (Hoyle 2008a, 139, Appendix K, Table 56), whilst the lidar survey identified six small undated mounds or groups of mounds, which may also indicate warren sites, although none of these have been investigated further, or even ground-truthed (Hoyle 2008c, 93-94).

Warrens tended to be placed on sloping marginal land which was less useful for other purposes (Dennison 1987, 14), and their known distribution reflects this with the majority of sites on higher ground away from the more productive agricultural land of the Severn Vale and Leadon Valley. None are known within the Statutory Forest and all have been identified outside areas of modern woodland. The known distribution may, however, be skewed by differential levels of research as almost all known warren, or possible warren, sites are in the southern part of the district within the area covered by the Forest of Dean Archaeological Survey, an area which has been more consistently researched than the northern part of the district.

6.2.6 Deer Parks

The creation of deer parks reached its peak in southern England in the 12th and 13th centuries, although earlier and later parks are not uncommon (Hey 1996). Whilst undoubtedly status symbols these were also economic enterprises in which deer were kept as a food source. Medieval deer parks usually had a distinctive rounded or oval shape and were generally enclosed by a large bank with a timber palisade (the park pale) along the top (although hedges or stone walls were sometimes used) and had an internal ditch. They varied enormously in size but most enclosed areas of between 40 and 80ha. This is may have partly been because an oval is the most efficient shape to enclose with a fence (Dennison 1988), but this shape, which cut across the grain of the existing landscape, would have been a tangible symbol of the park creator's possession of and control over their land (Mark Bowden pers. comm.). The Forest of Dean District contains at least 18 known or possible medieval deer parks, although few of these have been researched and none have been investigated archaeologically. Of these, 15 are known from historical research (see Victoria County History for Gloucestershire volumes 5, 8, 10, 12 and 13), although one of these (Ruardean) has been inferred from place name evidence (Jurica 1996c, 232). The remaining two parks (at Redmarley D'Abitot and Upleadon) have been identified by Historic Landscape Characterisation on the basis of place name evidence combined with the configuration of modern or relict boundaries which appear to follow or respect their original enclosure (Hoyle 2006). Another possible park in Hay Wood, Oxenhall has been identified as ovoid earthworks within an area of woodland which encloses an area of just over 40ha (Bick 1996).

With one exception (Whitemead Park near Parkend which was a detached portion of Newland Parish within the Royal Demesne in 1283, but remained in Crown ownership (Herbert 1996b)) all were outside the Royal Demesne, now the Statutory Forest, although parks at Mitcheldean, Littledean, Lydney, Clearwell, Ruardean and Noxon to the west of Bream were close to its edge. Noxon Park shares a boundary with the modern Statutory Forest and was created out of land assarted under licence in 1317, and may have encroached into land which was originally part of the Royal Demesne which later became the Statutory Forest.

Not all of these parks were necessarily operational at the same time and they have a wide possible date range. Some parks may have pre-dated the Norman conquest (Hay 1996) and the earthworks in Hay Wood, Oxenhall (a name derived from the old English *haeg* meaning an enclosure (Smith 1964b, 182)) may have been a pre-conquest *haga* or hunting enclosure although there is no other evidence for this. There are a number of other *haeg* place names in the district, such as The Hayes, Viney Hill or Hagloe, Awre, which may also have been associated with pre-conquest hunting (Townley 2004:139-140), although these have not been systematically researched. The earliest documentary record of a park is Park Hill, Woolaston, which was recorded in 1131, whilst a park at Littledean and possibly also Clearwell and Alvington, were not recorded before the late 16th century. Two parks are recorded in Churcham, although one of these (Great Park), which was first recorded in 1332, may have been centred around Highnam Woods which is outside the district, whilst the other (Little Park) was not recorded before the mid 18th century and may be a later ornamental park rather than a deer park in the medieval sense (Herbert 1972b).

There is a considerable amount of place name evidence (generally fieldnames recorded in the 19th century) to suggest the sites of medieval deer parks and 42 'park' or related place names (for example Lypiatt indicating a deer leap, an earthwork feature associated with medieval deer parks) are known in the district, although all of these are in the area covered by the Forest of Dean Archaeological Survey which added this information from early map sources, and this does not represent a complete distribution of these names. Not all former parks have associated place name evidence and this is lacking for the two parks at Churcham and the parks at Mitcheldean and Littledean. Surviving physical evidence for parks is elusive, although the configuration of boundaries, tracks or roads (which would originally have skirted around the park) indicates the probable location of the parks at Lydney, Ruardean, Alvington, Newent, Upleadon, Whitemead, Lay Park Westbury and

Redmarley D'Abitot. This may also be the case with the former parks at Woolaston, Tidenham, Alvington, St Briavels, Noxon and Clearwell although this is less clear at these sites.

There are no surviving banks or ditches recorded in the Forest of Dean which are definitely the remains of medieval deer parks. A curving rubble bank identified by lidar in Clayton Wood, Tidenham has been interpreted as a possible boundary of the park at Woolaston (Hoyle 2008c, 76, Fig 35), although this is not clear.

Lippiatt Hill, Awre may be associated with a small rectangular earthwork known from aerial photographic evidence, which has been interpreted as a possible deer leap (Webb 1999), perhaps indicating an unrecorded deer park in this area, although no other features suggest this, and these may be the remains of settlement features associated with the medieval village.

Other medieval deer parks may have existed in the district, although these have not yet been discovered as they are poorly recorded in the historic record and have left no recognised physical remains. Some of the park-related place names on the HER (see above) are not associated with known medieval deer parks or later post-medieval ornamental gardens (Hoyle 2008a, 220-221) and further exploration of these may produce further evidence for medieval emparkation.

Northlepgate (a deer leap place name) is recorded in Littledean Bailiwick in 1282 (MaClean 1889-90, 367) and two place names (Lupiats Leaze and Lipyeat Grove) are close to Offa's Dyke, perhaps suggesting that an access point through Offa's Dyke which was interpreted as a deer leap by later generations (Hoyle and Vallender 1997) although Offa's Dyke in this area may also have formed part of the western boundary of Tidenham Chase, a large area extending from Chepstow Bridge to the Cone Brook at Woolaston which had been appropriated from the Forest as a hunting chase by the early 13th century (Herbert 1972a, 51).

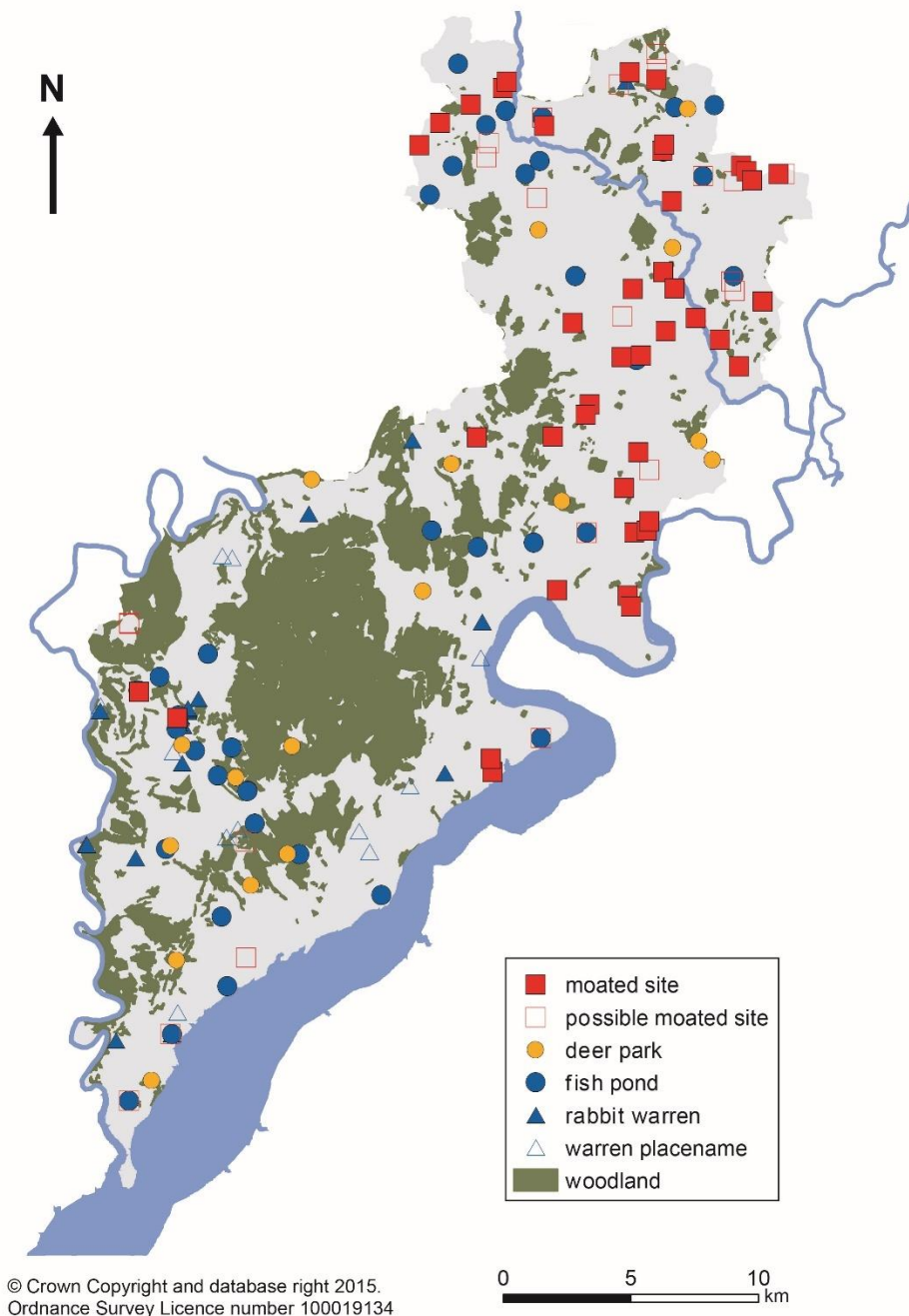


Figure 18: Medieval moats and selected associated sites

6.2.7 Lodges

There is documentary evidence for hunting or game keeper's lodges at Noxon Park (Herbert 1996b) and also place name evidence for lodges associated with Lydney Park (Glos HER 2015). Earthwork evidence for a lodge is known at Ley Park, Westbury on Severn where the National Mapping Programme recorded a polygonal enclosure (Small and Stoertz 2006, 42, Fig 12), and lidar has identified a sub-rectangular enclosure to the south of Clayton Wood, Tidenham which may be a lodge associated with the medieval deer park in Woolaston (Hoyle 2011b, 31), although the status of neither of these has been tested.

The system of post-medieval forest lodges constructed following the Dean Forest Reafforestation Act of 1668 to administer the Crown woodland is well documented (Jurica 1996d) and has been the subject of recent research (Waygood 2003; 2004), but there is much less evidence for structures relating to the management of the Royal demesne prior to this.

By 1282 the Royal Forest had been divided into 10 Bailiwicks (Grundy 1936, 110-155; Herbert 1996h, 355-357) although there are no historical references to associated keeper's lodges. A small sub-rectangular earthwork enclosure at Yorkley has been shown by excavation to date to the 12th to 14th century. The only identified internal feature was interpreted as evidence for iron smelting, but only small amounts of iron slag were recovered from the surrounding ditches suggesting this was not the enclosure's primary function (Jackson *et al* 2016, 48) and it is possible that this represents the remains of a hunting or keeper's lodge, similar to examples recorded in the New Forest, Hampshire (Smith 1999, Fig 4).

The Forest of Dean Lidar survey has also identified a number of sub-rectangular earthworks within woodland which are consistent in size and shape with medieval hunting lodges, although a similar enclosure at Ruardean Hill has been shown to be early Roman (see 5.1.2 above). No others have been excavated or dated, but some examples such as the sub-rectangular enclosures in High Wood, Tidenham, and Haywood Lodge, Cinderford, and the polygonal enclosure in Kidnalls Wood, north of Lydney, fit less readily into a model of early Roman or prehistoric sites and may represent the remains of medieval hunting lodges associated with the Royal Forest (Hoyle 2008c, 40).

Mosley Castle (*Moseleyscastle*) and Saintlow Castle (*Seynteleyscastle*) recorded in 1282 may have been watch towers or other structures built to guard valuable Royal pasture lands within the Forest (Hart 1967, 56), although these sites have never been investigated and their precise location not known.

6.3 Medieval ritual and religion

6.3.1 Early medieval: Pagan

The late Roman temple at Lydney park may have continued to flourish well into the 5th century, after Britain had ceased to be part of the Roman empire (Wheeler and Wheeler 1932), and Townley (2004, 237) has suggested that architectural elements of the temple structure suggest it was used in late Roman or early post Roman Christian ritual. More recent research suggests the temple site may have begun to decline towards the beginning of the 5th century (Casey and Hoffmann 1999, 114), and it is not clear whether this site should be considered to be an early medieval religious site in any meaningful way.

The Forest of Dean contains no clear evidence for early (pagan) Saxon ritual or religion and no cemetery sites are known from this period.

A concentration of *hlaw* place names around Awre has been suggested as evidence for early Saxon burial mounds (see above) and Harrow Hill, southwest of Drybrook may have been an early medieval (or possibly earlier) pagan site on the basis of place name evidence (Townley 2004, 236), but no evidence for this has been found at either of these locations.

6.3.2 Early medieval: Christian

The earliest records of early medieval religion relate to pre-Norman Christian sites, although the evidence for these is limited.

A Roman altar from Closeturf Farm, St Briavels was crudely carved with a number of irregular letters consistent with its reuse as an early Christian memorial, perhaps a grave marker, dating from the 5th to the 9th centuries AD (Bryant 2012, 241-3), and may suggest an early Christian site in the area (Townley 2004, 235), although this has not been established.

The Domesday survey of 1086 records a church at Awre and a priest at Dymock in 1066 (Moore 1982), and there is documentary reference to a pre-conquest church at Tidenham (Herbert 1972a, 73). There may also have been an early 11th century chapel at Newnham, close to the river crossing there, although the documentary reference may refer to a different Newnham in either Northamptonshire or Warwickshire (Douthwaite and Devine 1998, 103). There may also have been a church or chapel dedicated to St Cewydd on the Lancaut Peninsula in Tidenham by the 7th century (Parry 1990b, 55) and the Chapel of Twrog on Chapel Rock to the south of Beachley Point (first recorded in 1290) has been suggested as early medieval in origin. This is mainly on the basis of its dedication to a Celtic saint, rather than any direct documentary or architectural evidence (Hoyle 2008a, 189), although masonry remains which appear to predate the present chapel building have been recorded (Townley 2004, 242). There is also reputed to have been a 7th century hermitage dedicated to either St Margaret or St. Briavels at Stowe, north of St Briavels (Walters 1928, 136), although this was not recorded until 1220 (Herbert 1996g, 259).

The churches at Woolaston and Hewelsfield in the southern part of the district are both within sub-circular churchyards and a yew tree in Hewelsfield churchyard is thought to be about 700 years old (Verrey and Brooks 2002, 536). The significance of the circular churchyards is not clear, but it is a phenomenon noted in areas such as Cornwall and southeastern Wales where it is often taken as an indication of an early Christian foundation (Owen 1897, 229-230; DoE 1988, 13, 118; Edwards and Lane (eds) 1992) possibly within a pre-Christian ritual monument (Child 2007, 28) although neither of these sites has produced direct evidence for a pre-Norman church.

Pre-Conquest Minsters have also been suggested at Lydney, Newent, and Westbury (Heighway 1987, 98; Townley 2004, 234-235).

Dating the foundation parish churches is, however, notoriously difficult and it has been estimated that the date of origin of less than 0.5% of medieval churches is known (Morris 1990, 4). The majority of the Forest of Dean churches within settlements which are known or likely to have existed in the early medieval period were probably originally founded before the Norman conquest. Direct archaeological evidence for any pre-conquest churches in the district is, however, rare, especially when compared with the surviving evidence for pre-Norman religious buildings to the east of the Severn. An 8th-9th century cross shaft from the churchyard and Newent and an early 11th century carved slab (possibly a pillow stone) found with burials at the same site indicate an early Christian foundation pre-dating the present 13th century church (Herbert 2010a, 91-92). Megalithic quoins at Tibberton church and blind arcading at Dymock have been interpreted as late Saxon work (Portway Dobson 1933, 261-262), whilst a fragment of cross slab, re-used in the construction of an early post-medieval building at St Briavels may be late Saxon although it could derive from the nearby early Norman parish church.

6.3.3 Later medieval churches

Whatever the date of origin of churches in the Forest of Dean, the arrival of the Normans provided an incentive for church building as new landlords stamped their identity on the landscape. New churches were built and existing ones either replaced or improved to such an extent that their predecessor was no longer recognisable. Churches were built at Lancaut, Alvington, Bulley, Churcham, Dymock, English Bicknor, Kempley, Littledean, Pauntley, Preston, Ruardean, Rudford, St Briavels, Staunton near Coleford, Upleadon, Woolaston, Hartpury, Newnham, Aylburton and Taynton Parva in the 11th and 12th centuries (Jurica 2010b, 341; Verrey and Brooks 2002), and possibly also at Tibberton (although the church may be pre conquest (see above)) Many of these were modified or added to over the centuries, and new churches, possibly replacing earlier churches were built later in the medieval period (principally during the 13th and 14th centuries) at Lydney, Tidenham, Bromsberrow, Huntley, Mitcheldean, Newent, Oxenhall, Westbury, Abenhall and Corse. Churches at Newland and possibly also Coleford and Bream were new later-medieval foundations. The original 12th century church at Newnham was also abandoned and replaced by the present church in the 14th century. Many Forest churches were heavily renovated in the 19th century, and those at Huntley, Oxenhall, Woolaston, Aylburton and Blaisdon were almost completely rebuilt, although elements of their medieval fabric (often the tower) survive. The medieval churches at Redmarley D'Abitot, Coleford and Bream were completely replaced in the 19th century (Herbert 1996b, 226-227, 650; Jurica 1996e, 133; Verrey and Brook 2002). The majority of medieval churches within the district are still in use and are Listed Buildings, although the medieval church at Lancaut, Tidenham was abandoned in the 19th century at which time the roof was removed (Parry 1990b, 59) and it now survives as an isolated ruinous structure (although it is a Listed Building and within a Scheduled Monument). The Church at Taynton Parva was burnt down in the 17th century and no visible masonry survives (Jurica 2010b, 341).

The later medieval churches in the Forest of Dean District are described in general sources such as the Buildings of England series (Pevsner and Brooks 2002, and the Victoria County Histories of Gloucestershire volumes 5, 8, 10, 12 and 13), although few have been archaeologically explored or surveyed in detail.

Watching briefs have been undertaken at Longhope, Dymock, Kempley, Hewelsfield, Upleadon, Newnham, Mitcheldean and St Briavels, but these have been observations of groundworks outside of the church building and have added little information of value to understanding the development of these churches.

More detailed research has included a dendrochronological survey of roof and other timbers at St Mary's Church, Kempley which provided valuable information on the phasing of that structure, including recognition that its roof is the earliest known surviving open roof in western Europe, and identified a previously unknown phase of 14th century repairs (Miles *et al* 1999). Topographical and geophysical survey at Taynton Parva has located the site of the demolished medieval church and recorded the outline of the building and also some details of its structure, although no further investigation has been undertaken (Williams 1996; Walsh 2012, 3;

Sabin and Donaldson 2013, 16). The derelict church at Lancaut has also been subject to a detailed survey of its surviving structure and analysis of its sequence of construction and modification (Parry 1990).

6.3.4 Later medieval chapels

The Gloucestershire Historic Environment Record records 22 medieval chapels (not including the chapel within St Briavels Castle) within Forest of Dean District, of which three, at Newnham, Beachley Point at the southern end of Tidenham and Stowe near St Briavels may have originated in the early medieval period (see above).

Like churches, much of the information about these sites is derived from general histories, principally the Victoria County History of Gloucestershire volumes 5, 8, 10, 12 and 13, which indicate that the chapels were constructed for a variety of purposes. A number, for example St Ewen's Chapel at Beachley or St David's Chapel, Tutshill, were built for the benefit of travellers at crossing points of the Severn or Wye or at road junctions (for example Dryslade Farm). Others, such as St Mary's Chapel, St Briavels or St David's Chapel, Rodmore were chantry chapels. The Chapel at Woolaston Grange was a monastic chapel within a grange of Tintern Abbey, whilst others (for example Stowe Grange, St Briavels, and Taynton Wood, Taynton) are recorded as hermitages.

Three of these (St Twrog's Chapel on Beachley Point, Tidenham, Woolaston Grange, Woolaston and St Margaret's Chapel, Stowe) survive in a ruinous condition, whilst one (St Mary's Chantry, St Briavels) has been converted into a dwelling. In 1951 the remains of the chapel at Mork was reported to be incorporated into the fabric of a garage (Scott-Garrett 1918-1958, entry for 18/10/1951), although this has never been validated.

None of the remainder is known to survive and their precise location is often not clear. The majority are known only from written sources, although three (Aylburton; St Margaret's Chapel, Lindors west of St Briavels and St David's Chapel, Tutshill) are recorded on early map sources, but only labelled 'site of' and not depicted as actual buildings (Hoyle 2008a, 192).

The Gloucestershire HER records a number of 'chapel' place names in the Forest of Dean although only one (Chapel Meadow, Tidenham) is not associated with a known chapel site. This site is immediately to the east of the possible early medieval settlement at Madgetts and may indicate the site of a chapel associated with that settlement or, perhaps more likely, the monastic grange in that area (see below), although this has not been tested and other interpretations of this place name are possible (Hoyle 2008a, 192).

The only recorded excavation of a possible medieval chapel was undertaken in the late 18th century at Churchcroft, Blakeney, which tradition suggested may have been the site of a castle or church and where masonry remains were identified (Rudge 1803, 118;). The status of this site, however, remains unclear, and it seems unlikely to be the remains of a medieval chapel (DAG 2000-2001, 4).

6.3.5 Crosses

Crosses were a significant feature of the medieval landscape and fulfilled a variety of functions, reflecting the significance which religious symbology of this type had on the minds of the medieval population. Preaching crosses were often sited in churchyards, whilst wayside crosses were used to mark routes (particularly routes used in religious processions) or denote significant cross roads. Some settlements had Market crosses, erected to celebrate the granting of a market charter, whilst others had crosses at significant places within the settlement such as road crossings or greens. Other crosses were set up to mark boundaries between manors or parishes and commemorative crosses were sometimes erected to mark significant events (Hey 1996).

Forest of Dean District contains evidence for 20 crosses which are either late medieval or can be inferred to be this date on the basis of available evidence. Like churches and chapels, much of the information about these sites is derived from general histories (for example the Victoria County History of Gloucestershire volumes 5, 8, 10, 12 and 13, Verey and Brooks 2010), and 12 of these are either Listed Buildings or Scheduled Monuments (or both) and descriptive summaries are contained in the relevant scheduling or listing documentation (English Heritage 2014). These monuments have also attracted antiquarian interest (for example Pooley 1868) and more recent surveys (for example Hirst 1998) have been undertaken to identify and briefly describe them.

The majority of these are no longer complete and many survive only as stumps or small stone bases, although more complete remains are found at Aylburton and Staunton near Coleford where substantial

stepped bases survive. Four crosses (at Newland, Lydney, Clearwell, and Westbury on Severn) have been restored.

Eight of the crosses (at Woolaston, Longhope, Blaisdon, Lancut, St Briavels, Alvington, Tibberton and Newland) are (or were) churchyard crosses, whilst another six (at Edge End near Coleford, Longhope Huntley, Aylburton, Longhope and English Bicknor) appear to have been wayside crosses. The remainder were either village or market crosses with the exception of Merend Cross, Mitcheldean which was originally a boundary cross marking the border between Mitcheldean and Abenhall (Hirst 1998, Glos HER 2015).

In addition to these, parts of crosses, which are no longer in their original position have been found at Hewelsfield, Bromsberrow, Littledean, Chaxhill, and Westbury on Severn. A post-medieval sundial in Oxenhall churchyard may be a reused medieval cross shaft and Gattles Cross, Clearwell is a post-medieval monument on the site of an earlier cross, once known as 'Eleanor's cross' (Sullivan 1991, 14).

A further 15 crosses are known to have been destroyed and are now lost, although part of the former cross from Alvington, reportedly removed and dumped in Clanna Woods, is now part of an ornamental fountain in Clanna Gardens, Alvington (Hirst 1999, 61).

Place name evidence may suggest further crosses in the district (for example at St Briavels, Mork and Edge End, Coleford) and the 1608 map of the Forest of Dean (PRO 1608; Clissold 1982) has a cross symbol at two sites in the village of Bream, one opposite the church and another at a crossroads (Hirst 1998, 48). In addition to these a further two crosses, Dunnes Cross and Luce Cross, are recorded in a perambulation of the boundary of the Royal Forest in 1282, although their original locations are now not known (Hirst 1998, 3).

6.3.6 Monastic sites

The monastic landscape of the Forest of Dean, including the extent of monastic holdings and their economic basis, has been discussed in un-published post-graduate research (Townley 1997; 2004, 232-264), and historical records are also summarised in the relevant editions of the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13) whilst the Cistercian abbey at Flaxley and Benedictine priory at Newent are discussed in greater detail in The Victoria History of the County of Gloucester Volume 2 (Graham 1907a, 93-96; 1907b 105-106). In addition, the cartulary of Flaxley Abbey was compiled and published in the late 19th century (Crawley-Boevey 1897).

A Benedictine House, Newent Priory, was founded in Newent before 1086, possibly on the site of an earlier Minster (see above), and its cartulary mentions a hall, kitchen and stable, although no church (Douthwaite and Devine, 93). Apart from fishponds (see above) which have been modified into an ornamental lake, there are no certain surviving above-ground remains of priory structures, although remains are reputed to be visible in the cellar of a nearby house (Glos HER 2015) and Leech (1981, 59) has suggested that the parish church, which was extensively rebuilt in the 17th century, may have been the priory church. Buried remains of walls have been excavated at Old Court to the west of the church which may have been the site of the Priory Hall (Mumford 1994; Bateman 1995a), although no evidence for buildings was found immediately to the north of this (Parry 1990c, Cox 1998). There may have been a grange at The Grange, Newent c. 2.5km to the southwest, although this site has not been investigated.

In the southwestern part of the district Flaxley Abbey, a Cistercian monastery, was founded in the mid 12th century close to the edges of the Royal Demesne within the Forest. The Abbey included fish ponds (see above), a grange close to the monastery and a detached chapel but was not a particularly wealthy house and may already have been in partial ruin by the time of its dissolution in 1537 (Robinson 1998, 108). A section of the wall of the Abbey Church and part of its cloistral range, including the 12th century refectory, survive within the fabric of the post-medieval country house (Flaxley Abbey) which superseded it, although the foundations of the chapter house were revealed and recorded in the late 18th century (Middleton 1881-82, 280-283, Crawley-Boevey 1921, 57-58). Apart from the grange close to the abbey itself (see above) Flaxley Abbey also had detached granges at St Whites south of Cinderford which included a Hermitage and fish ponds, Dymock where there was a mill and barn, and also at Walmore to the east of Westbury on Severn. Apart from fishponds at Walmore (see above) none of these sites has any surviving above-ground remains.

Flaxley Abbey and Newent Priory were not the only medieval monastic houses with interests in the Forest of Dean and wide tracts of land outside the Royal Demesne were held by a number of religious orders based outside the district (Townley 2004, Fig 68). Llanthony Priory, Gloucester had a grange at Alvington Court, although no medieval structures are known to survive. There was also a grange at Stowe, north of St Briavels held by Grace Dieu Abbey, Monmouth at a site clearly defined by a low bank. The remains of the grange

chapel (St Margaret's Chapel) survive in a ruinous condition incorporated into later structures (see above) and unpublished small-scale excavation suggests the potential for other buried archaeological remains (Townley 2004, 261).

Tintern Abbey also had extensive holdings in the Forest of Dean with at least two granges in Woolaston (Woolaston Grange and Ashwell Grange), one at Madgetts now in the northern part of Tidenham parish and also one at Brockweir (Smith 1972, 102, 109). Townley (2004, 248-256) has studied one of the Woolaston Granges in some depth, identifying and recording a range of features including fishponds and the sites of a number of extant and demolished buildings including a mill, barn and chapel and also a quay on the Severn linked to the grange by Grange Pill (see also Fulford *et al* 1992).

A nunnery was reportedly on the site of Tidenham House, Tidenham (Scott-Garrett 1918-58 entry for 18th October 1933) and there is a local legend of a monastery (supposed a daughter house of Little Malvern Priory) was on the site of Stone End House, Corse (GADARG 1982c), although the evidence for these is limited.

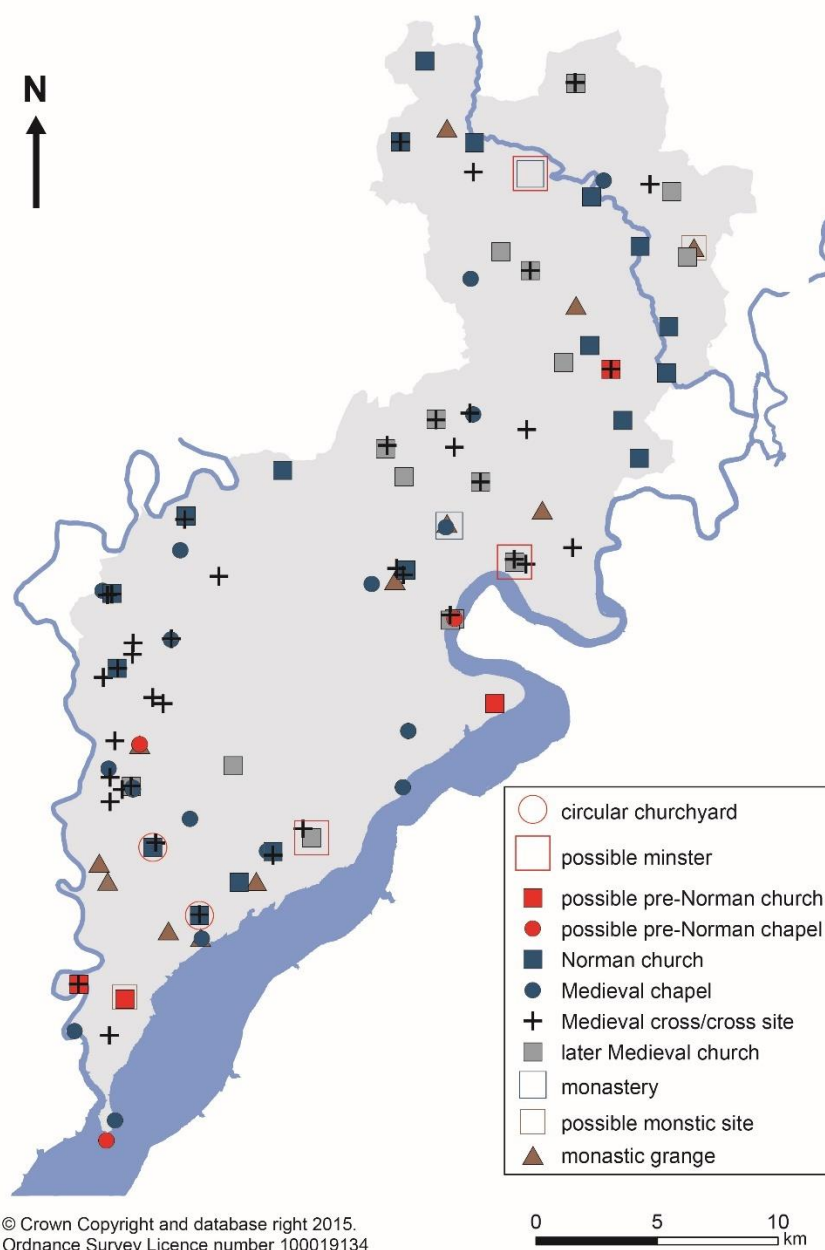


Figure 19: Medieval religious sites

6.4 Medieval military sites

6.4.1 Early Medieval

6.4.1.1 Post-Roman refortification of hillforts

Some hillforts in western Britain seem to have been re-occupied and re-fortified during the early post-Roman period with examples known at Cadbury Congresbury, South Cadbury and Ham Hill in Somerset, Castle Ditches, Whitsbury in Hampshire and Cleeve Hill in Gloucestershire. Post-Roman finds are also known from Maiden Castle and Hod Hill in Dorset, and Old Sarum, Wiltshire and post-Roman reoccupation may be far more widespread than the excavated evidence currently suggests (Corney and Payne 2007, 142-143).

The Wheelers suggested that the ramparts at Lydney Camp were re-fortified sometime in the 5th century (Wheeler and Wheeler 1932, 6-9) although much weight was placed on the evidence of an unusual Gothic brooch, with Romanised decoration and workmanship, which the Wheelers considered to be post-Roman (Wheeler and Wheeler 1932, 79-81, fig 15). The Wheeler's date for rampart refurbishments has been questioned and excavation in the 1980s suggested that this was part of mid 4th century AD renovation of the temple complex rather than a post-Roman event (Casey and Hoffman 1999, 100). The material culture of the immediate post-Roman period is, however, difficult to identify (Casey and Hoffman 1999, 115), and even a single find from this period should, perhaps, be considered sufficiently significant to suggest some form of post-Roman occupation of the hillfort and temple site.

Rubble 'haphazardly placed' on top of some of the ramparts at Welshbury Hillfort, Blaisdon has also been suggested as evidence for post-Roman refortification (McOmish and Smith 1996, 61), although without further investigation the significance of these rubble spreads can only be surmised.

6.4.1.2 Saxon fortifications

Offa's Dyke

Offa's Dyke, the longest linear earthwork in Great Britain, runs through the English and Welsh borders from Treuddyn, near Mold in North Wales, to Sedbury on the Severn Estuary in Gloucestershire and has traditionally been associated with the earthwork reportedly built 'from sea to sea' by King Offa of Mercia sometime in the late 8th century.

Within the Forest of Dean an earthwork along the edge of the Wye Valley in the southwestern part of the district between Lydbrook and Sedbury, Tidenham (a distance of c. 30km) has been interpreted as the southernmost section of Offa's Dyke, although only about 15km of recognisable earthwork are known (Hoyle and Vallender 1997, 11) and the nearest stretch of Offa's Dyke to the north of the Forest of Dean is at Bridge Sollers to the west of Hereford over 30km away.

During the nineteenth century Offa's Dyke in the Forest of Dean was the subject of antiquarian interest and field observations of its form and route were made in 1831, 1832, 1842 and 1893-4 (Fosbroke 1831, 1832; Ormerod 1841; MacClean 1893-4). In 1931 Sir Cyril Fox concluded his major survey of the whole length of Offa's Dyke with the Gloucestershire section (Fox and Phillips 1931; Fox 1955) and subsequent work, using documentary research and field visits was undertaken by Frank Noble (Gelling 1983), essentially in response to Fox's interpretations. A long-term research programme by David Hill of Manchester University (the Offa's and Wat's Dyke project) has used both excavation and field survey to investigate Offa's and Wat's Dykes, but this research has tended to focus on sections of the monument to the north of the Forest of Dean (Hoyle and Vallender 1997, 12). A management survey of the Forest of Dean sections of Offa's Dyke, undertaken by Gloucestershire County Council Archaeology Service between 1995 and 1996, also attempted to identify, as far as was possible, the extent of the monument within the Forest (Hoyle and Vallender 1997). The Gloucestershire sections of the Dyke are also discussed in recent works which cover the monument as a whole (Hill and Worthington 2003; Ray and Bapty 2016).

There have, however, been few archaeological excavations of the monument in the Forest of Dean. A small excavation in 1931 investigated the Tallard's Marsh earthwork, Tidenham (Fox 1955, 204) and the Offa's and Watt's Dyke Project also undertook a small, inconclusive excavation on a section of terrace along the line of the Dyke at Sedbury (Hill 1996). A handful of small-scale watching briefs or development-led evaluations have also been undertaken (Ellis 1976, Catchpole 1993a), and some sections through the bank and ditch have also been recorded (Hoyle 1996a, Lewis 1963, Rhodes 1965, Wills 1986).

There has been, and still is, considerable debate over the date and function of the monument in the Forest of Dean which is interpreted as Offa's Dyke. Fox (1955, 196) thought it had been built for the single purpose of 'visual control over enemy territory' and argued that, in the Forest of Dean, it did not follow the precise line of the Mercian frontier (which he considered to be the River Wye) although Burn (1959) has suggested that the Dyke, in the Wye Valley at least, acted as a last line of defence to the east of the actual border, to which Mercian frontiersmen could retreat in times of trouble. Noble has argued that the Dyke was a patrolable line with a defensive function, which allowed visual control of the actual boundary (the River Wye), and controlled cross-boundary communications by channelling them through specific access points. He also thought the massive construction and commanding position of some of the Forest of Dean sections to the east of the River Wye represented a tangible 'show of strength against the powerful kingdoms of Gwent and Glamorgan' (Gelling 1983).

Hill has argued that the earthwork is clearly constructed as a defensive structure, but did not consider that it was permanently manned, or even necessarily originally continuous, but could have been effectively policed by relatively few people in mobile patrols (possibly based in the hillforts linked by the Dyke) communicating with well-placed signal beacons (Hill 2000, 21-22). This may be supported by excavations to the north of the Forest of Dean which suggest that the bank, in some places at least, was faced with a turf revetment presenting a more or less vertical face (Hill 1977, 221). Lewis's excavation through Buttington Tump, Sedbury also suggested that the bank may have been faced (Lewis 1963; Hoyle and Vallender 1997, 49), and clearly laid stonework on the face of the bank to the north of Devil's Pulpit, Tidenham may also be the remains of an outer stone face here (Hoyle and Vallender 1997, 49) although other sections through the bank (for example Rhodes 1965) are less conclusive. The earthwork in the Forest of Dean may also have incorporated earlier hillforts at Lancut and Symonds Yat, an undated earthwork in Highbury Woods south of Redbrook (Hoyle and Vallender 1997, 69-72) and possibly an earthwork at Madgetts, Tidenham (Hoyle 2008c, 49). A small enclosure overlooking the River Wye at Tallard's Marsh, Sedbury may also be an earlier feature, although this is generally considered to be an integral part of the Offan frontier (Fox 1955, 204). Ray and Bapty (2016) have also highlighted the sophistication of the monument which was stone-faced, incorporated look out posts and fortified watch towers and was positioned to create maximum visual impact when viewed from the west.

There appears to be considerable variation in the present form and size of the Dyke in the Forest of Dean and although it generally consists of a bank with a ditch on its outer side. The height of the bank is very variable and where it follows the steep slopes of the Wye valley it often has a relatively low inner face with a much higher outer face (3m or more) where the builders appear to have artificially steepened the natural slope of the valley side (Hoyle and Vallender 1997, 21-24) whilst on more level ground (for example where it crosses St Briavels Common) its outer face is still higher than the inner, but the difference is much less (Hoyle 1996b, 30). Hill (1985) has argued that differences in the form of the earthwork along its length may, in part at least, reflect the work of different gangs of workers, although it has been suggested that earthworks of different date may have been linked together to form a single boundary (M'Kenny Hughes 1892; Hoyle 1996b). Ray and Bapty, on the other hand, have pointed out that these apparent differences need not indicate different gangs or construction dates, but reflect 'the deployment of a consistent series of placement practices' in reaction to differing topographies and geologies (Ray and Bapty 2016, 174).

The Gloucestershire sections of the Dyke are, in fact, undated, and the generally accepted interpretation that these are section of Offa's Dyke, put forward since at least 1831 (Fosbroke 1831), has frequently been questioned. As early as 1877 Bellows (1877) suggested that, parts of the dyke at least, were '...on the tract of far more ancient encampments' (although he was probably referring to the Iron Age promontory fort ramparts at Symonds Yat and Lancut, which may have been incorporated into the frontier system). Playne (1877) suggested that that the southern part of the earthwork, which cuts off the Sedbury Peninsula, had not been constructed during Offa's reign, whilst M'Kenny Hughes thought that portions of Offa's Dyke were constructed by the Romans (M'Kenny Hughes 1892). Hill and Worthington (2003) have argued that none of the Gloucestershire earthworks are actually part of Offa's frontier dyke which terminated at Bridge Sollers in Herefordshire. A 14th century reference to *Offedich* at Lindors Farm to the west of St Briavels (Herbert 1996g, 249), however, indicates that at least parts of the monument were associated with Offa's Dyke from an early date and sections in Tidenham and Newland were referred to as Offa's Dyke by 1712 (Atkyns 1712, 722, 573). Ray and Bapty (2016) have also examined the form of the monument and its position within the landscape and highlight parallels between the Gloucestershire sections and the dyke to the north which suggest a unified monument constructed in accordance with a coherent concept of design and purpose.

The date of the monument has, however not been established. A radiocarbon date from a hearth sealed by Wat's Dyke near Oswestry, Shropshire (generally considered to be contemporary with Offa's Dyke) produced a radiocarbon date of around the mid 5th century AD (Hannaford 1999), although Optically Stimulated

Luminescence dates from Wat's Dyke north of Oswestry suggested the Dyke itself was constructed around the mid-9th century AD (Hayes and Mallim 2008 cited in Ray and Bapty 2016, 20).

Offa's Dyke at Ffrith Village, Flintshire has also been shown to post-date the Roman period as it overlies a Roman settlement, although the date of the Dyke's construction was not established (Fox 1955, 40-41; Turner-Flynn *et al* 1995 cited in Ray and Bapty 2016, 19). The only radiocarbon dates from Offa's Dyke are from samples of turf used in its construction near Chirk, Wrexham (Current Archaeology 2014). Four dates which ranged from AD 430-643 to AD 887-1019 were obtained from apparently undisturbed material near the base of the bank. The earlier dates may be from residual material used in its construction and simply indicate that the earthwork was built after the Roman period. The later date (about 100 years or more after Offa's death) is more problematic and may suggest that the monument, in this area at least, was built after Offa's reign, although further analysis of the significance of these dates is required before any definitive statements can be made (CPAT 2014).

6.4.1.3 Other Saxon fortifications

No other pre-Norman fortifications are known within Forest of Dean District, although a late Saxon *burgh* was constructed by Aethelflaed at *Bremes byrig* in the early 10th century. This place name has been associated with Bromsberrow in the northern part of the district, although this association is no longer thought likely and research by the Manchester centre for Anglo-Saxon studies and the Extra Mural Department of Manchester University suggests that no *burgh* site exists in the area (Hill and Worthington 1996).

6.4.2 Norman fortifications

The surviving Norman fortifications in the Forest of Dean are mottes or ringworks which are likely to date from either the period following the Norman conquest of 1066, or the Anarchy of 1135-1138 (Leach 1988, 5), although a wider date range is possible and in northern England, Scotland and Ireland earthwork castles were built much later than the Anarchy (Welfare *et al* 1999). Townley (2004, 114-118) has suggested a pre-conquest date for the ringworks at Stowe and Newnham (and also a possible Saxon predecessor to the motte and bailey castle at English Bicknor). There has been no systematic study of Norman fortifications in the Forest of Dean, although historical records are summarised in the relevant volumes of the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13) and Dean Archaeological Group have undertaken a survey of 24 known and possible castle sites which includes references to documentary sources and a brief description based on a field survey (DAG 2000-2001).

Earthwork remains of mottes are known at English Bicknor, Dymock, Hewelsfield, Tayton Parva, and Ayleford near Newnham, whilst ringworks are known at Stowe north of St. Briavels, Littledean Camp, Castle Hill Huntley and Newnham. The remains of a small 12th century keep within an earthwork bailey are sited at Little Camp Hill Lydney. The small 13th century stone fortified manor at Ruardean was also built on the site of an earlier 'earthen' castle (Hart 1967, 53) and a mound at Bledisloe Tump, Awre, which replaced an 11th or 12th century timber tower in the 12th century, may also have been a small motte (Dornier 1966). The early 13th century castle at St Briavels (see below) also superseded an early motte and bailey Castle (Herbert 1996g, 251, 257-258) and a wooden tower may originally have been sited at Bailey Tump immediately to the west of the present structure, although by the end of the 12th century this had been replaced by a stone keep (about 30m high) on a mound in the southern part of the later castle site (Salter 1998, 2-3).

The motte and bailey castle at English Bicknor may have originated as a timber castle but this was certainly superseded by a masonry structure as the remains of a 'small room', about 3.6m square and constructed of 'Norman masonry', was recorded on the northwestern edge of the motte in the 1870s (Maclean 1879-80, 304). A stone structure (measuring at least 6.6m x 4.6m and with walls over 3m thick) was uncovered during a watching brief in 2015. Despite the disparity in recorded size, this was interpreted as the same structure which MacClean had recorded in the late 19th century (Craddock-Bennett 2015, 6-7) and may indicate that the Norman castle had a stone shell keep perhaps with a tower or gatehouse which protruded from the curtain wall onto the face of the motte. A number of other small-scale evaluations, watching briefs and observations (Fowler 1971; Ellis 1978, Site No. 9; Catchpole 1995, 1997; Nichols 1999; Blackburn 2014), have not produced any significant new evidence at this site.

Bledisloe Tump was excavated immediately prior to its destruction (Dornier 1966) and excavations have also taken place at Littledean Camp and Little Camp Hill, Lydney. At Littledean a rough pitched sandstone floor and possible evidence for a wooden watchtower were found, and although there were few finds, pottery was confined to the first part of the 12th century suggesting a relatively short period of occupation. The site has been identified as 'the Old Castle of Dean' mentioned in charters of Henry II (Scott-Garrett 1958). At Camp

Hill Lydney earthworks partly enclosed a small stone castle whose polygonal inner court incorporated a gate house, a tower and a rectangular stone keep. Pottery dating to the 12th century was found and, although there is no documentary evidence for the date of its construction, the excavator interpreted it as dating it to between 1100 and 1189 (Casey 1931).

Newnham Camp was also partly excavated in the 19th century, although the results were never published and are now presumed to be lost. More recent small-scale evaluations, watching briefs and observations at Dymock (Ellis 1978, Site No. 25; Hoyle 1993) and Stowe (Scott-Garrett 1918-58, entries for 31st July 1947, 7th August 1947, 9th August 1947) have provided little significant information. Measured analytical surveys have also been undertaken at Taynton Parva (Walsh 2012) and Aylesford (Unknown 1984).

Possible early Norman fortifications are also known at a number of other sites. Masonry remains of a square room or tower were recorded at Woolaston before 1953 (Scott-Garrett and Harris 1932, 10-11), although the precise location of this site is not clear and the remains may have been a domestic building (Hart 1967, 56). Masonry remains reported at Churchcroft, Blakeney in the 18th century (Rudge 1803, 118) may also be the remains of a medieval chapel or castle (see above) although this is far from clear (DAG 2000-2001, 4). Early Norman fortifications have also been suggested at Oxenhall (Borthwick 1990, site AR8 FN108); Bouldon Manor, Newent (GADARG 1982); Ragman's Castle Staunton near Corse (DAG 2000, 22); Castle a Buff, Brockweir (Hart 1967, 56); Old Rock Farmhouse, Dymock (DAG 2000, 23) and Eastbach Court, English Bicknor (Walters 1992, 143), although the evidence for these is limited and in many cases based on place name association rather than documentary or archaeological indicators. A small undated mound to the southwest of Lydney may also be a small motte, perhaps for a watchtower of some kind, but, apart from the fact that a tree at least 130-150 years old is growing on its summit, the mound is undated and could be a windmill mound (Standing and Wills 1988, 62). Soudley Camp, Soudley, may also be an early Norman ringwork (Hart 1967, 53), although the site is undated and has also been suggested as a prehistoric defended settlement or small hillfort (Saville 1984, 143, Fig 1).

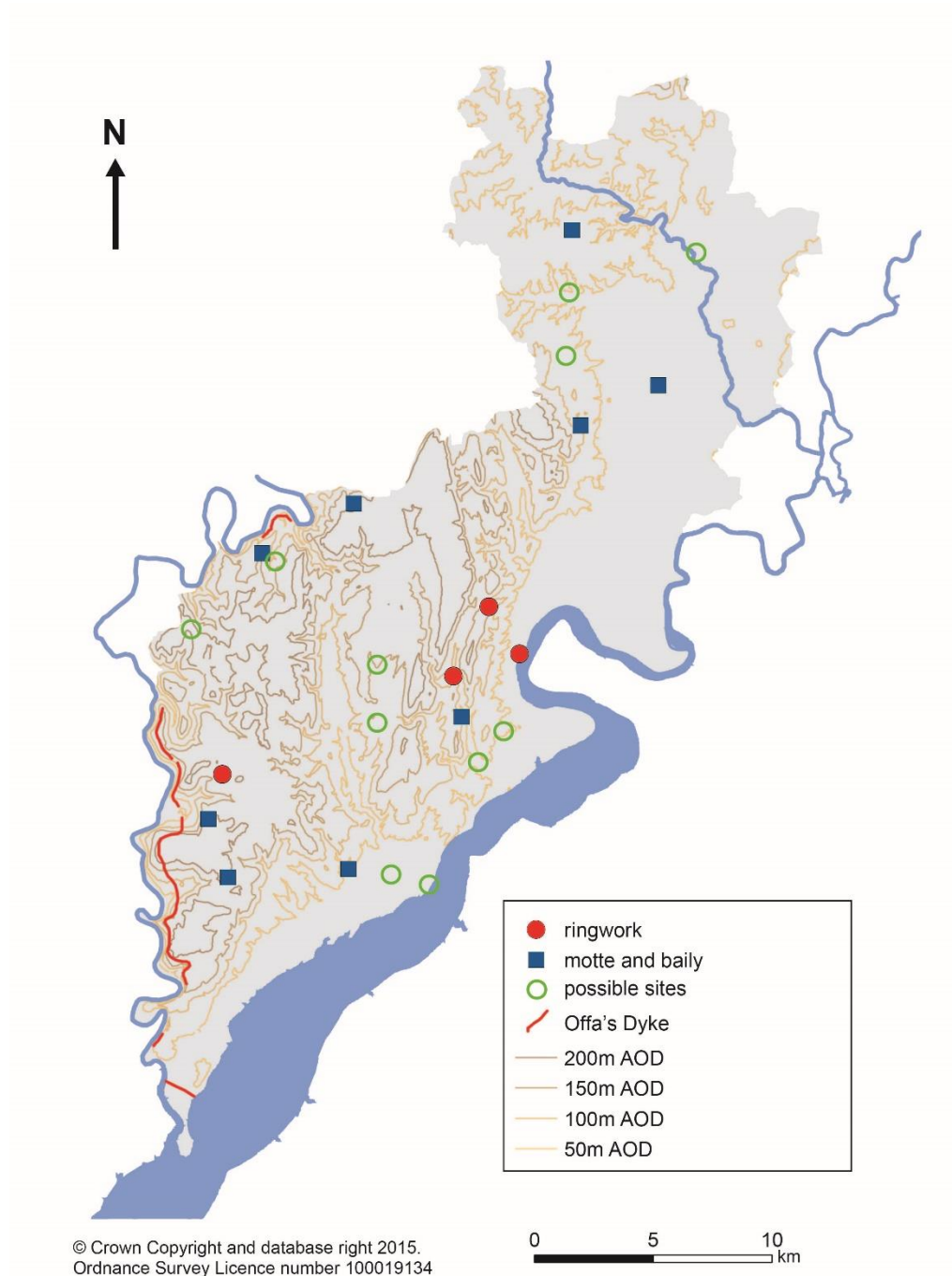


Figure 20: Offa's Dyke, Norman fortifications and possible castle sites

6.4.3 Later medieval fortifications

The only surviving later medieval fortification in the Forest of Dean is St Briavels Castle, a Scheduled Monument and Listed Building which was the administrative centre of the Forest of Dean by the 13th century (Herbert 1996h, 355) and was a pivotal site in the manufacture and distribution of quarrels (cross bow bolt heads) from about 1241 (Webb 1992, 19-21). The Castle began to take its current form during the 13th century, enclosing the 12th century keep and earlier motte within a curtain wall which included a large gate house and range of domestic buildings. Subsequent alterations, such as extending the castle to the south and raising the height of the gatehouse, were undertaken in the 14th century. At its height, the triangular area of Bailey Tump to its west and possibly also a triangular area to its east, which was subsequently used for housing, may have been part of the castle grounds. The historical and architectural evidence for the castle's development is well documented both in general summaries (DOE 1988; Herbert 1996g, 251, 257-258; Verey and Brooks 2002) and also in more specific accounts (St Claire Baddeley 1921; Remfry 1995), including descriptions of the fabric prior to major renovation in the late 19th and early 20th centuries (Taprell Allen 1878-79). The castle has also been the subject of a programme of archaeological and historical survey of its

standing fabric funded by English Heritage between 1997 and 2000 (Pidgeon 2002-2003). This included tree ring analysis of selected timbers from the gate house and domestic range indicating a period of early post-medieval refurbishment (Howard *et al* 1999; 2001a). Excavations in the early 1970s revealed evidence for both timber and stone structures within the eastern part of the court (Salter 1998, 6) and a small excavation within the gatehouse has revealed medieval stratigraphy and wall footings (Bateman 1995b). Small-scale archaeological watching briefs have also taken place within the castle, although no significant features were recorded (Goult 1994b; Barrett 2004).

The manor house on the site of the Norman castle at Ruardean was also fortified during the later medieval period when Alexander of Bicknor was granted a licence to crenelate his house in 1311 (Herbert 1996j, 236). The castle included a stone tower and strengthened and crenelated domestic buildings surrounded by a stone wall (Hart 1967, 53). The house was probably standing in 1611, but was demolished by the early 19th century and has been extensively robbed (Herbert 1996j, 236). A series of earth mounds conceal collapsed masonry and probably intact footings on the site (which is a Scheduled Monument), although only the ruined remains of part of the tower and section of adjoining wall survive above ground. No systematic modern excavations have taken place at the site, although there are reports that the remains of a small chamber were uncovered by local treasure hunters in the 1930s (Herbert 1996j, 236), and the standing structures and remaining earthworks have been surveyed (Vallender 2002; Hickling 2006; Ruxton 2006).

There may have been other later medieval fortifications in the Forest of Dean, but the evidence for these is much less clear.

Although English Bicknor castle may have been destroyed during the reign of Henry II a land grant of 1223 included the 'bailiwick and castle of Bicknoure' (MaClean 1979-80, 310-311) and a 14th century reference to a high-status residence on the site may have been the 'Castle Hall' recorded in the early 17th century (Jurica 1996c, 107). It is not, however, clear if there was a functioning castle at these times.

There is an early post-medieval (1558) reference to Naas Castle which may have been a small fortification (possibly built by the owners of Naas Manor) at Naas Point to the east of Lydney overlooking Lydney Pill, the approach to the town from the River Severn (Herbert 1996c, 63). No trace of a fortification has, however, been found at this point (DAG 2000, 2).

Two other possible castle sites, Moseley Castle (*Moseleyscastle*) and Saintlow Castle (*Seynteleyscastle*), are mentioned in 1282 (Hart 1967, 56). The site of neither of these is known although they were probably within the Royal Demesne of the Forest at Moseley Green to the east of Parkend and Saintlow Enclosure about 1.5km to the north. They may have pre-dated the 13th century and been early Norman fortifications set up to establish control of the Royal Demesne, although Hart has suggested that, as the place names Saintlow and Moseley may indicate areas of cleared woodland, these could have been watch towers or other structures which were primarily used to guard valuable Royal pasturelands within the Forest (Hart 1967, 56).

7. The post-medieval and modern periods

The industrial history of the Forest of Dean dominates any discussion of the post-medieval and modern Forest of Dean. Elements of this are discussed separately in cross-period summaries of individual industries, and the following section summarises other aspects of the district during the period from the mid 16th century to the end of the 20th century.

When compared with other periods (particularly the prehistoric and Roman periods) there is an increasing amount of historical information for all aspects of the post-medieval and modern periods, and an increasing amount of research has been undertaken. General histories of the area, such as the Victoria County History for Gloucestershire (volumes 5, 8, 10, 12 and 13) provide readily accessible summaries of many aspects of the period, whilst selected vernacular architecture is catalogued in Verey and Brook (2002), Kinglsey (1992); Kinglsey (2001) and Kinglsey and Hill (2001). There are also numerous more detailed accounts of particular sites, areas or themes in published articles in local journals (for example the *New Regard of the Forest of Dean*, the journal of the Forest of Dean Local History Society, which tends to focus on aspects of the Forest during this period) or published works which cover aspects of the area's post-medieval non-industrial history (for example Hart (1995) which deals with forestry or Hadfield (1970) which discusses the Chartist Land Company settlements around Staunton near Corse). There is also a wealth of unpublished primary documents (such as deeds, estate maps and records, terriers, or wills) held by Gloucestershire Archives or the Public Record Office dating to the post-medieval period, many of which have not been researched in

detail. Given the huge amount of information available for this period, the following discussion must inevitably simply be a summary of what is currently known.

7.1 Settlement and the built environment

There has been little general investigation of post-medieval settlement within the district, although, in addition to the general histories above, some research has been undertaken on individual settlements. Leech's survey of Historic Towns in Gloucestershire (Leech 1981) included Newent, Newnham and St Briavels, whilst the Gloucestershire Historic Towns Survey summarised the post-medieval developments of Cinderford, Coleford, Dymock, Lydney, Mitcheldean, Newent, Newnham and St. Briavels (Douthwaite and Devine 1998). In addition, Coleford (Hart 1983) and Cinderford (Beard 2014) have both been the subject of research. Contemporary accounts of Forest of Dean parishes are also included in 18th and early 19th century published histories of Gloucestershire (Atkyns 1712; Rudder 1779; Rudge 1803).

In the northern part of the district rural settlement expanded in line with overall population growth during the post-medieval period and although settlements such as Newent established themselves as small towns, the area remained largely rural in character.

In the southern part of the district, however, the industrial areas surrounding the statutory Forest saw the greatest changes during this period. Even before the 17th century illegal squatters (cabiners) who were involved in charcoal and iron production lived close to the mines and iron works within the Crown land of the Statutory Forest, from which they were periodically evicted. From the latter part of the 18th century, however, immigrant workers flooded into the area to meet the labour needs of expanding industries based on the areas iron, coal, stone and timber resources and saw the population rise from 3,325 in 1801 to 23,155 in 1901 (Jurica 1996g, 300-303). Some of this growing population settled in haphazard and unregulated squatter settlements around the fringe of the Crown land of the Statutory Forest. The Crown continued to fight against encroachment into the Royal Demesne with periodic mass evictions, although in 1838 the Crown granted freehold status to older encroachments and offered to sell any encroachments less than 50 years old to the occupants (Jurica 1996g, 301-302). This had the effect of effectively fossilising the inhabitable areas around the edge of the Forest, and established a settlement pattern of sprawling hamlets of almost randomly positioned cottages forming a more or less continuous ring of settlement around the edges of the Statutory Forest with some (for example Park End) further within its bounds. This type of settlement pattern has been recognised by the Gloucestershire Historic Landscape Characterisation (Hoyle 2006) and similar settlement patterns of small enclosures and cottages, resulting from 18th and 19th century encroachment into common land, are also known on the Hudnalls to the southwest of St Briavels (Herbert 1996g, 264) and areas such as Woolaston Common on the western slopes of the Severn Vale (Hoyle 2006, 112-115).

A photographic and written record has been made of surviving remains of the small late 18th/ early 19th century settlement of Tomlin, c. 1km northeast of Yorkley (Jackson *et al* 2016, 34), although this is the only published systematic research which has been undertaken to identify the physical remains of pre-1838 squatter settlement within the Royal Demesne. Some early properties are likely to have been of flimsy construction (Jurica 1996g, 301-302) and evidence may have been largely removed by later settlement and rebuilding, although stone-built cottages, or their remains, may survive in some areas, even where subsequent development has taken place.

Some of the areas of former squatter settlement around the fringes of the Royal Demesne have now developed a semi-urban character, and Cinderford, which may originally have been a small settlement at the crossing of a small stream, has developed into the largest settlement on the eastern side of the Forest (Beard 2014). In other areas, the random pattern of houses and small enclosures survives, although the original squatter cabins, often windowless with a dry-stone wall and turf roof (Jurica 1996g, 301-302) have been replaced with more substantial stone-built cottages. Some areas of planned 19th century industrial housing also survive in these areas, for example New Town and other cottages built to house workers in the Steam Mills area to the east of Cinderford (Jurica 1996g, 324), or the Barracks built for workers at the New Fancy Colliery to the south of Speech House (Cross 1982, 128).

Established settlements in this area, for example Coleford, Mitcheldean and perhaps also Ruardean were incorporated into the expanding industrial settlement around the edges of the statutory Forest, although others, such as St Briavels, Littledean, Newnham or Newland beyond the edges of the industrial zone remained as small rural settlements.

A number of settlements, some of which had been engaged in river trade since at least the medieval period, developed into significant ports during the post-medieval period exporting goods from the Forest industries via

the Rivers Severn or Wye. Lydney on the Severn and Lydbrook on the Wye were predominant, although there were also smaller ports at Brockweir on the Wye, and Newnham, Gatcombe and Purton on the Severn (see below). Many of these riverside settlements were also engaged in fishing, although in the Forest of Dean this was always a relatively small-scale affair with a relatively small number of people catching freshwater and migratory fish within the upper Severn Estuary (see 8.6.3 below).

Sedbury, in Tidenham at the southern tip of the district, also expanded in the 20th century, originally to house workers at the shipbuilding yard at Beachley, but has since incorporated Tutshill to become a significant settlement (Herbert 1972a, 58) which is effectively a suburb of Chepstow in Monmouthshire on the other side of the Wye.

In the northeastern part of the district planned Chartist settlements were established by the National Land Company at Snigs End, Staunton near Corse and Lowbands, Redmarley D'Abitot in the mid 19th century (Hadfield 1970). Neither of these settlements were successful and the company was dissolved in 1851, but many of the small cottages and other buildings survive, as does the distinctive pattern of regular and uniform enclosures.

7.1.1 The built environment: Domestic buildings

The Gloucestershire Historic Environment Record for the Forest of Dean District lists 679 domestic vernacular structures thought to be of architectural or historical interest, of which 478 are Listed Buildings.

This includes a wide range of buildings from domestic houses and labourer's cottages to high status buildings such as manor houses or country houses, nine of which were originally medieval manor houses which continued and were refurbished in the post medieval period, but 13 of which were newly constructed in the post medieval period, the majority in the late 18th or 19th centuries.

Details of these can be found in the relevant volumes of the Victoria County History for Gloucestershire (volumes 5, 8, 10, 12 and 13) and also county-wide volumes on vernacular architecture (Verrey and Brook 2002; Kinglsey 1992; 2001; Kinglsey and Hill 2001), or Listed Building descriptions (DoE 1988) and the county Historic Environment Record (Glos HER 2015).

Many of these have now been demolished within the district including at least five high status houses (White Cross Manor, Lydney; Highmeadow Mansion, Staunton near Coleford; Tidenham House, Tidenham; Tilthams Tump, St Briavels and Hookes Hall, Ruardean).

The district also contains numerous buildings constructed as domestic dwellings for industrial workers which are not afforded any statutory protection and may be at particular risk for unsympathetic development. Workers cottages were constructed at a number of locations with 19th examples known at Cinderford (Jurica 1996g, 305-307), New Town and Steam Mills on the northeastern side of the town (Hoyle 2009b, 31-35), and at Parkend and Moseley Green to the north of Parkend (Jurica 1996g, 310, 323), whilst houses for workers at the Cannop wood distillation works were built in the early 20th century (Jurica 1996g, 323). In addition to houses built specifically for industrial workers the district also contains numerous early examples of council housing built between 1923 and 1931 with examples at High Nash and Albert and Victoria Roads, Coleford (Jurica 1996e, 121), Berry Hill, Edge End, Brierley, Worral Hill, Parkend and Breams Eves (Jurica 1996b, 319-324). Very little systematic recording of this type of post-medieval and modern housing has been undertaken in the district, and knowledge of what survives, and in what condition is patchy.

7.2 Military

The post-medieval military history of the district is covered in the relevant sections of the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13), and to a greater or lesser degree in a range of general histories which include the district. There have been few synthetic studies of the district's post-medieval military history and archaeology with the exception of an account of Second World War sites in the district (Putley and Webb 2004) and a gazetteer of surviving Second World War structures (Putley 2003; Unknown 2003).

English Civil War

The Forest of Dean saw a number of small-scale actions during the English Civil War of 1642-1651. These ranged from a small battle involving 2-3,000 troops immediately to the west of Redmarley D'Abitot (Willis Bund 1905, 137-138; Smith 2005) to smaller clashes at Coleford, Lancut, Newnham, Westbury on Severn,

Beachley Tidenham, two at Littledean, and Soilwell northeast of Lydney (Atkin and Laughlin 1992, 25), and also at Taynton Parva following which the church, which had been held by the Parliamentarians, as destroyed (Webb 2001a, 25). There may also have been a skirmish at Barbers Bridge, Rudford, perhaps involving Welsh troops retreating from an action at Huntley immediately to the east of the district (Atkin and Laughlin 1992, 30) although whether such a battle actually took place has been questioned (Putley 2006, 38).

There were also military garrisons at St Peter's Church, Newnham; Hartpury; Dean Hall, Littledean; Whitecross Manor and Naas House, Lydney; Soilwell House northeast of Lydney; Highmeadow Farm, Newland; Lancaut; Taynton House, Taynton; Camp House, Rudford; Dymock; Newent; Huntley; Westbury on Severn; Beachley and Coleford (Atkin and Laughlin 1992, 25; Glos HER 2015). These were mostly held by Royalists although Coleford was occupied by Parliamentary forces and Taynton House, Lancaut and Camp House, Rudford changed hands during the course of the war.

Physical evidence for the Civil War in the Forest of Dean is however, rare. A polygonal enclosure in Ley Wood, Westbury on Severn has been suggested as a possible Civil War gun battery, but an interpretation as a medieval hunting lodge would seem more likely (Small and Stoertz 2006, 42), whilst earthworks at Taynton Parva and Ruardean Castle, which have been suggested as Civil War entrenchments (Webb 2001a, 24-26, 32), may also represent earlier activity. This does not, however, preclude the possibility that these, and other earthworks were reused during the Civil War. The Norman ringwork at Newnham certainly appears to have been refortified during this period and an additional earthwork may have been added (Elrington 1972, 33) whilst a section of Offa's Dyke at Sedbury might also have been reused as a Civil War defence (Ormerod 1841, 17).

A 19th century memorial at Barber's Bridge, Rudford is reputed to mark the spot where almost 100 Welsh Royalists, killed at the battle of Barber's Bridge (see above) were reinterred following the disturbance of their original graves in the 19th century, although it is not clear if these skeletons (and others found earlier in the vicinity) were actually casualties of a Civil War battle (Putley 2006, 38).

A small mound to the southwest of Lydney which is topped by a 130-150 year old tree, is reputed (according to local legend) to be a burial mound for soldiers killed in the Civil War during fighting around Whitecross Manor although the mound has never been investigated and is more likely to be a windmill mound (Standing and Wills 1988, 62), or perhaps a small medieval motte or watchtower base (see 6.4.2 above).

Iron shot and cannon balls were manufactured in the Forest of Dean during the Civil War, mostly for local use. Over 500 cannon balls made at Soudley Furnace were supplied to the army for the siege of Gloucester in 1643 (Hart 1971, 17; Walters 1991c, 35), and a stone two-part mould from Mount Pleasant, Viney Hill in the collection of the Dean Heritage Centre (Nicola Wynne pers. comm.) may have been Civil War cannon ball mould. A number of iron cannon balls found at various locations in the southern part of the district (Webb 2001a, 40-41) have been suggested as the result of test firing of cannon made in the Forest during the Civil War (Walters 1991c, 36), although there is no direct evidence for Civil war cannon manufacture in the district. A mortar used at the siege of Goodrich Castle, was reportedly made close to the castle, perhaps at an iron works within the district, but this has not been confirmed (Walters 1991c, 33).

7.2.1 20th century military sites

7.2.1.1 The First World War

Evidence for First World War military activity in the Forest of Dean is rare. Two prisoner-of-war camps and a shipyard (National Shipyard No 2) were established at Sedbury on the Beachley Peninsula (Small and Stoertz 2006, 116-117), although the ship yard was constructed towards the end of the war as part of the National Shipyard Scheme and no ships were completed there (Allen 2000, 203). The barrack blocks of the Sedbury POW camp and the Shipyard's slipways, jetties, accommodation barracks and network of railway links are recorded on the 1921 Ordnance Survey map of the area, and although the area has been developed research by the Tidenham Historical Group have identified the remains of jetties and railway structures (including a section of narrow gauge railway) and also some intact buildings (Carol Clammer pers. comm.). A dump of ceramic material relating to the shipyard has also been recorded eroding from the banks of the Wye at Sedbury (Allen 2000, 204).

In 1914 a distillation works to provide acetone for the arms industry was opened on Speech House Road, to the west of Speech House, although the remaining buildings were demolished in the 1970s (Deeks 2010; see 8.4.3 below).

Over 3000 auxiliary hospitals were set up by the British Red Cross and the Order of St John during the First World War. These were mainly for the less serious and convalescent wounded and used a range of existing public and private buildings. Lydney Town Hall, Redhill House, Lydney and Ghyll House, St Briavels were adapted for this purpose (British Red Cross undated, 53-54), although it is not clear that any evidence for this use survives at these buildings.

The Forest of Dean Local History Society has been involved in a project to research the impact the First World War had on the Forest. It is proposed that this information will be compiled into a book, although this had not been published in August 2015 (FoDLHS 2015).

7.2.1.2 The Second World War

The Forest of Dean contains much more evidence for Second World War activity. The principal source for much of this information is from aerial photographs which have been recorded by the National Mapping Programme (Small and Stoertz 2006, 118-125), and also the Council for British Archaeology's Defence of Britain project which produced gazetteers of numerous recorded Second World War sites at a national level (Dobinson 1996a-g; 2000a -j). Information from both these sources has now been incorporated into the Gloucestershire Historic Environment record which contains information about 70 sites. Putley and Webb (2004) also provides a useful summary of the Second World War in the Forest of Dean combining historical records of military structures and discussion of what survives with social history covering aspects of civil defence.

Eighteen pill boxes are known in the area of which 15 survive as visible structures (Putley 2003, 20). These mostly line the northern shore of the River Severn between Beachley and Awre with a concentration around the mouth of Lydney Harbour (where there was also a factory making Spitfires) and at Beachley Point, where other defence structures, such as blast walls or beach defences, have also been recorded. Other pillboxes overlook the River Wye at Broadoak, Tidenham and there are three at Bigsweir Bridge, the lowest crossing point of the Wye above Chepstow. Gun emplacements and anti-aircraft batteries protected the confluence of the Rivers Wye and Severn at Beachley Point, Tidenham; Coleford and the western approaches to Gloucester at Hartpury and Denny Hill, Westbury on Severn. A steel spigot on top of a capped airshaft for the railway tunnel at Moseley Green was probably the mounting for a machine gun protecting the ammunition store there (see below). Searchlight batteries have been identified at Bromsberrow, Kents Green to the north of Tibberton, Christchurch to the north of Coleford and within the Statutory Forest at Moseley Green to protect the entrance to the Severn and Wye Railway tunnel where ammunition was stored, whilst a patch of concrete close to the Buckstone Staunton may also have been for a searchlight (Putley 2003, 21; Glos HER 2015). Other searchlights are recorded at Littledean Hill, Littledean; Colliers Court, Cinderford and Jordon Hill, Westbury whilst there were Observer Corps posts at St Briavels (Putley and Webb 2004, 31, 34) and also at Westbury on Severn (Dobinson 2000h, 220).

Four areas of air raid shelter sites (totalling 56 separate shelters) are known at Lydbrook and Tidenham, the majority (36) being close to the Army Apprentices College on the site of the former First World War National Shipyard at Beachley Point (see above).

Other World War two sites in the district include stores and ammunition depots at Lydney and Newland (Sindrey 1999), two bombing range markers on either side of Walmore Common, Westbury on Severn, concrete anti-tank blocks at Bullo Pill, Newnham, Bream and Beachley Point, Tidenham, and a number of Nissen Huts and slit trenches. There was also a small airfield at Wigpool, although the precise location of this is not clear, and no associated structures survive (Unknown 2003, 23).

A number of Second World War military aircraft crash sites are recorded in the district or its immediate vicinity; many in the Severn Estuary. Crash sites have, however, been recorded at Grove Farm near Taynton, Lower Lydbrook, Aylburton, Purton Pill near Lydney and another close to the Speech House in the Statutory Forest (Webb and Putley 2004, 52-57).

There were prisoner of war camps at Sedbury in Tidenham; Naas House near Lydney and Wynoll's Hill between Broadwell and Coalway to the east of Coleford (which had originally been an American Army base (Putley 2003, 21)). Another small camp at Mile End, Coleford, which housed the Forestry Company of the Royal Engineers (Putley and Webb 2004, 43) may have been reused as a prisoner of war camp (perhaps overspill from the nearby Wynoll's Hill Camp) later in the War (Small and Stoertz 2006, 122). After the end of the Second World War a camp to house prisoners awaiting repatriation was also set up to the southwest of Newent (Putley 2003, 21).

The camp at Wynoll's Hill (which included a monument to Marconi constructed by Italian prisoners) is now under a modern housing estate, although the remains of buildings survived at Naas House in 2003 (these may have been demolished during the construction of a golf course) and parts of concrete hut bases survive within woodland at Mile End (Putley 2003, 21; Putley and Webb 2004, 43). Other military camps or temporary huts have been identified from aerial photographs at English Bicknor, Lydbrook, Cinderford, Staunton near Coleford and Churcham (NMP 2015).

Other surviving Second World War structures include a number of buildings to the southwest of Lydney, particularly at Pine End Works where wooden components for gliders and aircraft were made. Others, such as a decontamination building constructed for troops handling chemical weapons at the Acorn Patch Depot near Speech House (see below), have been demolished in recent years (Putley 2003, 21).

Cinderford in the Forest of Dean was one of the three main ammunition supply dumps (ADSs) where ammunition shipped from the United States was stored in preparation for the invasion of Europe, and became the second largest American ammunition depot in England (Mayo 1991, 98). Aerial photographs have recorded dispersed storage areas for military supplies in the northern part of the Statutory Forest in the southern part of the district. These consisted of elongated crates or shelters often in dispersed groups either adjacent to roads or in remote areas of woodland. Three of these were close to the A4136 to the south of Lydbrook (Small and Stoertz 2006, fig 59) whilst a fourth was close to the B4226 just east of Speech house. The remaining three were further into the woodland, and new roadways were constructed to access them (Hart 1966, 238). Another was at Worcester Walk south of Edge End (Small and Stoertz 2006, fig 60) whilst the largest, centred at Acorn Patch to the south of Speech House, covered an extensive area including Little Kensley Enclosure, Saintlow Enclosure and Middle Ridge to the southeast of Speech House (Putley and Webb 2004, 68-69). Storage units also covered much of the area to the north of Russels Enclosure to the southwest of Speech House and are visible on aerial photographs taken in 1945 (HER 2015). Chemical weapons were stored at Acorn Patch (Putley and Webb 2004, 69) and the area was reportedly contaminated with mustard gas in the immediate post-war period (Baty 1952), although other sources suggest that this problem may have been exaggerated (Putley and Webb 2004, 68).

The Royal Air Force also stored ammunition in an open-air dump at Parkend, whilst the Mosely Green railway tunnel and Hawthorn tunnel between Drybrook and Cinderford were used to store Naval munitions (Putley and Webb 2004).

There may have been other dispersed storage sites which are not currently known and although the physical remains of some of the more permanent sites have been recorded (Putley 2003) it is not clear what, if anything, remains on the ground at these temporary sites.

There was also massive increase in forestry during the Second World War and nearly 2000ha of conifer and hardwood were clear felled in the Forestry Commission woodland in the southern part of the district. By 1942 the Royal Engineers operated three large sawmills (at Whimsy, Brierley and Cannop) and eight smaller ones (Hart 1966, 237; Hart 1971, 225; Herbert 1996h, 375) to produce timber mainly for railway sleepers, trucks and mining (Hart 1966, 237). When the Royal Engineers returned to France in 1944 the Women's Land Army took over and 400 were trained in forestry at the Forester's School in Parkend (Hart 1966, 237).

The number of Second World War sites recorded in previous surveys and on the Gloucestershire HER may under-represent the true figure within the district as the National Mapping Programme will only have recorded sites which were visible when aerial photographs were taken, and the extensive woodland in the southern part of the district (where ammunitions dumps or dispersed storage areas were placed) is likely to have obscured sites. The area's industry was also vital to the war effort and factories and mines are almost certain to have had additions or modifications to respond to the threat of air raids. An emergency shelter was attached to the Northern United Colliery to the west of Coleford (Hoyle 2009b, fig 4; Pope and Kerau 1992, 285) although it is not clear if this was added during World War II or at a later date (see below; Bent 1988, 76-7). Records of structures of this type are inconsistent, particularly as information about Second World War sites may not have been recorded from the sources used during Stage 1 of the Forest of Dean Archaeological Survey (Hoyle 2008a, Appendix C).

Civilian buildings were also commandeered for military use during the Second World War, although as this did not necessarily involve any significant alteration, physical evidence may not survive. These included Broadwell Memorial Hall, Cannop Colliery office buildings, the Miners Hall and former Bon Marche in Cinderford, Ruspidge Town hall and Five Acres Garage, Coleford (Putley and Webb 2004, 72) although a definitive list of these buildings is not known to exist.

The Second World War would also have had a profound effect on the civilian inhabitants of the district as industries and agriculture were placed on a war footing and large proportions their population became involved in civil defence activities, or were affected by bombing (Putley and Webb 2004, 17-30, 38).

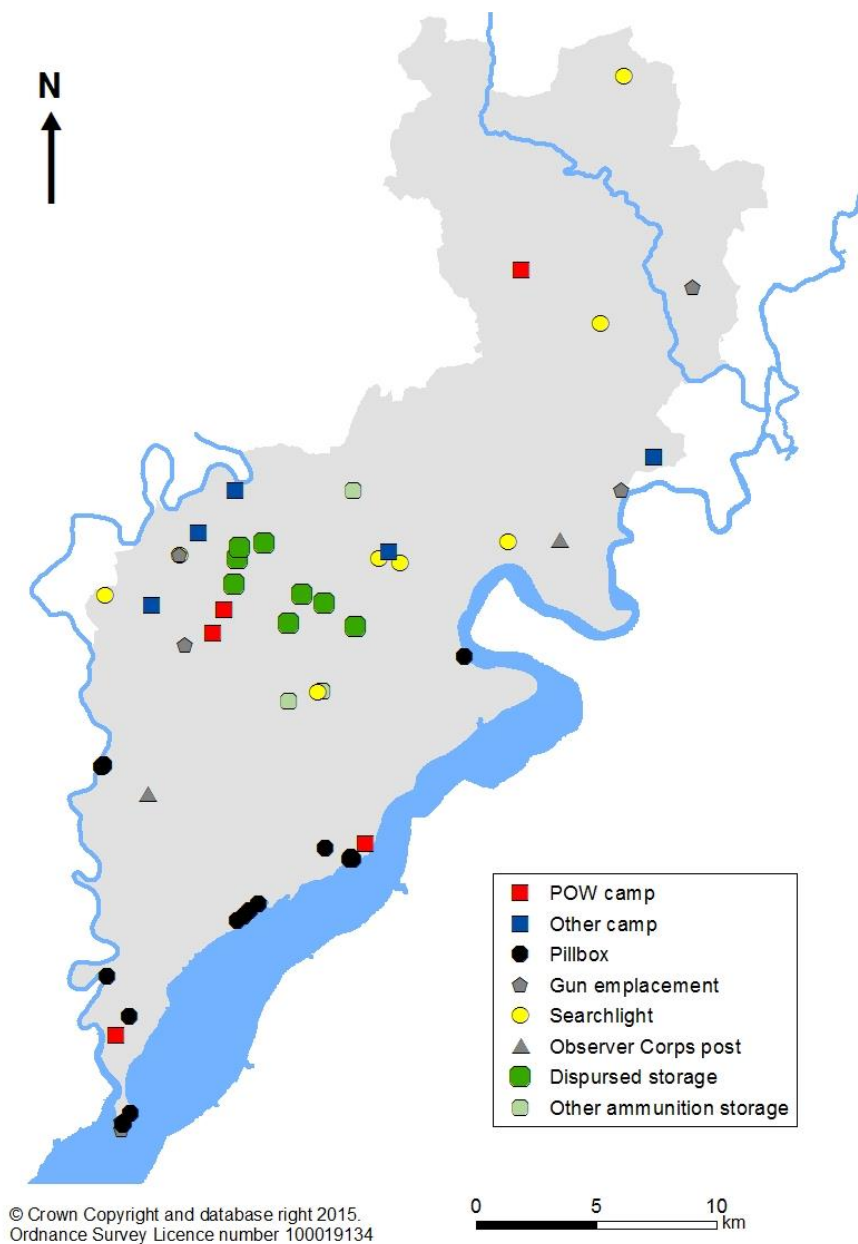


Figure 21: Selected Second World War military sites

7.2.2 The Cold War

No sites are listed within Forest of Dean District in the Monuments Protection Programme assessment of Cold War monuments (Cocroft 2001), although there were Cold War period underground Royal Observer Corps posts at Blakeney, English Bicknor and two in Westbury on Severn at Denny Hill and Walmore Common (Dobinson 2000j).

An 'emergency shelter' identified at Northern United colliery northwest of Cinderford (Hoyle 2009b, fig 4; Pope and Kerau 1992, 285) may have been a civil defence shelter provided for the winding engineman and other key personnel in the event of nuclear attack (Bent 1988, 76-7), although the source of this information is not clear.

7.2.3 Other military sites

A small number of military sites have been recorded on the HER which, although generally undated, appear to fall between the Civil War of the 17th century and the major wars of the 20th century. These consist of a Drill Hall and rifle ranges recorded on early Ordnance Survey maps at Newnham and Coleford and target butts at Mitcheldean and Hopewell Colliery to the east of Coleford. These sites are almost certainly under-represented in the HER record and probably indicate volunteer or local militia training sites.

The Forest of Dean also contains a number of 20th century War Memorials, mostly commemorating the dead of 20th century conflicts, many of which are listed in general histories (The Victoria County History volumes 5, 8, 10, 12 and 13) or the Buildings of England Series (Versey and Brook 2002) although no comprehensive survey of these has been undertaken and only five are currently listed in the County HER. The only Listed war memorials are at Longhope, Huntley and the churchyard gates at Cinderford, and also a 19th century monument commemorating the dead of a possible Civil War skirmish (the battle of Barber's Bridge) in Rudford (Putley 2006).

7.3 Post-medieval ritual and religion

From the 18th century the rapidly growing population of the Forest of Dean, many of whom were living outside areas of existing settlement (see above), created a need for new places of worship to fulfil the spiritual requirements of the growing populations and counteract the perceived dangers to populations devoid of any religious guidance.

Unsurprisingly for an industrial area, outside the traditional parish structure, non-conformist groups were the first to begin missionary work in the area and, although progress was slow, began to gain footholds in the Forest (Jurica 1996h, 396). The area now contains over 70 nonconformist chapels. The majority of these are in the traditional industrial heartland in the southern part of the district and 14, such as the Congregational Chapel at Blakeney, the United Reformed Church at Littledean and Moravian Chapel at Brockweir are Listed Buildings.

The established church also responded to the challenge and Anglican churches were built at Bewley Hill near Coleford, Drybrook and Parkend in the early 19th century (Jurica 1996i, 389-390 and others followed throughout the 19th and 20th centuries. The Forest of Dean District contains 31 post-medieval Anglican churches or chapels (20 of which are Listed Buildings) and which, like the non-conformist chapels, tend to be in the industrial parts of the southern Forest where they were most needed by the growing population, although some significant post-medieval churches (for example the church of St Edward the Confessor, Kempley, an important example of Arts and Crafts Movement design) were not constructed for this purpose. The 20th century military site of the Army Apprentice's College at Beachley, Tidenham, the former site of government shipyards, prisoner of war camps and military barracks, is served by a group of Anglican, Roman Catholic and nonconformist places of worship.

There is a good body of data about post-medieval religious buildings as they are covered by a range of published sources, principally general histories such as the Victoria County History (volumes 5, 8, 10, 12 and 13) and the Buildings of England Series (Versey and Brooks 2002), whilst the 33 Listed chapels and churches are also recorded in the relevant listing documentation (DoE 1988). A Royal Commission on the Historic Monuments of England volume on non-conformist chapels and meeting houses in Gloucestershire (RCHME 1986) lists and briefly describes 14 of the nonconformist chapels in the district (although only eight of these are Listed Buildings) and descriptions of individual buildings have occasionally been produced (for example Kear 2003; Pope 1999a; Waygood 2005), whilst St John The Evangelist Church at Beachley, Tidenham has been the subject of a Council for the Care of Churches report (CCC 1995). A volume has been produced describing the Churches and Chapels in Tidenham Parish (Clammer and Underwood 2014).

The majority of churches are still used as churches, although an increasing number of non-conformist chapels are falling out of use and some have been converted to domestic houses. Change of use from a religious to domestic buildings requires planning permission which should ensure that any such renovations are undertaken in a sympathetic manner. Subsequent to this, however, any religious buildings which have been converted are at risk from permitted development unless protected in other ways either through listing or being within Conservation areas.

7.4 Post medieval landuse

7.4.1 Industry

In the post medieval period much of the landscape of the Forest of Dean, particularly in the Statutory Forest in the southern part of the district, became increasingly industrial. Expanding industries began to leave their mark on the landscape in the form of built complexes, ever increasing spoil heaps, surface extraction sites and communication links such as railways, tramroads or roads. These industries are summarised elsewhere, but apart from a few areas where large industrial complexes were within built up area (for example Cinderford) the Forest of Dean industrial landscape retained a semi-rural character with mines or quarries within areas of Farmland or woodland.

7.4.2 Woodland

The Forest of Dean is extensively wooded with approximately 119.90km² of woodland, approximately 21.35% of the total area of the district. Much of the woodland is in the southern part of the district where it covers almost c. 36% of the area (Hoyle 2008a, 38).

The woodland of the Forest of Dean has been an important resource since at least the medieval period, not only as a timber resource and a habitat for game, but also for the production of charcoal to fuel the area's industries. During the post-medieval period timber production became increasingly important in the areas of Crown woodland, particularly following the Dean Forest Re-afforestation Act of 1668 when the Crown made efforts to ensure a supply of timber for naval shipbuilding and to curb the increasingly unregulated destruction of the woodland which had taken place in earlier years (particularly during the Civil War) when much woodland was destroyed to supply the charcoal needs of the area's Iron Industry. Under the terms of the act up to 11000 acres of woodland could be enclosed to protect it from browsing animals until it was sufficiently mature, at which time the enclosures would be thrown open and further enclosure (never exceeding 11,000 acres) would take place. The Forest was also divided into six 'walks', each patrolled by a keeper who was provided with a Lodge (Herbert 1996h, 366-367). Although meeting with opposition from the Forest's inhabitants who saw enclosure as a restriction on their customary rights, enclosure continued throughout subsequent centuries and further lodges were built up until the early 20th century. Historical details of these enclosures can be found in the Victoria County History of the Forest (Herbert 1996h) and in greater detail in other published works, principally Hart (1995), whilst a comprehensive inventory and description of the Forest Lodges has been undertaken (Waygood 2003; 2004). Many of the enclosure boundaries consisted of earthen banks (originally with gorse planted on the top) or dry stone wall (up to 5 feet high) to ensure that livestock were kept out of the enclosures (Hart 1995, 228-230) and the remains of these now survive throughout the Statutory Forest as low banks. A number of these were recognised in the Gloucestershire and Wye Valley Historic Landscape Characterisation (Hoyle 2006, 131), and others have been identified by lidar, although the rapid transcription methodology employed did not record these features where they coincided with modern boundaries (Hoyle 2008c, 75-76) and no comprehensive survey of surviving Crown Enclosure boundaries has been undertaken.

The enclosures were mainly stocked with oak to provide timber for the navy although other species were planted as shelter for the oak (Herbert 1996h, 371), and in the late 18th century the first conifers were introduced to the Crown woodland (Hart 214). By the First World War much of the oak plantation was reaching maturity and the demand for timber saw an increase in felling and replantation, often with conifers. The Crown woodland transferred to the Forestry Commission in 1923 and production again increased during the Second World War when 11 sawmills were set up by the Royal Engineers in the Forest and nearly 5,000 acres were clearfelled. Post war replanting maintained a balance between conifers and broadleaved species, but in the 1960s policy favoured the more profitable conifer species and by the early 1970s only 41% of Forestry commission woodland in Dean was broadleaved. Since the 1990s the policy has been to maintain approximately equal proportions of broadleaved and conifer within Forestry Commission woodland (Herbert 1996h, 375-376) and the current norm is to replace felled conifer plantations with mixed deciduous native species.

Although the majority of the woodland within the Forest of Dean District is owned and managed by the Forestry Commission there are extensive tracts of privately owned woodland to the west of Newent, at Lydney Park and also in the Wye Valley as well as numerous smaller privately owned woods throughout the district. Much of the privately-owned woodland is deciduous although the larger estates also manage significant tracts of conifer.

7.4.3 Farming

Outside the woodland, the district is essentially rural in character and most of the area is now enclosed farmland approximately equally divided between arable and pasture. Pasture has tended to predominate in the southern part of the district where agricultural land tends to be poor, although a recent census of the state of agriculture in the area (DEFRA 2010), suggests that arable cultivation is increasing, perhaps due to economic uncertainty in dairy farming combined with the local impact of bovine TB. The areas of former open fields, particularly the Leadon Valley, the northern shore of the River Severn and the area to the southwest of the statutory Forest, were largely enclosed in the post-medieval period. Details of post-medieval farming and enclosure in the district is set out in general histories of the area, particularly the Victoria County History volumes 5, 8, 10, 12 and 13), and the Gloucestershire Historic Landscape Characterisation (Hoyle 2006) also made a rapid assessment of former landuse and enclosure types within the district. Regular enclosure patterns (usually associated with Parliamentary or 19th century enclosure) are slightly less common than the less-regular enclosure patterns (generally indicative of piecemeal enclosure) which took place before that time, particularly in the Leadon Valley in the northern part of the district. This type of enclosure may indicate that much of the enclosure of former open-fields in these areas took place early in the post-medieval period, or perhaps earlier. The smaller field patterns in the areas of high or steep ground surrounding the Statutory Forest in the southwestern part of the district (see above) may pre-date the post-medieval enclosure of open fields. Apart for some boundary removal or minor alterations, these are still the predominant field pattern in these areas.

Post-medieval changes in farming practice and tenure led to the creation of new farmhouses and agricultural buildings and the district contains at least 269 post-medieval farm houses and 116 post-medieval Barns. Of these 285 (74%) are Listed Buildings and one of the barns, at Gunns Mill, Littledean, is a Scheduled Monument (although this is because it incorporates part of a scheduled charcoal-fired blast furnace). During the post-medieval period, generally from the late 18th and early 19th centuries, a number of Model Farms were built throughout the country. These were designed and built as a single unit to be aesthetically pleasing, make the most efficient use of the available space and act as exemplars for the effectiveness of new farming techniques (Hey 1996). Six of these are known in the Forest of Dean at Bulley Farm, Churcham; Snigs End Farm, Corse; Church Farm, Abenhall, Rymes Farm, Malswick near Newent, Woodend Farm, Huntley and also the late 17th century group at Taynton House Farm, Taynton, which is amongst the earliest in the county (Wade Martin *et al* 1997, 14).

A number of these buildings are recorded in general histories of the area (e.g. the Victoria County History of Gloucestershire volumes 5, 8, 10, 12 and 13) and also county-wide volumes on vernacular architecture (Verey and Brook 2002) whilst the Listed Buildings are described in the relevant Listing documentation (DoE 1988) and some have been recorded in greater detail (for example seven are included in James (2010)), but there have been no systematic or thematic studies of buildings of this type within the Forest of Dean.

7.4.4 Land reclamation

In Westbury on Severn parish there was early medieval land reclamation and construction of sea defences at Chaxhill and also at Rodley in the nineteenth century (Allen and Fulford 1990, 310-311). The New Warth at Awre was reclaimed early in the 17th century and flood defences (known as cribs) were maintained throughout the 18th century before a new sea bank was constructed in the 19th century (Herbert 1996k, 15-16). A new sea bank was also constructed at Lydney in the 19th century running south from the 19th century harbour to protect the earlier reclamations at New Grounds from flooding (Herbert 1996c, 47-48).

7.4.5 Designed landscapes

Post-medieval designed landscaped are a diverse group which, within the district, can range from constructed formal gardens, such as the Dutch style water gardens at Westbury Court, through to extensive areas of naturalistic parkland, such as at Bromsberrow Place, Bromsberrow. There does not seem to be a clear definition of what constitutes a designed landscape, although all the sites recorded in this category on a variety of listings are associated with a high-status houses and the landscape has, in some way, been modified, either in its physical form or through planting, to create a pleasing ambience or aspect. This can include a range of surviving garden or landscape features including ornamental tree planting, ornamental lakes, statues, gazebos or hard landscaping.

Sites which fall into this category are found throughout Forest of Dean District, although only two (former formal gardens associated with Whitmead Park, Parkend, and The Wilderness, Mitcheldean) are within the Statutory Forest. Only three (the formal Dutch Water Garden at Westbury Court, Westbury on Severn, the 17th

century garden at Clearwell Castle, Clearwell and the gardens at Flaxley Abbey, Blaisdon) are listed and described on the English Heritage Register of Historic Parks and Gardens (English Heritage 2015). Four Forest of Dean sites (including Highmeadow House, Staunton near Coleford and Naas House, Lydney which are on no other lists) are recorded by Parks and Gardens UK (2015), whilst a list of gardens 'of significant interest at a county level' compiled by the Gloucestershire Gardens and Landscape Trust contains only two sites (Flaxley Abbey and Clearwell Castle) in the Forest of Dean (although this list is currently in the process of being reviewed). The Gloucestershire HER records 10 sites whilst the Gloucestershire Historic Landscape Characterisation (Hoyle 2006) list over 20 sites. Many of these (which are not on other lists) are 'naturalistic' areas of parkland, many of which were identified from 19th century maps and aerial photographs. These demonstrate variable retention of their open parkland character of widely spaced trees and/or other features such as ornamental lakes, and which have not been researched in any greater detail.

An obelisk/pyramid was recoded on the summit of Welshbury Hill, Blaisdon (recorded as 'Edgebury Hill') on Isaac Taylor's 1777 map of Gloucestershire (Taylor 1777). The obelisk symbol is not recorded on the map's key and not used elsewhere, which suggests it naturalistically depicts a landscape feature. No other evidence for this obelisk survives, although it is reproduced, along with the 'Edgebury Hill' placename on Pitt's 1782 map (PRO 1782)). A number of mature beech trees are also found on Welshbury Hill, suggesting it was part of a designed landscape centred on Flaxley Abbey, in the late 18th century (Rob Jarman pers. comm.). The remains of a 19th century summerhouse have also been reported on the summit of the hill within the hillfort (Hoyle 2014b, 8).

Information about post-medieval designed landscapes is sporadic, representing inconsistent levels of identification and research. The three sites included on the English Heritage Register of Parks and Gardens are probably the most comprehensively researched and these three are also depicted in contemporary records (Atkins 1712). Others are described in general histories (for example the Victoria County History of Gloucestershire, volumes 5, 8, 10, 12 and 13 or Kinglsey 1992; Kinglsey 2001 and Kinglsey and Hill 2001), whilst Lydney Park, Lydney, which is open to the public, has a guide book, although this tends to focus on the modern planting regime of garden plants rather than on the history of the designed landscape (Lydney Park undated).

8. Industry and trade

Industry, and particularly the post-medieval industries, is one of the Forest of Dean's defining characteristics. It has been the subject of more research than any other single element of the district's heritage, although much of this has focused on the stone, coal and iron producing areas centred around the Statutory Forest. Hart (1971) remains the most definitive account of the industrial history of this area although other accounts (Cross 1982; Bick 1980a; Jurica 1996f) are also important, and there have been numerous more detailed studies of individual sites or industries (see below). The industries in the northern part of the district are not so well-known and have received less attention, although some studies of specific industries do cover evidence for this area (Bick 1987; Meredith 2006; Walters 1999). Historical records for industrial processes are summarised in general histories, particularly the relevant volumes of the Victoria County History (volumes 5, 8, 10, 12 and 13) which cover almost the whole of the district.

The National Association of Mining History Organisations (NAMHO) research framework (Newman 2016) also includes the coal and iron mining industries in the Forest of Dean.

Given the huge amount of evidence for these industries the following section consists of a summary of the current state of knowledge and available information for selected industries. In practice, much of this focuses on the post-medieval industrial heritage of the area, although earlier periods are discussed where relevant.

8.1 Extractive industries

The Forest of Dean is a geologically complex area with a range of mineral resources, stone, coal and iron-ore in close proximity and industries associated with the extraction, transportation or processing of these resources have formed the basis of the Forest's industrial heritage since the earliest times.

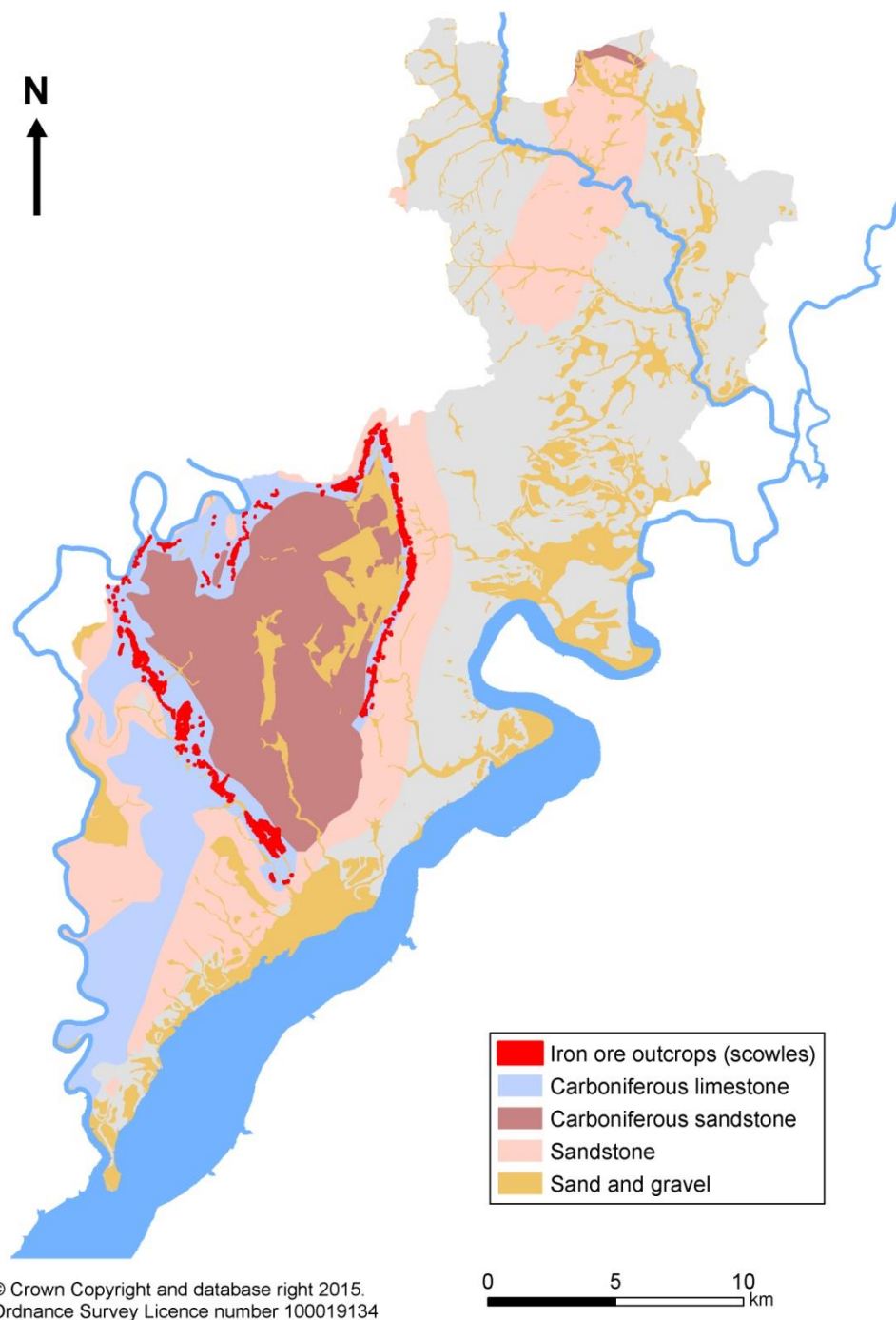


Figure 22: Principal economic geologies in the district

8.1.1 Stone

Quarrying has been an important industry in Dean 'since earliest times' (Cross 1982, 26) and the district contains sandstones suitable for building stone and for making mill, grind and quern stones. The limestones provided building stone and were burnt to produce lime. Sand, clay and gravel deposits were also available for exploitation.

8.1.1.1 Prehistoric to early post-medieval

Stone was used to build Bronze Age monuments on Tidenham Chase (Hoyle 2013a; Scott-Garrett 1955), and the ramparts of Iron Age hillforts (McOmish and Smith 1996), but was more widely exploited during the Roman period. Pennant Sandstone, probably from the district, was used as a building material and widely distributed throughout Gloucestershire as roof tiles or other items such as whetstones (Roe 2008, 53), although many of the pennant sandstone roof tiles from Frocester Court Roman Villa, to the east of the Severn, were also sourced from the Bristol region during this period (Price 200b, 193).

Quarrying of both sandstone and limestone (and also lime burning) may have been widespread where there is a suitable geology, although these industries need not have been large-scale or full-time. Many small-scale quarries are known throughout the district, although none have been identified as Roman or investigated archaeologically.

Quernstones or millstones made from May Hill Sandstone, or Upper Old Red Sandstone (probably quarried in the district) have been found at The Chesters Villa, Woolaston (Scott-Garrett and Harris 1938), Upper Buttersend Farm, Hartpury (Glos HER 2015), the Warren, Lydney (Buckman 1856), Millend, Blakeney (Barber and Holbrook 2000) and Buttington Tump, Tidenham (Clarke 2007). These were also found outside the district and Roe (19202, 157) has identified over 100 Romano-British sites where quernstones of this type have been found. Many of these are along the Wye valley (where the stone was sourced and which was probably the primary transportation route for finished products) although examples have also been found to the east of the Severn (for example from Ashchurch, Tewkesbury (Roe 2008, 53) and at Frocester Court villa (Price 2000b, 193)).

Sand and lime would also have been needed for construction purposes in the Roman period and sand and limestone are widely available (see Hart 1967) and presumably exploited. There is, however, no dated evidence for Roman sand or limestone extraction and no evidence for Roman lime burning.

During the medieval period stone extraction continued with limestone mainly quarried for lime production, and sandstone for building stone or millstones (Jurica 1996f). St Briavels Castle was constructed of local sandstone (Hart 1971, 297) and stone used for building churches or other buildings throughout the Forest would almost certainly have been quarried locally where suitable stone was available. There are historical records of lime being manufactured in the Forest and exported to Gloucester in 1252 (Hart 1971, 313). Grindstones may have been produced in the Forest before the mid 13th century, although this is not clear, and there are also references to quarries at Bixhead, Abenhall, Blakeney, Mitcheldean and Hanewye in Ruardean in the medieval period (Jurica 1996f, 337) whilst millstone production recorded at Redbrook and Clearwell in the early post-medieval period (Herbert 1969g, 220-221) probably represents an industry that was operating from an earlier period.

Iron Age quarries where stone was extracted to construct the ramparts have been identified at Welshbury Hillfort, Blaisdon (McOmish and Smith 1996) and the ditches of other prehistoric and Roman earthworks are presumed to have produced material for rampart construction. The material to construct Offa's Dyke was extracted from quarry pits along much of its inner side in the Forest of Dean (Hoyle and Vallender 1997, 21-24), although the actual date of this structure has not been established for certain (see 6.4.1.2 above).

Apart from these, no prehistoric, Roman or medieval quarries have been identified in the district, although numerous undated small-scale quarries which are not obviously the result of modern mechanised quarrying are known throughout the area, and some of these could be medieval or earlier. None of have been explored archaeologically, although quarries and extractive pits are difficult to date even with detailed documentary research or careful excavation, and evidence for earlier workings may have been obscured or removed by later activity. No research has been undertaken to explore the potential of investigating the lithology of dated examples of Roman or medieval building materials to identify their source with any degree of accuracy.

Within the Crown land of the Statutory Forest in the southern part of the district, some inhabitants acquired and exercised the right to quarry stone (subject to certain qualifications) during the medieval period, although whether the Free Miners' customary privileges to mine within the Royal Forest included stone working was debatable until it appears to have been confirmed (as an existing privilege) under the Dean Forest Commission Act of 1831 (Hart 1971, 298-301; 2002, 5).

Building stone continued to be quarried and limestone burnt for lime during the medieval and early post-medieval periods, although workings probably remained relatively small-scale and scattered during the early post-medieval period (Hart 1971, 298; Jurica 1996f, 337).

The production of quernstones continued where suitable stone was available and quarries are recorded at Redbrook and Clearwell (Herbert 1969g, 220-221). A study of millstone quarries in the district (Mullin 1988; 1990) has identified 16 probable sites, two others have been identified from finds of millstone roughouts and more doubtless await discovery. These are located where suitable stone (Sandstone conglomerate) was available and the majority of these are close to the edge of the Wye Valley in the western part of the district, although two sites have been located to the south of Soudley on the eastern side of the Forest.

8.1.1.2 Later post-medieval and modern

The 19th century saw a significant increase in quarrying as the industry expanded to meet the building needs of growing populations, civic buildings and developing industries both within the district and further afield. Improved communications within the Forest (see below) aided expansion of the industry and 310 quarries were recorded in the Statutory Forest in 1841 (Standing 2007, 20).

Free quarrying within the Statutory Forest in the southern part of the district (which had been ratified in 1831 (see above)) was restricted by the Dean Forest Mines Act of 1838 and replaced by a system under which quarries were leased from the Crown, although the rights of existing leasees were confirmed, but only for their lifetime (Standing 2007).

The HER lists over 900 sites recorded as either Quarry or Extractive pit which are post-medieval, modern, or whose date is uncertain (but are probably post-medieval in date), although this is undoubtedly an underestimate of the true number.

In addition to the surface workings mining is also known with a limestone level at Binchcombe Ruspidge and Soudley (Price 1991a) and sandstone mines at Blakeney Hill (Priddis 1995) and Bixslade to the east of Coleford (Oldham 2004, 14).

Stage 1 of the Forest of Dean Archaeological Survey attempted to add all quarries recorded on early maps or lidar to the HER (Hoyle 2008d, 2008c), and the vast majority of known sites are in the area covered by that survey in the southern part of the district, although the National Mapping Programme has also recorded some in the northern part of the district (Small and Stoertz 2006; Crowther and Dickson 2008; Priest *et al* 2008). Although differential research may have skewed the recorded distribution of quarries to some extent, it is likely that the southern part of the district was more extensively quarried. More suitable stone is available in that area and the infra-structure of industrial communications, with links to the railway network and ports on the Rivers Wye and Severn, will also have encouraged industries (including quarrying) to develop there.

Stone extraction still takes place in the district and there are significant large active quarries at Bixhead, Fetter Hill, Blakeney Hill, Stowe Green, St Briavels, Western Stowfield Quarry to the south of Staunton near Coleford, Drybrook and Mitcheldean. The majority of known quarries in the district, however, are now disused, and with the exception of small quarries at Symonds Yat Hillfort, English Bicknor which happen to be within a Scheduled Monument, none have any statutory protection.

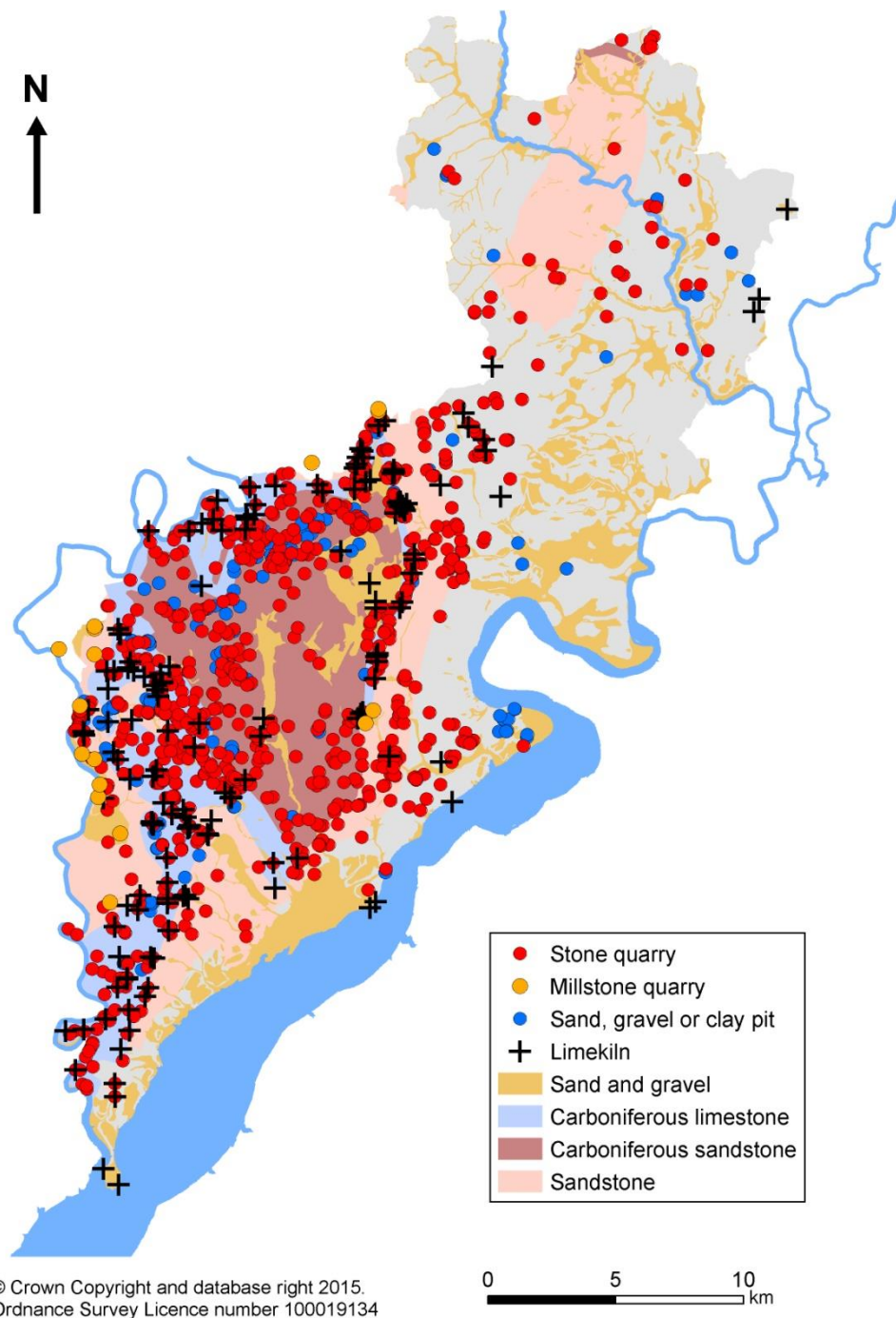


Figure 23: Quarries and other extractive industries

8.1.2 Coal

With the possible exception of iron-ore, coal is the mineral resource most often associated with the Forest of Dean.

Coal is found in the southern part of the district within the coal measures within the sandstones and shales of the Upper Carboniferous Series which contain over 20 coal seams. The coal measures occupy a central position within the Dean Syncline, a geological formation in which the geological strata are in the form of a basin, and the coal seams, which would originally have been laid down as horizontal layers, are now upturned around their edges and outcrop as surface or near surface deposits throughout the area (Dreghorn 1968). On the western side of the Forest these outcrops dip down from the surface at an average angle of 10-15 degrees (Trotter 1942, 37) although in places this dip can steepen to around 20 degrees (Youles *et al* 2008, 47). On the eastern side the dip is much steeper, generally between about 50 and 70 degrees but becoming almost vertical in places (GSGB 1957-1958). Coal is also found (not only as underground seams, but also as

easily exploitable outcrops) in the northern part of the district between Newent and Brompton at the edge of the Sherwood Sandstones which overlie the Lower Old Red Sandstones in this area (BGS 1974; 1988).

8.1.2.1 Prehistoric to early post-medieval

Although no securely dated Roman or medieval coal mines have been identified, coal is known to have been exploited in the district since at least the Roman period (Travis 2008).

Coal was recovered from Roman contexts at Woolaston Villa where it was probably used for domestic heating or industrial processes such as ore roasting which did not need very high temperatures. Although the source of this coal was not established the nearest source was the coal measure of the Forest of Dean (Fulford and Allen 1992).

The source of coal has, however, been established where chemical analysis of coal from Roman sites has been undertaken and coals from 2nd and 3rd century AD contexts at Park Farm Villa, Alvington (in the Forest of Dean) and also at Chedworth and Frocester Villas to the east of the Severn has identified the Forest of Dean as the source (Townley 2004, 182). Coal used at Glendower Street, Monmouth in the 1st and 2nd centuries was probably from the area to the northwest of Coleford at the northwestern edge of the coal measures (Williams 1988, 11) whilst coal used at Frocester Villa in the 3rd and 4th centuries, and at Chedworth, were also probably mined somewhere between Coleford and English Bicknor at the western edge of the coal measures (Dearne 2000, 259).

The Roman coal industry in the Forest of Dean may have been concentrated in the northwestern outcrops in the Coleford area, perhaps supporting the view that the earliest exploitation of coal might be expected close to the iron-ore deposits around the edge of the Carboniferous Sandstones (see below) where an infrastructure of communications for iron-ore exploitation would have already been in place (David Bick pers. comm.). This theory has never been tested and coal was readily available in other parts of the southern Forest, although early exploitation close to good communications links would make sense (David Cranstone pers. comm.).

The earliest documentary record of medieval coal exploitation in the district dates to the mid to late 12th century where the monks of Newent had rights to 'plough up' coal at Edenshill, Upleadon (Townley 2004, 182), although coal would not be expected in this area (Bick 1987, 57) and this reference must be treated with caution. Medieval exploitation of surface or near surface coal deposits may, however, have taken place to the south and west of Newent and a mine recorded at Bouldon Newent in the early 17th century may indicate an industry which was active at an earlier date (Herbert 2010a, 63).

In the southern part of the district there is no documentary record of coal mining (which was of secondary importance to iron mining) before the 13th century when mines were recorded in Blakeney, Staunton near Coleford and Abenhall Bailiwicks and also at Bearse, Littledean, Mitcheldean, Ruardean, English Bicknor and Lydney (Jurica 1996f, 326; Oldham 2002, 2). At this time coal extraction would have been limited to exploiting outcrops or superficial seams either through surface pits, shallow workings, or short levels (adits) (Jurica 1996f, 326).

In the northern part of the district a 3m deep and c. 73m long earthwork at Kittlebury, Newent pre-dates ridge and furrow in the area and is traditionally thought to be an open-cast coal working (Townley 2004, 182). In the southern part of the district there are a number of undated adits and drift mines some of which may have originated before the later medieval period, although the most extensive evidence for early coal mining is undoubtedly the extensive areas of small sub-circular pits and mounds, over half of which have been identified by lidar, which overlie the coal outcrops in the Carboniferous Sandstones and have been interpreted as the surface remains of coal extraction (Hoyle 2008c, 72-75). Where dated (for example at Haywood Plantation to the east of Cinderford) these tend to be early post-medieval (Cranstone 2009a, 77; Hart 1995, 146-7), and, as a group, features of this type are generally considered to be late medieval or early post-medieval in date. Some could, however, date to the Roman period and others could be as recent as the 20th century when some surface coal extraction is reported (Brian Johns pers. comm.).

These surface remains could be evidence for a variety of mining techniques, and workings of different dates and origins are likely to survive in close proximity. Careful examination of the visible remains combined with knowledge of the nature of the coal seams, the types of mining techniques employed and analysis of available historical records would be needed before the surface evidence can be properly understood.

The earliest mines may have simply been pits exploiting surface deposits, although shallow shafts (less than 30m deep) leading to a small horizontal working shored up by 'stick and lid' (a plank supported by a short

prop) would have been used to follow seams as they dipped further below the surface. As deeper seams were exploited more widely spaced shafts (generally between 20-30m apart) led to underground pillar and stall workings consisting of galleries (stalls) between unexcavated 'pillars' which supported the roof. Other pits or depressions within these systems (particularly where no spoil is visible) may have been caused by subsidence into collapsed shallow workings (Youles *et al* 2008, 47-50).

The depth of mining was restricted by water levels and mining may have been a seasonal occupation largely restricted to the drier summer months (Hart 1971, 258), although from the early 17th century channels (soughs) were used for drainage. Human or horse powered pumps may also have been used and a pump driven by water power was recorded at Nailbridge in 1754 (Hart 1971, 257).

The Gloucestershire Society for Industrial Archaeology have used historical research, field survey and analysis of lidar data to record surface coal mining remains at the Delves west of Cinderford, which probably dated to the 16th and 17th centuries (Youles 2003; 2004; Youles *et al* 2008), and also areas of surface remains at Bromley Hill southwest of Parkend and Oakenhill Wood north of Pillowell (Youles *et al* 2008). Topographical survey has also been undertaken by the former Royal Commission for the Historical Monuments of England at shallow or surface workings at Nagshead to the west of Coleford and at Darkhill to the south of Coleford (RCHME 1984a; 1984b).

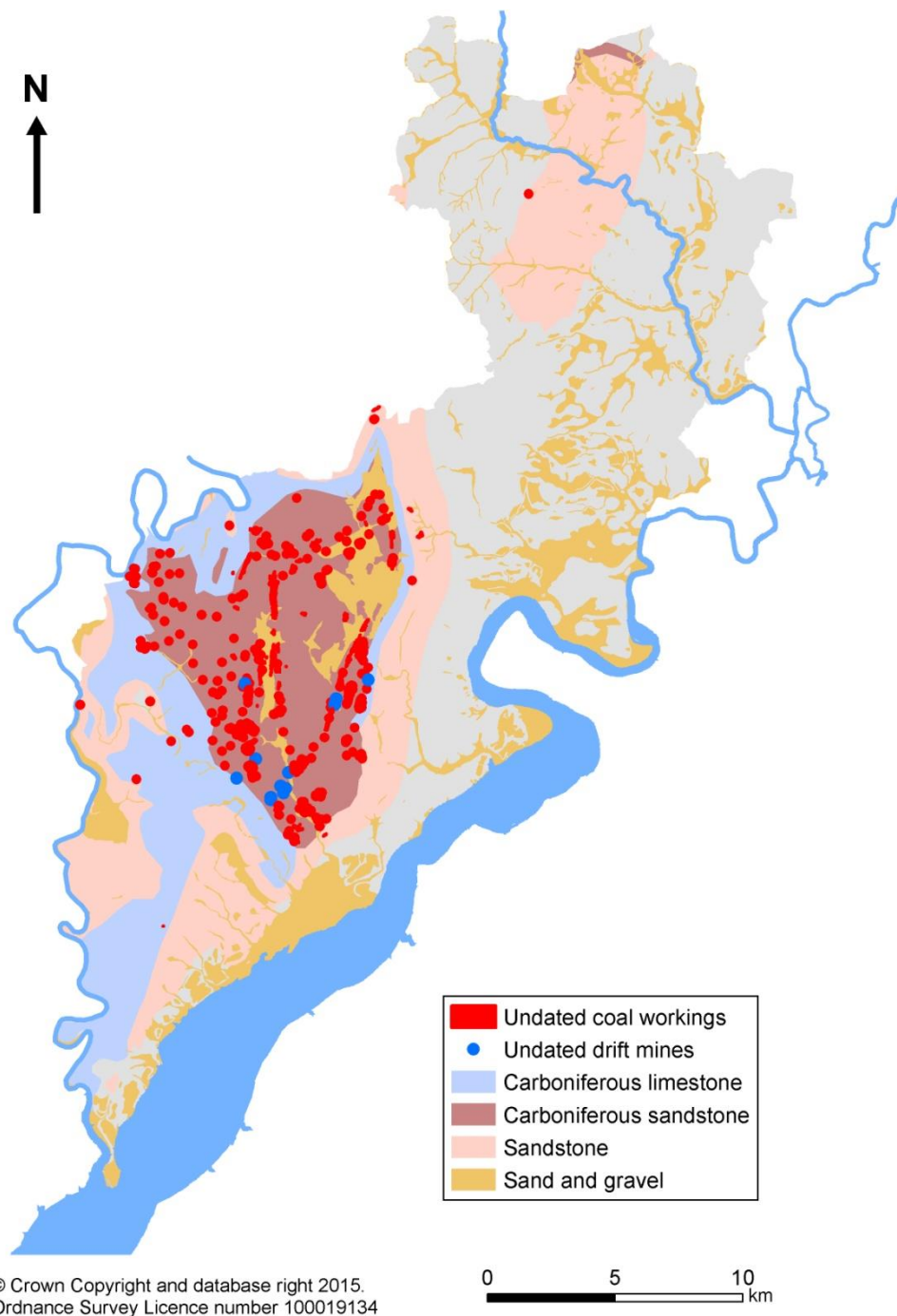


Figure 24: Undated surface evidence for early coal extraction

8.1.2.2 Later post-medieval and modern

Deeper mining in Dean gradually became the norm after improvements in pumping and drainage techniques began to be introduced from the 17th century (Hart 1971; 1995). Although many mines and adits remained small-scale operations continuing a tradition of free-mining which still exists today, the industry expanded during the 18th century and by 1788, 121 coal pits were recorded in the southern part of the district (Hart 1971, 264). A series of widely-spaced lidar-detected mounds identified to the south of Ruardean has been interpreted as evidence for coal mining, which probably dated to the 18th century (Riches 2009, 21).

Mining in the hundred of St Briavels remained the prerogative of Free Miners, but outside interests became increasingly involved in the industry and by the mid 19th century large-scale commercial coal mining was operated on an industrial scale in the southern part of the district where 5,050 miners were employed in 1874 (Hart 1971, 285). Many pits closed in the earlier part of the 20th century although the numbers of miners employed remained reasonably constant at around 5,000 (Hart 1971, 290). After the Second World War, however, the industry declined and Northern United east of Cinderford, the last deep mine in the Forest of

Dean, closed on Christmas day 1965. Some open cast coal extraction was undertaken in the 1960s with a large open cast working to the west of Cinderford (Hoyle 2009b), but coal mining has now dwindled to a handful of small operations run by free miners.

The evidence for post-medieval mining in the southern part of the district is widespread with over 300 sites recorded on the HER in addition to nearly 350 mine and ventilation shafts (some of which may relate to iron rather than coal mining sites). Information about these was generally derived from large-scale map sources such as the 1st, 2nd and 3rd series Ordnance Survey maps dating from between about 1880 and 1925 or earlier 19th century maps (Gwatkin 1996; 1997a; 1997b; 1997c; 1997d) and the HER also contains records of a range of additional structures such as engine houses, winding gear, bathhouses, chimneys, spoil heaps or transportation systems associated with these sites and which were recorded on these sources.

A small number of later post medieval coal mines were also sunk in the Newent area, in the northern part of the district, and the industry in this area has been summarized in Bick (1988) and also discussed in Bick (1979a), Newman (1984), Rose (1967) and Smith (1976). Coal deposits have also been recorded at Castle Tump, Dymock approximately half way between Newent and Dymock and along the junction of the Sherwood and Old Red Sandstones to the northwest. There is some evidence for adits, trenches and shafts in this area, suggesting that trials were at least conducted, but it is not clear if coal was ever seriously mined in the southeastern part of Dymock Parish (Bick 1987, 53-55). Although there may have been a long-standing tradition of some coal extraction in this area (see above) the post-medieval industry was always small-scale. Newent Colliery rarely employed more than 20 men, whilst Oxenhall, the largest mine in the area, employed only 60 men, and no coalmining communities developed in the way they did in the southern Forest (Bick 1987, 11). No mines were still operating in this area by the beginning of the 20th century.

An isolated shaft at Little Meend, Woolaston Slade in Woolaston parish is recorded as an old coal shaft on the 1881 Ordnance Survey map. The shaft overlies a solid geology of Lower Drybrook Sandstone where geological faulting has preserved a small amount of the coal measures, and some very small-scale extraction may have taken place here (Ian Standing pers. comm.).

With the exception of a handful of small-scale free mines, coal mining in the district has now ceased. Along with the remains of other disused industries coal mining remains are at risk from natural decay, unsympathetic development or forestry operations unless sites are recognised. These sites may also be at an additional risk from open-cast mining, although there are no current proposals for this in the district.

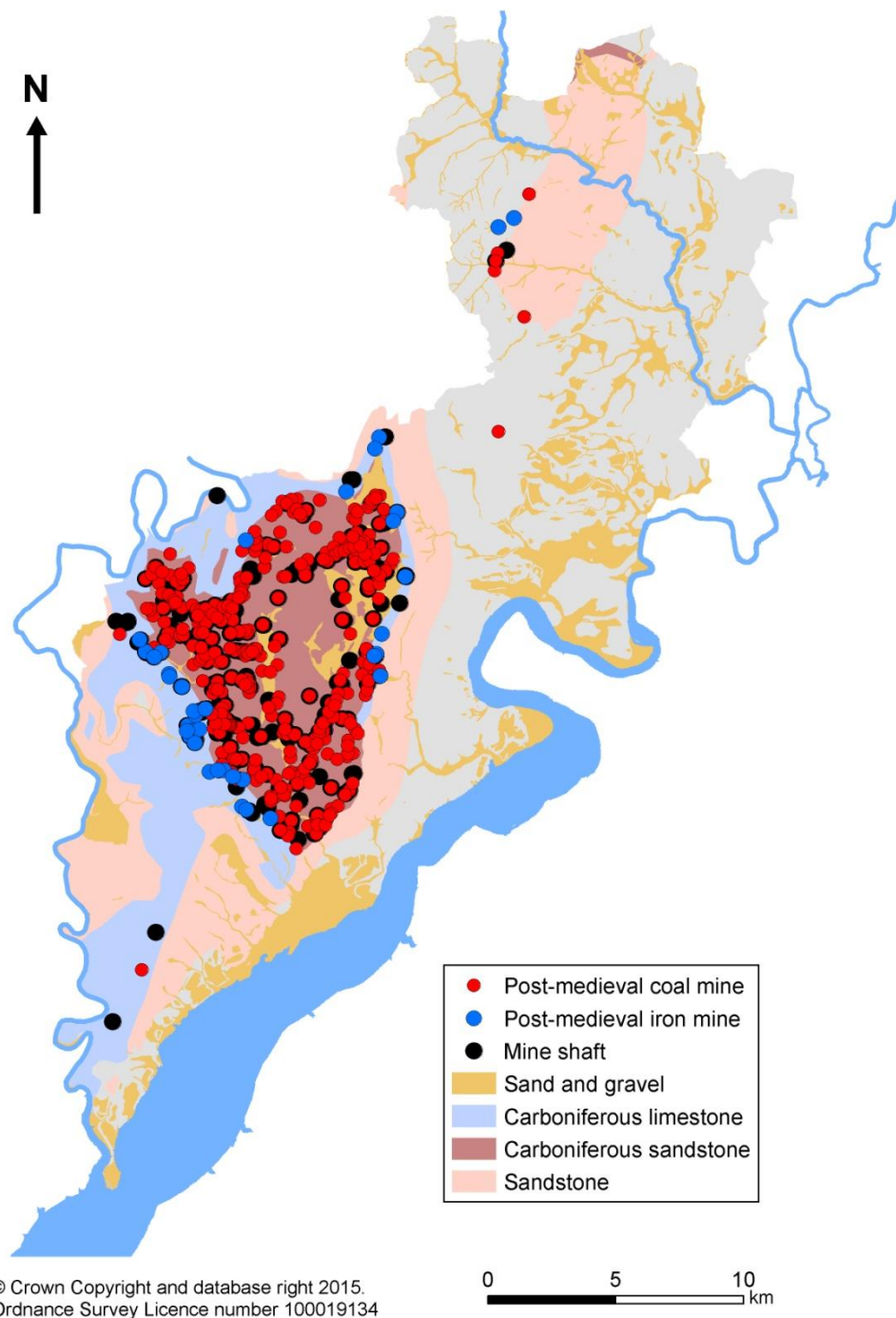


Figure 25: Post-medieval coal and iron mines

8.1.3 Iron

The iron industry may be the industry with which the Forest of Dean is most closely identified (the other possibility being coal) and both extraction of the resource (iron-ore) and processing to produce a finished product (iron and steel) were undertaken in the district.

The principal source of iron-ore in the Forest of Dean is as replacement deposits within the Crease Limestone horizon of the Lower Carboniferous Limestone and Dolomite which outcrops around the edges of the Carboniferous Sandstone and Coal Measures in the southern part of the district where there may have been as much as 10 million tons of ore (Sibley 1927).

The ore consists of hydrated iron oxides, and is free from phosphorus unlike most other British iron-ores. A few minor sources are also known within the Carboniferous Sandstones of the southern Forest. Iron-ore from the Wenlock Limestones in the Aston Ingham area (just over the district boundary in Herefordshire), to the

southwest of Newent and also in the Oxenhall area were exploited in the post-medieval period (Hoyle *et al* 2007a, 81-84).

The features most commonly associated with early iron-ore extraction are scowles which are the surface expression of the principal deposits in the Carboniferous Limestones of the southern Forest and which run in two main bands between Staunton near Coleford and Lydney in the west and between Drybrook and just south of Soudley in the east (Wildgoose 1993, Fig 2.1; Hoyle *et al* 2007a, Fig 1).

Scowles are a landscape feature almost unique to the Forest of Dean whose appearance ranges from deep irregular quarry-like features to amorphous shallow hollows. These features have traditionally been interpreted as the remains of early open-cast iron-ore extraction (Hart 2002, 558; Walters 1999).

This process of scowle formation began over 300 million years ago, when acidic water from the coal measures ran off the impermeable Carboniferous Sandstones of the central Forest and percolated into fissures in the Carboniferous Limestones exposed around its edge. This dissolved the limestone to create cavities (particularly in the Crease limestone, although adjacent formations were also affected) and developed into an extensive cave system (Hoyle *et al* 2007a, 45-46) which extends westwards beyond the boundaries of the Forest to the west of the River Wye (Lowe 1993).

The run-off from the sandstones and coal measures contained iron and this is the origin of the Forest's iron ore deposits, although the precise mechanism of this deposition remains controversial.

One theory is that the iron ore was deposited around 250 million years ago, after the caves had already formed (Lowe 1993) and Westbury Brook iron mine contains a 'tide mark' of ore deposition with ore-free cavities in the higher levels of the cave system where there is no evidence for early ore extraction (Solari and Lowe 1974). Similar (although less clear) examples of this have been noted at Wigpool iron mine and Buckshaft scowles (Lowe 1989, 115), and there are probably other caves within the system where iron ore has never accumulated (Lowe 1993) or which have been 'incompletely filled with ore' (Wildgoose 1993, 202).

Ore may have also been deposited during the creation of cavities by replacement of the parent limestone by iron solutions transported into joints in the limestone by water runoff (Dreghorn 1968, 148-149; Knight 2011, 42), although both mechanisms may have played a part in this process with existing cavities modified and enlarged by later deposition of ore deposits by metasomatic replacement (Owen in Hoyle *et al* 2007b, 49).

Although scowles were first recorded in the late 16th century (Atkyns 1712, 575) the features themselves received little significant attention until Paul Wildgoose's work in the late 1980s and early 1990s. Beginning with the scowles on Wigpool Common to the north of Mitcheldean (Wildgoose 1988) Wildgoose recorded visible scowles, dividing them into five types based on their current form, and attempted to calculate the tonnage of ore extracted from them based on a volumetric calculation of their extent (Wildgoose 1993). Subsequent work by Gloucestershire County Council Archaeology Service (the Scowles and Associated Iron Industry Survey) drew on Wildgoose's research remapping the extent of visible scowles, identifying areas where scowles had been destroyed by later quarrying or infilling, and integrating this information with the County HER. This survey also categorised scowles, based largely on their current form, dividing them into 6 basic types, and identified threats to scowles and made recommendations for their long-term future management. Other sources of Iron-ore in the Forest of Dean were discussed and the project explored the available evidence for dating exploitation from individual scowles, questioning the evidence base for some earlier assumptions. It also laid greater emphasis on the geomorphological origins of scowles and cast doubt on the validity of attempts to determine the scale of the industry at particular times based on the supposed dates of scowles and their size (Hoyle *et al* 2007a). Lidar, which was not available when the survey was undertaken, has the capacity to greatly refine the current mapping of these features and some additional probable scowles were recorded by lidar, although none of these have been validated on the ground (Hoyle 2008c, 120). Other general surveys of scowles and early iron-ore extraction in the district include Bick (1990b), Bridgewater (1969), Entec (1998) and their geological and conservation value are discussed in Geode Consulting (1998).

Few excavations have been undertaken at scowle sites although evaluations at Stock Farm, Clearwell (Cook 1995), Stock Wood, Clearwell (Derham 2001) and southwest of Bream Court Farm, Bream (Derham 1999a; 1999b) have found evidence for features interpreted as backfilled scowles. Small excavations have also been undertaken at Crab Apple Cave, Clearwell (Gentles and Austen 2000) and in Great Lambsquay Wood, Clearwell (Gentles 2010).

8.1.3.1 Prehistoric to early post-medieval

The date of origin of the exploitation of iron-ore deposits in the Forest of Dean is unknown. Ochre has been used as a pigment from the earliest periods of prehistory (Bray and Trump 1982), but there is very little evidence to indicate its early exploitation within the Dean. Quartzitic pebbles with evidence of abrasion reported from disused iron mines in the Forest of Dean may have been used for crushing ochre (Bowen 2003). Worn pebbles, and fragments of limestone which may be the remains of stone hammers, have been found on the surface near scowles at Drybrook (Strassburger undated; Timberlake 2001). None of these tools have been dated and their interpretation as evidence of Bronze Age ochre mining is inconclusive (Hoyle *et al* 2007a, 86).

Iron-ores were certainly exploited in Dean during the Iron Age (McWhirr 1981), although the only datable Iron Age artefact found in a scowle is a coin of c. 50 BC found at Bream in 1944 (Allen 1961, 136), which is not necessarily evidence of mining and could easily have been derived from some other contemporary activity (Hoyle *et al* 2007a, 85).

The main source of evidence to suggest Iron Age exploitation of Forest of Dean ore does not come from the scowles themselves, but from analysis of the composition of datable iron artefacts, ores or processing waste. In the late 1960s an attempt was made to macroscopically identify ores recovered from excavations at the Iron Age hillfort of Midsummer Hill, Herefordshire, although the results of this were equivocal (Walters 1999, 41). More recently scientific analysis of Middle Iron Age currency bars (400BC – 100BC) excavated at Beckford in Worcestershire demonstrated a low phosphorous content consistent with Iron Age and Romano-British smelting residues from the Forest of Dean or the Bristol Mendip region (Hedges and Salter 1979; Paynter 2006). Uranium levels, amongst other elements, may also indicate ore provenance, although clarification and refinement of this technique is still subject to research. Iron slags from late Iron Age (100BC – AD43) deposits at Frocester in the Vale of Gloucester had a low uranium content, which may be consistent with the Carboniferous Limestone outcrops on the eastern side of the Forest of Dean (Thomas 2000) suggesting that Dean ore was exported for smelting outside the region during that period.

There is no direct evidence for mining processes during this period, although there has been a general assumption that as ample iron-ore was available from surface workings it would not have been necessary to expend additional effort in following the ores underground until surface deposits were exhausted. Below-ground mining, which until the 19th century essentially consisted of following the cave system underground, has generally not been considered to have been the dominant form of extraction until the 17th century (Hart 1971). The Scowles and Associated Iron Industry Survey (Hoyle *et al* 2007a) has questioned this assumption, particularly as scowles need not have been uniformly filled with iron-ore (Solari and Lowe 1974; Hoyle *et al* 2007a, 77) and some scowles may already have been fairly open features either devoid of surface ore deposits or partly filled with loose ore-rich scree from eroded surface ore deposits or other relatively friable infill when humans first appeared in the Forest of Dean, and subterranean ore bodies may have been relatively accessible from an early period (Hoyle *et al* 2007a, 80).

Pick marks on the walls of Clearwell Caves encrusted with calcite deposits may represent evidence for early subterranean mining, but further assessment of the rate of calcite deposition in this location would be required before this can be considered reasonable evidence (Wildgoose 1993, 151).

Subterranean mining was, however, certainly a feature of the Roman iron industry as the only undisputed field evidence of Roman iron mining in Dean is a small mine sealed beneath the floor of a hut dated to the latter part of the 3rd century AD found during excavations at Lydney Park in 1929 (Wheeler and Wheeler 1932). A second mine (which also exhibited pick marks) from Lydney Park may also have been Roman (Scott-Garrett 1959), but could have been later (Hoyle *et al* 2007a, 87). No other direct evidence for Roman ore exploitation has been found in the Forest of Dean and it is not clear how typical these mines were.

The Forest of Dean is often cited as a major producer of iron-ore throughout the Roman period, and perhaps one of the two major iron-producing areas during the 3rd and 4th centuries AD (Cleere and Crossley 1985; LUAU 1998, 9; Sim and Ridge 2002), although estimates of the tonnage of ore required to feed the Roman iron industry in and around the Forest of Dean (for example Walters 1999, 127-128) can only be regarded as provisional approximations based on available (and not always secure) evidence. Although it would be perverse to argue that the iron industry, which would include extraction, was not a major part of the economy of the Forest of Dean during the Roman period (and later) there is limited hard evidence for its scale, or the way in which it was organised.

Iron-ore from 3rd-4th century contexts at Chesters Roman Villa, Woolaston and also from 4th century deposits at Frocester Roman Villa to the east of the Severn are consistent with Forest of Dean ore, but could be from other sources in the Carboniferous Limestones of the Bristol/Mendip region (Fulford and Allen 1992, 204; Standing 2000, 92) and the most reliable data for Roman exploitation of ores from the Forest of Dean comes from the scientific analysis of dated artefacts, ores or smelting residues. Slags from 2nd and 3rd century AD deposits at Ariconium (the modern Weston under Penyard, Herefordshire) have a low uranium content consistent with a source from the eastern outcrops of the Forest of Dean (Young 2012, 164) the nearest outcrops of which are only c. 3km to the southeast. Slag samples from late 1st/early 2nd century smelting to the north of Cannop could not, however, be securely provenanced, although these were probably from an unknown source in the western outcrops. These were similar in composition to slags reused in the construction of the 2nd century forum-basilica at Caerwent, and also with Roman slags from Usk, perhaps suggesting that Forest of Dean ores from the western outcrops were being exported westwards early in the Roman period (Young 2013, 241).

The analysis of smelting residues or ores is currently not refined enough to identify specific Roman mining sites, or establish whether ores were extracted from the surface or below-ground mines, and this type of analysis has not yet been applied widely enough to permit speculation on the scale or organisation of ore extraction during the Roman period.

In the early medieval period goethite, consistent with a Forest of Dean source, was used in 8th to 9th century smelting at Clearwell Quarry Stowe (Pine *et al* 2009, 32-33) and the Domesday survey of 1086 records 'blooms of iron' being paid as rent by tenants at Alvington (Moore 1982), suggesting that iron-ore continued to be mined in Dean during this period, but nothing is known of its scale and organisation, and no extraction sites are known.

Historical references to miners and iron mines in the Forest of Dean do however increase in the later medieval period and there are numerous references dating from the 12th, 13th and 14th centuries. It is clear that iron-ore extraction and processing were significant industries regulated by the Crown (Herbert 1996) and the customary privileges of the Free Miners (a system known only in the Forest of Dean, and which survives to the present day) were officially codified at this time (Hart 2002), although few medieval workings can be precisely located. An iron mine at Ardlonde in 1270 and 1287 has been identified as St. Whites Farm, Cinderford (Jurica 1996), and in 1282 the Forest Regard reported that the Earl of Warwick 'hath a mine in his own wood of Lydeneye' which presumably refers to the area of scowles in the woods of Lydney Park (Macleane 1889-90, 369; Nicholls 1866, 23), although the precise location of neither of these mines has been identified.

Slags from later medieval deposits at Trellech in Monmouthshire and St. Briavels in the Forest of Dean have a high uranium content consistent with ores derived from the western outcrops and high uranium slags have also been found at the medieval quay at Oldbury, South Gloucestershire, on the eastern side of the Severn (Thomas 2000). As with the Roman industry, however, little is known about the precise location of medieval mines, whether ores were exploited as surface outcrops, mine pits or below ground mining, or the scale or organisation of the industry at this time.

Iron and ochre mining continued in Dean throughout the 17th and 18th centuries principally in relatively shallow sub-surface workings above the level at which pumps would have been required to clear water, although some mines were surprisingly deep and early workings at the Westbury Brook iron mine attained depths of up to 146m (Ian Standing pers. comm.). These largely followed the ore bodies and were recorded as 'Old Men's Workings' when encountered by later miners in the 19th century.

Not all of the iron-ore was necessarily restricted to the scowles and cave systems of the Carboniferous Limestones and small quantities have also been found at Mine Train Quarry in the Bixslade area of the central Forest of Dean, at least 4km from the outcrops of Carboniferous Limestone. The geology at this site is Pennant Mudstones and Pennant Sandstone (BGS 1974), and precipitation of iron-rich water has left a residue of brush ore (goethite) in natural fissures in the sandstone.

Small-scale iron mining took place in this area early in the 20th century (Standing 1987, 31), although it is not clear if these deposits were exploited at an earlier date. Surface mining remains are known in the vicinity, and although many of these were probably for coal extraction iron-ore mining may also have taken place before the modern period.

Bog ores, which form below wet acidic soils, are widespread in the northern and western parts of the British Isles and are an important source of iron-ore where they are found (Tylecote 1986, 125). This type of ore can

yield good quality iron (Crew 2013) and may have been easier to smelt than the 'stubborn haematites and limonites of Dean' (Bick 1990b, 39). Although bog ores are known close to the Forest in Herefordshire (Bick 1990, 39), and Trellech, Monmouthshire (Walters 1999, 21) and also around High Nash, Coleford (Ian Standing pers. comm.) there is no evidence that this type of ore was smelted in the Forest of Dean.

The scale of extraction at various times is difficult to determine, although attempts have been made based on estimates of the quantity of slag produced in the smelting process (Walters 1999, 127) or from the size of scowles (Wildgoose 1993), but the accuracy of these calculations is questionable (Hoyle *et al* 2007a). Bick (1990b) attempted to calculate the amount of ore extracted during the bloomery period based on estimates of the amount of cinders (see below) which were consumed by charcoal-fired blast furnaces. Although he was fully aware of the limitations of this approach, he calculated that something in the region of 2,060,000 tons of ore were smelted during the bloomery period (which he considered to be a conservative estimate) and a further 850,000 tons by charcoal-fired blast furnaces.

Cinders, the iron rich slag heaps from earlier bloomery smelting, were quarried for re-smelting in the more efficient post-medieval blast furnaces (Hart 1971, 223-225). In 1677 it was reported that the digging of iron-ore and cinders employed 'an infinite number of men', and Forest of Dean ore was exported to Gloucester, Herefordshire and Monmouthshire and also to Ireland (Hart 1971, 223). There is very little surviving evidence for the exploitation of cinders (although the paucity of surviving mounds of the once 'unexhaustable quantity' of cinders (Hart 1971, 222) may be testament to this). It is possible that bloomery slag found during excavations of the 17th century blast furnace at Whitecross Lydney may have been a supply of cinders awaiting re-smelting (Vallender 2000, 31). There are numerous examples of later miners encountering 'old men's workings' in the carboniferous limestone areas of the southern Forest (Hart 1971, 225).

Many disused iron mines are currently explored by cavers and a number of these have been surveyed (Oldham 2002; RFODCC 2015), although it is not always clear to what extent these represent the remains of early post-medieval mining or the extent to which later operations have obscured or removed evidence for earlier periods. There are also numerous records of finds of tools and equipment left behind by earlier mining activities (Nichols 1866, 5-6, Hart 1971, 225), although few of these have been dated with any certainty, and the current location of many of these artefacts is unknown. With the exception of two very small-scale investigations at Clearwell (Gentles 2009b; 2010) there has been no systematic archaeological exploration or recording of these below-ground mines and there is currently no protocol for, or uniform approach, to the reporting of artefacts found within them.

No early iron-ore extraction sites are currently scheduled with the exception of the Roman iron mine in Lydney Park and a group of scowles in Blakes and Dingle Woods to the south of Staunton near Coleford. The MPP Step 3 report for the iron mining industry, however, specifically mentions scowles as a priority for protection (Instone 1995, 27) and identified unprotected scowles in Clearwell Meend, Clearwell; Noxon Park, Bream and to the west of Soudley as nationally important and those in Puzzle and Lambsquay Woods, Clearwell and Lydney Park as of major national importance (Instone 1995, 37).

8.1.3.2 Later post-medieval and modern

Iron-ore mining declined in Dean during the 17th and 18th centuries as the relatively easily accessible ore above water levels was exhausted and the demands of the numerous iron works in the district were met by re-smelting cinders and importing iron-ore from Furness (which was in Lancashire at that time) and west Cumberland. By 1788 regular iron-ore mining had effectively ceased in Dean and it was reported only approximately 20 men still mined ore from old workings, principally in the Parkend area (Hart 1971, 226).

Some iron mining probably took place in the Newent area during the early post medieval period supplying Elmbridge Furnace with iron-ore, although the main deposits may have been mined in Astham Ingham, Herefordshire rather than in Forest of Dean District (Bick 1987, 60; Hoyle *et al* 2007a, 81-84). Other sources at May Hill, Lea Bailey or Gorsley Common may also have been worked at that time, although there is no surviving evidence for workings at these locations (Bick 1987, 6).

The introduction of steam power for pumps and winding gear towards the later part of the 18th century allowed mines to become deeper. This (combined with improvements in communications and increased local demand after the introduction of coke-fired and steam-driven blast furnaces at the end of the 18th century) saw a revival of the Forest of Dean's iron mining industry with almost 4 million tons of ore mined between 1861 and 1925 (Piggott 1968, 22). The County HER records 36 19th century or later iron mines in the district, although some of these mines (for example the Robin Hood iron mine to the south of Staunton near Coleford) also produced ochre which was used in the paint industry.

As with coal mines, the majority of these are in the industrial part of the southern part of the district, although an iron level and an iron mine is recorded at Oxenhall where unsuccessful attempts were made to work the low-grade ores of the Triassic Sandstones in the 19th century (Bick 1987, 6).

The resurgence of interest in iron mining was, however, relatively short-lived. Cheaper ore was available from Spain and the closure of the Cinderford furnaces in 1894 removed a major local market. Apart from a brief resurgence during the First World War, the industry declined and by end of the Second World War the iron mining industry had effectively ceased (Hart 1971, 233-241). At the present time, only one iron mine, Clearwell Caves, Clearwell, which is both a tourist attraction and small-scale commercial operation mining ochre for the paint industry, is currently operational in the Forest of Dean.

8.1.4 Evidence and information sources for late post-medieval to modern mining and quarry remains

There is a considerable body of historical information about post-medieval stone quarries and coal and iron mining sites in the Forest of Dean, much, but not all, of which has been added to the County HER during Stage 1 of the Forest of Dean Archaeological Survey (Hoyle 2008d). This includes 19th and early 20th century Ordnance Survey maps and some earlier industrial maps (generally 20th century transcriptions amalgamating information from a variety of sources particularly Sopwith's 1835 survey of coal and iron mines in Forest of Dean (Sopwith 1835; Gwatkin 1996, 1997a, 1997b, 1997c, 1997d)). Additional information has been transcribed from aerial photographs by the National Mapping Programme (Small and Stoertz 2006) and also from lidar (Hoyle 2008c), and both these data sets are available as part of the county HER. Information about these industries is also included in general histories (for example the Victoria County History Volume 5 or Hart 1971) and more specific sources such as Beddis (1993) which discusses the evidence for stone quarries from different periods, Pope (2000-2011) which lists 289 coal mines and provides historical information about 245 of these, or Oldham (2002) which records about 335 iron, coal or stone mines, and includes historical data and some information about underground workings. There are also useful gazetteers of industrial sites (Awdrey 1983; Bick 1980a, Cross 1982; GSIA 1992; 2005) which list quarries and mining sites and often contain information about the condition of the site when the gazetteer was produced. More general historical research covering aspects of the Forest of Dean mining industry also contain valuable information. These include Hart (2002) which traces the history of free mining, Standing (1980a) which summarises the evidence for pre-1850 coal mining in the Coleford area and Bick (1987) which discusses coal and iron mining in the Newent area. Gloucestershire Archives hold unpublished documents relevant to these industries including approximately 150 hand-drawn 19th century maps of individual mine workings, formerly held by the Deputy Gaveler's Office in Coleford, and copies of Sopwith's 1835 map of iron and coal mines, whilst the Dean Heritage Centre also hold copies of the Sopwith maps, other maps of individual mine workings (some dating to the 20th century) and photographs of selected 20th century industrial sites (Hoyle 2008, 27).

The Stone, coal and iron industries have all been covered by the Monuments Protection Programme and the Step 1 reports for those industries contain useful summaries of national and regional resources which may contain data on the Forest of Dean (LUAU 1996, 49-53 for the stone industry; Gould and Cranstone 1992, 27-34 for the coal industry; Crossley 1992 for the iron industry). Bibliographies of published and unpublished sources of information for the iron and coal mining industries are also included in the National Association of Mining History Organisations (NAMHO) research framework (NAMHO 2016). More detailed research on aspects of individual sites is found in local journals which include papers on industrial archaeology, particularly the *New Regard* (Kear 2008; Marsden 1987; Pope 2009; 2010; Priddis 1995; Standing 2011; Tuffley 2008) and the *Journal of the Gloucestershire Society for Industrial Archaeology* (Bowen 1988; Cave 1980; Court and Standing 1979; Pope 1982; Standing 1987).

Many post-medieval quarries, coal mines and iron mines in the Forest of Dean are known to have originally contained a range of associated structures such as bath houses, engine houses, offices, stables, smith's shops, winding gear, shafts, cranes, spoilheaps or communications systems such as tramroads, railways, goods sheds, tunnels, bridges or inclined planes. There is, however, a lack of consistent information about the current condition of former mining and quarrying sites and what survives as visible features, or below ground either as buried archaeological remains or within former mines. This may reflect the national situation as a 'lack of published fieldwork-based study of the industry' was highlighted in the Monuments Protection Programme Step 3 Site Assessment report for the coal industry (Instone and Cranstone 1994, 7).

Few Forest of Dean stone coal or iron extraction sites are currently afforded any statutory protection. The only Scheduled stone quarries are at Symonds Yat which happen to be within the Scheduled area of the Iron Age hillfort. Limekilns at Lydney Docks and within the industrial complex at Whitecliff west of Coleford are also Scheduled Monuments whilst others at Green Bottom, Mitcheldean and in Cliff Wood, Hewelsfield are Listed

Buildings. No post-medieval coal or Iron mines are currently scheduled, although the entrance to a coal adit at Hopewell Colliery north of Cannop is a Listed Building as are the former engine houses at Flourmill Colliery north of Bream and Lightmoor Colliery, Ruspidge and the surviving structure of Fairplay iron mine, west of Mitcheldean.

The Monuments Protection Programme (MPP) Step 3 Site Assessments for the quarrying industry identified Point Quarry and Fetter Hill and Bixhead Quarries as nationally important and Knockley Quarries near Parkend (which are now largely infilled (Ian Standing pers. comm.)) and Speech House Road Quarries as locally important (LAUA 1999, 37), although none of these sites are currently protected.

The MPP Step 3 Site Assessments for the iron mining industry (Instone 1995) identified Easter Iron Mine, Milkwall and Fairplay iron mine (both of which are Listed Buildings) as of lesser and definite national importance respectively, whilst Findall Chimney west of Soudley (a rare example of an 18th or early 19th century mine ventilation chimney which currently has no statutory protection) was deemed to be of definite national importance. The scowles at Puzzle Wood and Great Lamsquay Wood, Clearwell, and also at Lydney Park were assessed as of major national or international importance although none of these have any statutory protection. The scheduled scowles in Dingle and Blake's Wood to the south of Staunton near Coleford and also the unscheduled scowles at Clearwell Meend, Noxon Park, and at Findall Chimney to the west of Soudley were assessed as definitely of national importance.

The MPP Step 3 Assessment for the coal industry identified a number of definitely nationally important sites. These comprised Mr Teague's Engine Pit, West Dean; Bixslade Mines east of Coleford; Flourmill Colliery north of Bream; Lightmoor Colliery, Ruspidge; Dodmore Ventilation Chimney northeast of Lydney and the spoilheap of Princess Royal Colliery near Bream (which along with the spoil heaps at New Fancy northeast of Parkend and Northern United west of Cinderford is a rare example of a surviving conical spoil heap (Ian Standing pers. comm.)). The undated remains of shallow mine workings at Fetter Hill southeast of Coleford and the 'Dwarf Holes' on Moseley Green were assessed as of lesser national importance (Instone and Cranstone 1994, 13). With the exception of the former engine houses of Flourmill and Lightmoor Collieries (both of which are Listed Buildings) none of these sites currently have any statutory protection.

Quarries and coal and iron mining sites in the district are at risk from forestry and development. Where sites are included on the HER the latter two can be mitigated through archaeological controls within the local authority planning system and also the Forestry Commission's own forward planning programme which uses HER information, although in both these cases there is a need for sites to be fully understood for mitigation strategies to be effective.

Many of these sites are also at risk from natural decay and particularly the destructive effects of invasive vegetation. There is also a risk of unsympathetic development which sees decaying industrial buildings, particularly those which are relatively recent or have no supposed architectural merit, as unimportant eyesores which have no heritage value and whose preservation would stand in the way of development. In the last 10 years two of the four surviving coal mining bath houses in the Forest of Dean (Princess Royal, Bream and Eastern United, Ruspidge) have been demolished and a third (Northern United to the west of Coleford) is currently scheduled for demolition (although with a condition for pre-recording) following an unsuccessful bid for Listing status. In addition to this the whole of the Northern United mining complex, whose surviving buildings were the most complete example of a mid 20th century coal mine in the district (Cranstone 2009b; Hoyle 2009, Fig 4), has now been either demolished or is scheduled for demolition as part of redevelopment of the area to the west of Cinderford.

The Statutory Forest in the southern part of the district also contained 159 gale stones (each with a unique number) which were erected in the 1830s to demarcate the extent of coal and iron gales. These were erected by Sopwith as part of his survey of coal and iron mines in the Forest of Dean and are recorded on his 1835 map of coal and iron mines. At least 32 additional stones were erected over the next 50 years up until 1877 (Mike Hayward pers. comm.).

There is an ongoing project by Mike Hayward to find, photograph, and catalogue surviving gale stones, although at the present time less than half the original stones have been identified (Hayward 2015) and it is not clear how many currently survive in situ. Information on the location of gale stones and which ones are known to survive has now been incorporated into the county HER.

In addition to the gale stones Sopwith also erected 218 numbered boundary stones demarcating the bounds of the Statutory Forest in 1833. The Forestry Commission have undertaken a project to locate and document surviving stones and 88 original stones survive in their original position. A further 13 have been relocated

close to their original position, one survives but not close to its original location, 45 have been replaced with new stones and 71 could not be located (Bullock *et al* undated, 5).

8.1.5 Other extractive industries

8.1.5.1 Sand and gravel

Sand and gravel would also have been exploited during the Roman and medieval periods to produce materials for the construction industry. Sand and gravel deposits are known along the northern shore of the River Severn and also within the Leadon Valley, although small pockets of these are found throughout the district. The HER lists 21 sand or gravel pits in the district, most in the area between Mitcheldean and Coleford on the northern side of the Statutory Forest, and within the main industrial zone of the southern Forest. Others are known at Awre and at Limbury Hill between Upleadon and Hartpury. Although relevant volumes of the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13) summarises historical records of sand and gravel extraction, few of these have been closely located and the majority of recorded sites have been identified either from map sources or aerial photographs. The actual distribution of sand or gravel pits is likely to be underrepresented, and a number of sites simply recorded as 'quarry' on the HER may also have exploited these resources. None of the known sites have been dated, although, like stone quarries (see above), the majority are probably broadly post-medieval in date.

8.1.5.2 Clay

Clay may also have been exploited for brick making or other uses during the Roman and medieval periods and the HER records 34 clay, marl or brick pits in the Forest of Dean. These are found throughout the district where suitable resources were available, although the majority are in the industrial zone in the southern part of the district. A possible clay pit at Newent may be associated with Roman pottery manufacture (see above), although the remainder are undated but probably post-medieval.

There are 26 known or likely post-medieval brickworks recorded on the HER for the Forest of Dean. No thematic survey of these has been undertaken and information about them is variable. As many have been identified from documentary sources or 19th or early 20th century maps (for example early Ordnance Survey maps), it is not clear what, if anything, survives at many sites. These are found wherever resources are available, but as clay is a feature of the coal measures within the Carboniferous Sandstones of the southern Forest, the majority of known brickworks are closely associated with colliery sites in this area.

The HER records structural remains at only four of these sites, Hawkwell Brickworks and Nelson Brickworks, Cinderford, Marions Brickworks Staunton near Coleford and a 19th century Brick and Tile works at Taynton, although remains of the early 19th century brickworks at Darkhill, Coleford may have been incorporated into the later Iron works on the site (see below), and other brickworks (for example Milkwall Brickworks at Darkhill, Coleford and Ellwood Green) survive as earthworks which doubtless conceal buried structural remains.

8.2 Processing industries

8.2.1 Coke

Coke-fired blast furnaces were introduced to the district in the last decade of the 18th century. Although Forest of Dean coal was used from the outset the coals available during the early period were unsuitable for coke production (Ian Standing pers. comm.). Coal from the Coleford Low Delf seam, which became available from the 1820s was more suitable for coke production and was successfully used in iron smelting at Darkhill Furnace (Hart 1971, 127).

Coke appears to have been produced at or close to the sites where it was used, and was initially made by 'charking' coal in open-air heaps (a process similar to charcoal production). This method was used at the Broadmoor coke works which provided coke to Cinderford iron works (Hart 1971, 119-121). A 'coke hearth' was recorded at Parkend by 1852 (Hart 1971, 129), although it is not clear precisely what this represented. Perhaps because coke production was essentially a process of the coke-fired iron industry, rather than an industry in its own right, there appears to have been little research into the actual processes involved, or of surviving structural remains in the district. There are few references to coke in published works on the area's industry and only Hart (1971) makes any mention of sites or production processes in his discussion of the coke iron industry. The county HER currently has no coke production sites recorded for the district.

8.2.2 Iron: Bloomery period: Prehistoric to early post-medieval

The Forest of Dean iron processing industry from the prehistoric to the early post-medieval period (and particularly during the Roman period) has been widely summarised (Hart 1971, Meredith 2006; Cleere and Crossley 1985; LUAU 1998, 9; Sim and Ridge 2002) and is generally considered to have been a major and widespread industry. There have been few attempts to make a critical assessment of the available evidence, although Walters (1992b) discussed the Roman industry in the Forest and surrounding area in some detail, whilst the Scowles and Associated Iron Industry Survey (Hoyle *et al* 2007a) reviewed the evidence of pre-blast furnace era smelting in the southern part of the district.

8.2.2.1 Nature of the resource

Although the remains of bloomeries or slag tapping pits can survive as buried archaeological remains, the initial identification of bloomery smelting sites is most commonly through the identification of the waste products of the smelting process (cinders) which were dumped in close proximity to the furnaces. These take the form of deposits of tapped and untapped slag and other debris from the smelting process (Cleere and Crossley 1985). Many bloomery smelting sites in the Weald were first identified by locating deposits of bloomery waste (Cleere and Crossley 1985). Nineteenth and early 20th century records of bloomery slag finds within the Lake District National Park have been used to identify probable bloomery sites (Robert Maxwell, National Trust North West Division Archaeologist pers. comm.). The Exmoor Iron Project has excavated a Romano-British smelting site characterised by a huge deposit of this material which had simply been shovelled downslope of the platform on which smelting operations had taken place (Goddard and Juleff 2003).

Antiquarian accounts record extensive deposits of cinders throughout the Forest of Dean and as far north as Worcester (Wright 1854, Nichols 1860, 236-7, Herbert 1996a, 291), although the precise location of these features was generally not specified. Vast quantities of this material were re-smelted following the introduction of the charcoal-fired blast furnace to the Forest in the late 16th century (Bick 1980a), and cinders were exported as far afield as Ireland as the sale and transportation of this material became an industry in its own right and (Hart 1971, 220).

The extent to which this valuable resource for identification of earlier smelting sites has now been obliterated is unknown, although it is clearly much diminished. A number of surviving cinders mounds have been identified in the southern part of the district (Hoyle *et al* 2007a, 107) and others doubtless await discovery. It is, however, notable that at a number of early smelting sites (for example the early Roman smelting in Sallowvallets north of Cannop (see below)) there was no prior indication of slag deposits visible on the surface.

Furnaces, slag-tapping pits and bloomery waste only represent evidence for one of the processes associated with early smelting. Sites where this occurred would also be expected to display evidence for ore and charcoal preparation, and for post-smelting activity (such as refining hearths where the smelted iron, or bloom, would have been further processed to remove entrapped slags and prepare the bloom for smithing or forging) which was probably undertaken as the final part of the smelting process (Historical Metallurgy Society 1996).

It is often difficult to differentiate smithing sites, where iron was transformed into usable artefacts, from smelting sites (where initial smithing of the raw bloom to create usable iron may also have taken place) without specialist analysis of the slag residues and a firm grasp on the actual size of the assemblage. This level of analysis has only been undertaken on a minority of recorded slag assemblages, although the relatively friable nature of secondary smithing slag may militate against its survival in areas of cultivation and slag recovered from field surfaces (so long as it is not clearly blast furnace slag) is likely to represent bloomery smelting waste (Chris Salter pers. comm.).

Much of the evidence for bloomery smelting is however effectively undated and there are numerous sites throughout the district where finds of bloomery slag were not associated with any datable artefacts and which could be evidence of smelting from the late Iron Age through to the early post-medieval period (Hoyle *et al* 2007a, 102-104).

8.2.2.2 Prehistoric

There are currently no known smelting sites in Dean which are securely dated to the pre-Roman period.

Late Iron Age smelting waste from a large slag-pit furnace, but no furnace sites, been recorded outside the district at Frocester, to the east of the River Severn, and also at Ariconium (the modern Weston under

Penyard, Herefordshire) where a specimen of slag was shown to be consistent with the flows produced by slag tapping furnaces (Jackson 2012, 190). Within the district large undated non-tapping slag-pit furnaces and iron smelting residues, recorded to the east of Lydney Road, Yorkley, had similarities with known Iron Age examples (Young 2015, 2-3), although charcoal from a post hole produced 8th-9th century AD date (Havard and Guarino 2015, 10). The post hole was over 50m to the west of the furnace (Havard and Guarino 2015, Fig 5), and the association between the two features was not established. Slag, consistent with non-slag tapping furnaces, was, however, recovered from the fill of the post-hole (Young 2015, 2) which might suggest the features were broadly contemporary and the slag-pit furnaces also dated to the early medieval period.

In addition, a number of sites are known where bloomery smelting waste, generally collected from the surface of ploughed fields, is reported in association with pottery from the late Iron Age to early Roman periods (Walters 1999, 45ff) and which have been interpreted as evidence of late Iron Age smelting, but none have been excavated, and the precise date of the pottery, and its relationship with the smelting waste, remains unclear. More compelling evidence comes from excavated sites although no *in situ* evidence for prehistoric smelting has been clearly identified.

Bloomery slag and late Iron Age/Early Roman pottery has been found at Symonds Yat hillfort (Parry 1994, 66-67), and tap slag from the fill of a 1st century AD ditch at Reddings Lane, Staunton near Coleford may be residual from late Iron Age smelting (Ellis 2013, 12), and at Ruardean Hill tap slag from the lower fills of the ditch of a possible early Roman fortlet may also be pre-Roman smelting waste (Young 2011, 2). Tiny fragments of iron slag have also been recovered from soil samples of colluvium in Sallowvallets north of Cannop which must have pre-dated the early Roman period by which time the colluvium had ceased to accumulate (Hoyle 2013a, 31).

8.2.2.3 Roman

There is considerably more evidence for Roman smelting in the district, although the industry in the early period is poorly understood.

Walters (1992b) has put forward the theory that during the 1st and 2nd centuries AD, the Forest of Dean was an imperial estate dedicated to the extraction of iron-ore under direct control of the Roman military. He also postulated centralised smelting centres at Ariconium, Monmouth and Whitchurch in Herefordshire, with further expansion in the 2nd century establishing regional centres at Newent and perhaps also Dymock in the northern part of the district (Walters 1999, 151). A recent review of the evidence for the iron industry at Ariconium has cast doubt on the perceived evidence for direct military control of smelting operations at that site (Jackson 2012, 195), and Walters' imperial estate model may be based more on a supposed parallel with the Weald in Kent, where a direct military control of the Roman iron industry has been postulated (Cleere and Crossley 1985, 60-61, 66-67, 69), than on any evidence found within the district itself. With the exception of gold, there is no clear evidence for state/military control of metal industries within the Roman Empire (David Dungworth pers. comm.).

Early Roman smelting waste from Sallowvallets (see below) had similarities with assemblages from Roman smelting sites at Cardiff Castle and Caergwanaf, South Wales (both of which have military/official associations) and appeared to differ from slag assemblages from small civilian rural sites such as *Ariconium*, Caerwent and Frocester (Hoyle 2013a, 38; Young 2011, 220). More research is needed to determine whether this is of any significance and if so, what this difference represents.

There is certainly evidence for increased production at sites such as Ariconium and Monmouth during the early Roman period, presumably in response to increased military needs (Jackson 2012, 194), although Walters' model of a centralised early Roman industry based around large production centres at the edge of the main ore bodies (see above) would seem to be over simplistic and a more diverse and complex pattern is emerging. A number of sites have been identified, both within the Forest of Dean and in its immediate vicinity, where 1st century AD pottery has been found with iron slag although few of these have been investigated further (Hoyle *et al* 2007a, 110-111). Recent excavation at Reddings Lane, Staunton near Coleford indicate that this small rural site was involved in iron smelting during the 1st and 2nd centuries AD (Ellis 2013) and smelting waste from Sallowvallets, north of Cannop, which contained early Severn Valley ware pottery and charcoal with a radiocarbon date of cal AD 20-140 (Hoyle 2013a, 37), appeared to have been part of a small discrete area of smelting away from established settlement similar to medieval smelting operations in the Dean which may have followed charcoal production cycles (Hoyle 2013a, 37).

Dymock, Newent and also Coleford are often cited as major early Roman iron producing sites (Walters 1992, Jackson 2012, 194), although the evidence for this is often limited and would benefit from review. Extensive

slag deposits at Coleford are in fact undated (Hoyle *et al* 2007a, 110), whilst the scale of the early Roman industry at Dymock is largely speculative and no *in situ* smelting remains have been identified.

Extensive slag deposits have been recorded as surface finds associated with mainly 2nd century pottery at the Moat to the south of Newent (Walters 1999, 16) and concentrations of slag and slag-filled features, associated with later 2nd and 3rd century pottery, have been recorded from excavations and watching briefs at Town Farm on the northeastern part of the town (Erskine 1996; Derham 2001, Mullin 2005). This may be evidence for iron smelting at a number of sites in the Newent area at different dates within the Roman period (as recorded at Ariconium (Jackson 2012) and Monmouth (Walters 1999, 93)) rather than for a large centralised industry. A small quantity of tap slag and Roman pottery has also been found at Foley Road on the southern side of Newent, about 1km to the north of The Moat, and also at Dymock Road, although these finds may be residual and their significance is not clear (Joyce 2011, 9; Tavener 2000). There is no evidence that the ore resources available in or close to the northern part of the district were exploited at this time (see above; Bick 1987) and it may be that the Dymock and Newent industries used ore from the Carboniferous Limestones of the southern Forest, although this has never been tested and further research is needed in this area.

Walters' contention that the iron industry contracted in the late 2nd early 3rd century, particularly at large centres such as *Ariconium* and Newent, does not seem sustainable (see above; Jackson 2012, 195). There may, however, have been changes in the way the industry was organised and there is some evidence that iron production formed part of the economy of the majority (but not all) of the sites where evidence for 3rd and 4th century activity has been found, although this is not well understood.

The emergence of iron processing associated with rural villas appears to be a development during this period. At the Chesters, Woolaston the foundations of a large timber-framed building contained evidence for a number of iron smelting furnaces, possible ore crushing areas and considerable quantities of tap slag. These have been interpreted as evidence of 'a highly organised enterprise' dedicated to smelting, the products of which were probably exported via the River Severn which was easily accessible via Ley Pill to the west of the villa (Fulford and Allen 1992, 205). The other villas on the northern shore of the River Severn have also produced evidence for iron smelting. At Park Farm Aylburton, which, like The Chesters, is on low ground with relatively easy access to the Severn, iron slag has been recorded in floor make-up deposits (Fitchett 1989, 27), and also as surface finds (Walters 1999, 10). At Boughspring, however, which is on higher ground further from the Severn with no clear access to it, slag has only been recorded as unstratified finds on the surface (Bridgewater 1973). Iron slag has also been found at Stock Farm, Clearwell on the higher ground in the central part of the southern Forest, although only in relatively small amounts (Blake 204, 15, Catchpole 1996, 5; Cook 1995, 2).

The scale of the operation at The Chesters, Woolaston would suggest that iron production was an important part of that villa's economy, probably trading via the Severn, but it is not clear how typical this site is of the later Roman iron industry in Dean as the evidence from other possible villa sites is much less conclusive, particularly at Boughspring, where the slag could relate to post-villa smelting (Pullinger 1991) and Stock Farm where only relatively small quantities have been recovered.

Apart from villas there is a growing body of evidence for smelting at other sites during the 3rd and 4th centuries, although as many of these are associated with structural remains it is not always clear whether these are isolated iron smelting sites or part of a larger complex, such as a villa or a small rural settlement.

Excavation and geophysical survey have identified an iron working site at Rodmore Farm, St Briavels where a rectangular building (about 15 x 7.5m) with cobbled floors was associated with bloomery furnace bases, three small slag tapping pits, quantities of iron slag and charcoal and pottery dating from the 2nd to the 3rd centuries AD (Blake 2001, 7; Blake 2002a, 15; Blake 2003, 8-11; 2004, fig 3). Geophysical survey appeared to show other structures and boundaries to the south and east of the excavated features (Blake 2002a, figs 1 and 2), suggesting these formed parts of a larger complex.

At Rossilyn, Alvington, a 2nd century terrace and stone cobbled surface was replaced by further surfaces, a stone structure and a pit filled with iron slag in the 3rd to 4th centuries AD. No direct evidence for domestic occupation has been found at the site, although a relatively high proportion of Samian recovered suggests that a reasonably high status building, perhaps a villa, was nearby (Hood 2011, 16-19).

There is also considerable evidence for later Roman smelting at Blakeney. Excavations at Legg House, Blakeney identified slag filled pits cut through the floors of the earlier structures which had been demolished in the mid 2nd century, suggested smelting in the vicinity (Walters 1990, 40). This was not closely dated but may be contemporary with the iron smelting site at Millend, about 200m to the west, where excavation revealed

ditches filled with slag and charcoal (which defined a series of narrow enclosures), a cobbled surface, other structural remains associated with iron smelting and 3rd and 4th century pottery (Barber and Holbrook 200, 35-39). Surface finds of 3rd and 4th century pottery and bloomery slag have also been reported to the south of Blakeney, suggesting that smelting extended over a wider area during this period (Johns 1995, 40-48). Low levels of Roman pottery (which has not been closely dated) and bloomery slag have also been found over an extensive area between Blakeney and the River Severn to the southeast (Johns 2008), although it has not been established that the slag is contemporary with the pottery finds (Hoyle *et al* 2007a, 349).

There is also widespread evidence from English Bicknor. A concentration of bloomery slag and a partly smithed iron billet has been found at Cow Meadow Farm where 3rd to 4th century pottery has been found (Walters 1999, 6). A spread of Pennant Sandstone roof tiles and a pit containing more tile fragments, bloomery slag, honing stones and a large amount of unabraded Roman pot (which has not been closely dated) was also found at White House Farmhouse 500m to the south of this (Milford 2000, 1). Just over 1km to the east (to the east of Eastbach Court) bloomery furnaces and slag tapping pits have been recorded with spreads of bloomery slag, charcoal, burnt clay and Roman pottery (at least one sherd of which was 4th century in date) and a 4th century coin (Rawes 1987, 246; Walters 1987b, 50, Walters and Walters 1987, 50). It is not clear whether these sites were related, or even operated at the same time, but they may represent evidence for a dispersed rural settlement associated with iron smelting, or perhaps outlying parts of a villa estate which may have been centred around English Bicknor church where Roman brick and tile (including a box flue tile) and *tesserae* have been reported (Steve Bagshaw pers. comm from Glos HER 2015).

On the northern side of Chestnuts Wood a rough semi-circular platform paved with large flagstones sealed charcoal deposits and produced 2nd to 4th century pottery (Scott-Garrett 1956, 199), whilst Roman coins, late 4th century pottery, a flagged floor and bloomery iron slag have also been found about 350m to the north. At Pope's Hill (about 550m to the southeast) evidence for a wooden structure with a rammed earth floor close to a dished rectangular area of stone slabs has been found with Roman pottery (including 2nd century AD Samian), burnt daub and an abundance of iron slag (Scott-Garrett 1926, 200-202). Iron slag associated with abraded sherds of Roman pottery (which cannot be more precisely dated) and earthwork platforms has also been recorded on the eastern side of Welshbury Hill c. 500m to the north (Jackson *et al* 2016, 22).

These sites appear to represent evidence for 2nd to 4th century iron smelting and possibly also charcoal production, but it is not clear how they relate to each other or whether they are discrete self-contained sites or part of a larger settlement or villa estate centred in the vicinity.

There is also increasing evidence for 2nd to 4th century iron smelting overlying the gravel terraces to the southeast of Lydney. Ditches, pits and post holes containing 3rd and 4th century pottery, and some of which produced significant amounts of charcoal and bloomery slag (and also hammerscale), have been found at Lydney golf course (Brett 2004, 13-14). About 400m to the northeast pits and gullies containing 3rd and 4th century pottery along with iron slag and hammerscale have also been recorded (Barber 2009, 14-15) whilst slag, fired clay and a single sherd of abraded Roman pottery were found in a gulley excavated about 250m to the northeast (Cooke 2003, i). The ditches recorded at these sites have been interpreted as later Roman land divisions or drainage, although the pits and post holes may be evidence for occupation or other activities which included iron smelting.

Rescue excavation at High Nash Coleford found robbed out foundations of what may have been a rectangular structure with an apsidal addition on its western side. Finds from the site included bloomery slag, 3rd and 4th century pottery (Walters 1987a, 50) and also a quantity of sharp edged flakes of iron ore of a uniform size (typically 7cm x 9cm) which appeared to have been processed, or part processed, ready for smelting (Walters 1999, 112; Ian Standing pers. comm.). The structure has been interpreted as a temple (see 5.3.1 above) although this is far from certain and the building may be associated with later Roman iron smelting and/or occupation on the site.

Other excavated sites include the Mount, Lower Lybrook where evidence for a small settlement comprising rectangular and circular buildings within a D shaped enclosure has been found with pottery from the 2nd to 4th century (including some Samian) along with residues of iron smelting and bronze working (Walters 1985b, 24). The possible early Roman fort at Ruardean Woodside was reoccupied in the 3rd century, and iron slag from the ditch suggests that the occupants were involved with iron smelting, whilst a saw fragment and whetstone hint at woodland management and/or charcoal production (Hoyle 2013a, 25).

There is also increasing evidence for 3rd century or later iron smelting in the Newent area (contra Walters 1999, 93), although the nature of the settlement is poorly understood. Bloomery slag, later 2nd to 3rd century pottery and coins from the 1st to 4th century have been found during excavations and watching briefs at

Newent Business Park just over 1km to the northeast, where a number of pits and post holes have also been found (Erskine 1996; Derham 2001, Mullin 2005). Metal detectorists have also reported coins, brooches, pottery and other items (including the foot of a bronze statuette) with a date range of the 1st to 4th centuries from the site (PAS). A small quantity of tap slag and Roman pottery has been found at Foley Road on the southern side of Newent about 1km to the north of The Moat and also at Dymock Road although these finds may be residual and their significance is not clear (Joyce 2011, 9; Tavener 2000).

The remaining sites where later Roman iron smelting is suggested tend to be sites where pottery from the 2nd, 3rd and 4th centuries AD (or which has just been classed as 'Roman') has been found (generally as surface scatters or chance finds) along with bloomery slag and other evidence for smelting. Dated 2nd – 4th century pottery and bloomery slag have been found at Cherry Orchard Farm, Newland; Hangerberry Hill, English Bicknor and Broom Hill to the south of Soudley, whilst 'Roman' pottery and bloomery slag is recorded at Holm Farm, Lydney; Popes Grove, Lydbrook (Hoyle *et al* 2007a, 348-349), and Huntley (Rawes and Rawes 1977, 26). Bloomery slag, ore, furnace bases and furnace lining have been found in the same area as 2nd-4th century pottery at Whitescourt, Awre; Ley Pill, Woolaston and Horse Pill, Stroat (Allen 2009, 90-91). All of these sites are close to the Severn and may have traded along the river.

Field walking in Cinders Fields, Tibberton has produced a range of Roman (1st to 4th centuries) pottery, roof tile, coins, oyster shell and other items from an extensive area 'heavily littered' with bloomery slag (Charlesworth 2003) and Roman pottery (not closely dated). Bloomery iron slag has also been found at Green Bottom, Littledean (Scott-Garrett 1918-1958, 14th November 1953), Tidenham (Walters 1999, 20) and Hagloe southeast of Blakeney (Johns 2005). A complete Roman quern and other quern fragments have been found with bloomery slag at Upper Buttersend, Hartpury (Charlesworth 2007, 7), although no other settlement evidence has been reported from this site.

It is not clear how the iron industry was organised during the later Roman period. There may have been a large production site within the district at Newent (although the evidence for this would warrant re-examination) and also outside the district at Monmouth, Ariconium and Worcester and perhaps also Gloucester. Within the district, however, a pattern of dispersed small-scale smelting operations associated with some villas and small settlements appears to have been the norm, although modern political boundaries did not apply in the Roman period and any discussion of how the iron smelting industry may have operated needs to take account of the wider picture and include the evidence from neighbouring areas. A similar pattern is known in the Worcester area, to the north of the district, during this period where there was a major production centre (Worcester) and other smaller-scale rural production sites in the vicinity, mainly focused along the Severn (Worcester City Council 2007, 42).

The relationship of the smaller rural smelting sites to each other or to the larger production centres is not known, and it is also unclear how the resource (iron-ore) was distributed or if there was any state involvement in managing iron-ore production (see above). A state controlled industry franchised out to small concerns has been suggested for the Roman iron industry in the Weald (Cleere and Crossley 1985, 66-67) and the lead industry (Salway 1993, 442-443) but there is no evidence for a similar model in the Forest of Dean.

It has been suggested that the Roman temple at Lydney Park may have played a central role in the management of mining and distribution of ore, presumably largely by river transportation up and down the Severn (Fulford and Allen 1992, 204). This argument is based on the clear significance of the site, its proximity to Roman iron mining (although this appears to predate the later Roman temple), its proximity to ore sources in the form of scowles and also to riverside villas (Park Farm, Aylburton and The Chesters, Woolaston) which may have been involved in commercial smelting. There is, however, no particular indication that the temple was associated with iron production in any way and no iron mining tools, mining or iron working imagery or mining related votive offerings have been found there. There may have been a connection between Iron Age hillforts and control of the iron ore resource (see above) and, as the temple was sited within the earlier hillfort, it is tempting to suggest that it could have been owned and run by the successors of the local elites who constructed the hillfort and also had rights to the iron ore in the area. This is, however, entirely speculative as there is no evidence to suggest continuity between the hillfort and the temple (apart from proximity), although it is not clear whether evidence for this, or indeed ownership of mining rights or connections between mining and smelting sites, would necessarily manifest themselves in the archaeological record.

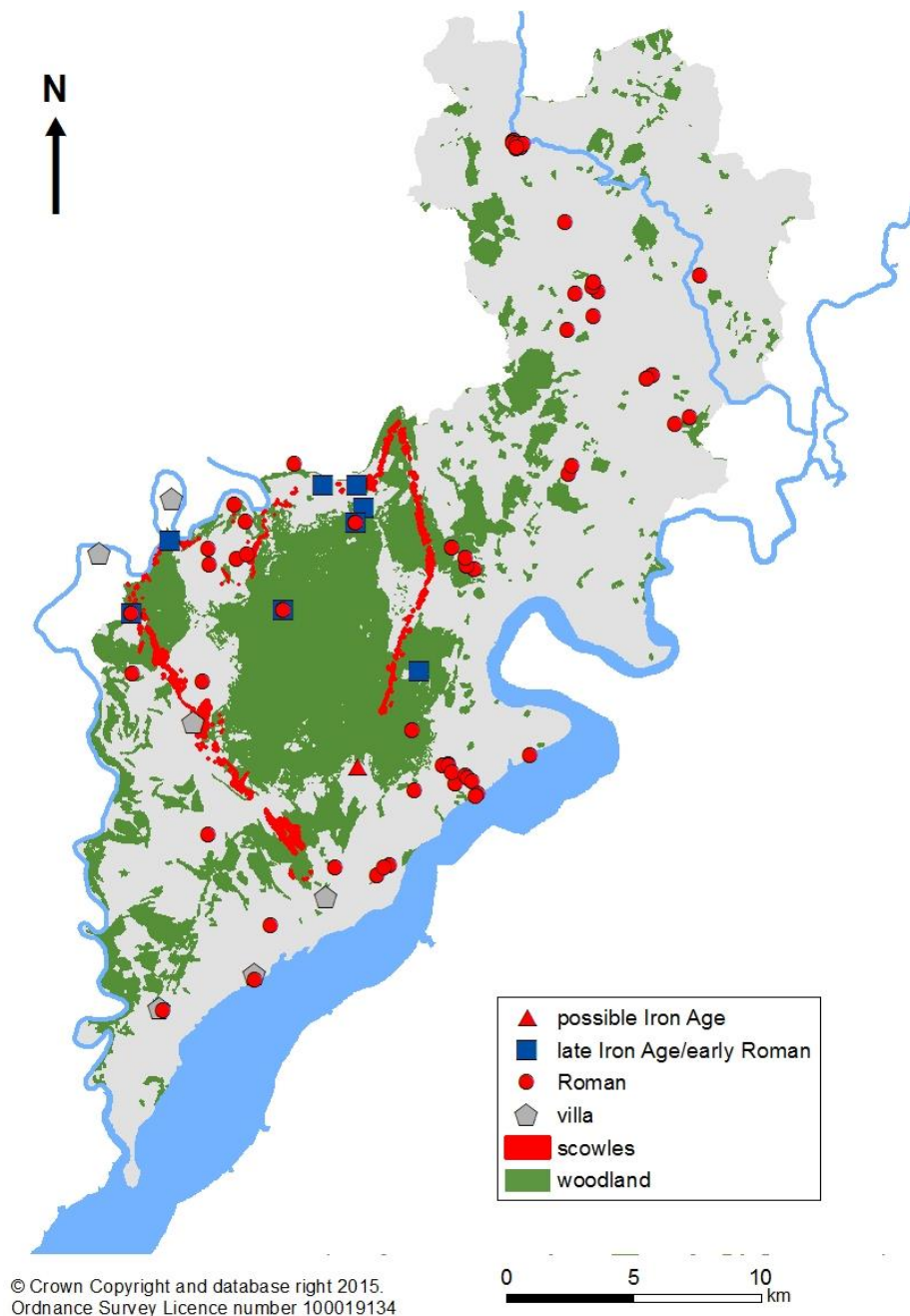


Figure 26: Evidence for Roman and pre-Roman iron smelting

8.2.2.4 The early medieval period

There is no firm evidence for smelting in the immediate post Roman period although evidence for 8th to 9th century smelting has been found at Clearwell Quarry, Stowe. The bases of 30 furnaces were found in three discernible clusters at the site in close proximity to evidence for ore roasting hearths and also charcoal clamps. The excavator (Pine *et al* 2009) suggested that these were both slag tapping shaft furnaces and slag pit furnaces, although it is more likely that these were slag pit furnaces (David Dungworth pers. comm.). No datable artefacts were recovered but radiocarbon dates from charcoal from three of the furnaces provided a date range of cal AD 763-890, probably representing seasonal smelting on the same site, although the time span between smelting operations could not be determined (Pine *et al* 2009, 32-33, Table 10).

Large non-tapping slag-pit furnaces and iron smelting residues have also been recorded to the east of Lydney Road, Yorkley. The furnaces themselves were undated but appeared similar to known Iron Age examples (Young 2015, 2-3), but charcoal from a post hole produced an 8th-9th century AD date (Havard and Guarino 2015, 10). Although the association between the two features was not established, and the post hole was over 50m to the west of the furnace (Havard and Guarino 2015, Fig 5), slag from the fill of the post hole was

consistent with non-slag tapping furnaces (Young 2015, 2) perhaps suggesting they were contemporary features and the smelting dated to the early medieval period.

The only other reference to pre-Norman smelting in the Forest is the Domesday survey of 1086 which records 'blooms of iron' being paid as rent by tenants at Alvington (Moore 1982), although no smelting sites from this period have been identified.

8.2.2.5 The later medieval period

There is considerably more evidence for a major iron industry in the Forest of Dean during the medieval period, although much of the information concerning processing sites for this period is derived from documentary sources either for processing operations or the production of charcoal, which was used as a fuel for both smelting and smithing. There is, however, little information on the actual scale or organisation of the industry during this period and this is exacerbated by a lack of precision in the terms used in the documents and it is not clear whether references to *fabricae*, *forgiae arrantes*, or *blissahis* indicate forges, smithies or bloomeries (Hart 1971, 4).

The use of the ore was carefully regulated by the Crown, although unlike mining, this activity was not governed by customary right. Some furnaces were under the direct control of the Crown, and a number of these are recorded in the 13th century (Hart 1971, 4). Others were held by private individuals under licence from the Crown or as a gifted concession to institutions such as Flaxley Abbey who were granted smelting rights by Henry II (Watkins 1985, 94). There was, however, considerable abuse of the system (Hart 2002, 146) and there are numerous references to illegal forges which depleted the wood supply of the forest (for the production of charcoal) without official sanction (Hart 1971 5-8). The Eyre Roll of 1270 reported that 'there are many itinerant forges and those who hold or have held them have done many evil things both concerning the tall trees as also the underwood, and also by debranching, so that by reason of these forges a great despoiling has been done to the Forest' (Hart 1971).

The unregulated smelting and exploitation of the timber resource to produce charcoal prompted sporadic attempts at regulation and in 1217 the king ordered all private forges (with six exceptions) to be dismantled. Many of these were returned to their owners within three years, and by the middle of the 13th century between 25 and 30 forges were recorded, a figure which rose to 43 in 1270 and 60 in 1282 (Hart 1971, 6).

Itinerant forges

The historical evidence for the 12th–13th centuries suggests a picture of a number of 'itinerant forges' many of them unregulated or operating in a 'grey' semi-official capacity. The precise status of the 'itinerant forge' is not clear and Hart (1971, 4) has suggested that 'itinerant' may refer to the operators rather than the furnaces themselves, indicating that they would have been 'itinerant' in their search for charcoal or ore, which they then took to a permanent smelting site. There appears to have been a close association with charcoal production and smelting in the Royal Demesne, Bloomery slag is commonly found in areas where there is also evidence for charcoal production (for example Johns 1991; Blake and Briscoe 2002, Monmouth Archaeology 2002, Hoyle 2003a, 2003b) and some Forest of Dean charcoal burners in the 13th century also owned forges (Armstrong 1978, 13). Given this, 'itinerant forges' may have been relatively temporary bloomery sites which were set up to exploit the charcoal resource in a particular area and then dismantled and moved on as charcoal became depleted.

No sites of medieval 'itinerant forges' have been identified with any certainty. Charcoal platforms associated with bloomery slag, Roman and medieval pottery and flagged stone surfaces and other structural remains have been recorded at Chestnuts Wood, Littledean and Broom Hill, Soudley, (Scott-Garrett 1956; Johns 1991; 2011) and these have been tentatively suggested as possible sites (Hoyle *et al* 2077, 119).

There are no references to 'itinerant forges' during the latter part of this period and it may be that this practice did not continue much beyond the end of the 14th century. In 1436, 33 forges were recorded in Dean, 14 in the bailiwick of Great Dean (Mitcheldean), two in Littledean, two in Ruardean, 11 in Newland, one in Lydney and three in unspecified locations (Hart 1971, 7) although the sites of none of these is known with any certainty.

Sites attached to settlements

Apart from the 'itinerant forges' other systems of organising smelting appear to have been operative during this period. References to both 'large' and 'small' furnaces in the reign of Edward III (1327-1377) may differentiate between peripatetic woodland bloomeries (presumably the 'small' furnaces) and more permanent

smelting sites. Excavated evidence is limited, although a number of sites have been identified as surface scatters of bloomery slag associated with medieval finds, but these tend not to have been investigated further. Where these are known (or suspected) they tend to be either within or on the periphery of known medieval settlements, suggesting reasonably permanent sites, although nothing is known about how these operated, whether they represent permanent or seasonal occupations, or whether the iron was intended for trade or domestic consumption.

Excavated evidence includes Warfield Farm, Ruardean where rock-cut pits (possibly slag tapping pits) and a feature interpreted as an ore roasting hearth (Hart 1971, plate 3) have been recorded with bloomery slag, charcoal, fragments of probable furnace base and 13th century pottery (Bridgewater 1966), and surface finds of 'pit slag lumps' and 13th century pottery have also been found in the vicinity (Hoyle *et al* 2007a, 100).

A number of small pits containing deposits of tapped slag have been excavated close to Rodley Manor, southeast of Lydney. These were found with pottery dating from the 12th - 14th centuries and have been interpreted as the remains of slag-tapping pits, although the bloomery furnaces themselves did not survive (Cooke 2003).

A dump of charcoal and slag found with late 12th to 13th century pottery at St White's Farm, Cinderford has been interpreted as evidence for iron smelting, although hammerscale from the site may be evidence for on-site primary smithing of the bloom rather than secondary smithing (Teague 2007, 8).

An area of burning and a large burnt limestone slab excavated at the Feathers Hotel, Lydney was undated but within an area of settlement and industrial activity generally considered to date from the early post-medieval period (Townsend 1999). Bloomery smelting residues were also found in this area and these remains have been interpreted as early post-medieval bloomery smelting (Mack and McDonnell 1999).

Bloomery slag with medieval artefacts has also been found in excavated features at Tidenham House, Tidenham, Church Cottage, Staunton near Corse, Tanhouse Farm Newland, Church Road Lydney, Highmeadow Farm, Newland and Blakeney Sewage Treatment Works (Hoyle *et al* 2007a, 100, Table 45), Bank House, Newent; The Laurels, Ruardean; Taynton Parva; Kyrleside, Dymock and Ashfield House, St Briavels (Glos HER 2015) although no *in situ* evidence for medieval smelting was found at these sites.

There are also medieval references to buildings where iron smelting took place in the later medieval period. An *oresmyth* was built in Coleford in 1350 and another 'stood' at Whitecliff in 1400 and 1432. An *oresmyght* in Coleford was repaired in 1500 and a *woresmyth* was included in a tenement, also in Coleford, in 1538 (Ian Standing pers. comm.).

Water-powered bloomeries may have appeared during the latter part of the medieval period and these would necessarily have been fixed structures located near suitable water sources, although no sites of these are known for certain in the Forest of Dean. Possible wheel pits, and bloomery slag at Yew Tree Cottage, Brockweir have been tentatively linked to forges attached to Tintern Abbey's grange at Brockweir (Hoyle *et al* 2007a, 99-100), although there is insufficient evidence for this.

The Great Forge

A third category is the 'great forge of the King' associated with St Briavels Castle (Hart 1971, 4). This site appears to have been largely dedicated to the production of quarrels (cross bow bolt heads) for the Royal Armoury (Hart 1966, 267-272; Webb 1992, 2000) and it is estimated that half a million were produced here between 1223 and 1293 (Hart 1966, 272). This appears to have essentially been a large centre for secondary smithing and fabrication, and there are no records which specify that smelting was undertaken at this site, although it may have been a major consumer of unforged iron from the bloomery sites. There was a forge within the castle (Townley 2004, 186, Fig 50) but manufacture may also have taken place at other sites in the vicinity. Iron slag which may be the residue of secondary smithing has been recorded in a field marked 'Quarrel field' in 1608 (PRO 1608; Clissold 1982) and this may be a site where quarrels were manufactured (Webb 2000, 56). Another field called 'Quarrel' recorded to the north of St Briavels on another 17th map (GCRO 17th century) may have been another quarrel production site.

Secondary smithing

Few other sites are known where secondary smithing has been recorded, although sufficient analysis of slag assemblages has rarely been undertaken (see above). Excavations at Newland Street, Coleford recovered evidence for a workshop where secondary iron working took place sometime around the early 14th century,

although some bloomery slag was also recovered from the site (Clark and Bray 2010) and secondary smithing slag has been recovered from medieval contexts at High Meadow Farm, Newland (Hoyle *et al* 2007a, 101). Smithing slag, a section of smithing hearth base and a feature interpreted as 'the hearth box for a waist high smithing platform' from the Feathers hotel, Lydney have been interpreted as evidence for secondary smithing in an area where early medieval (late bloomery) iron smelting was taking place (Mack and McDonnell 1999; Townsend 1999).

Two stones have also been identified as the bases of smithing hearths on the basis of analysis of the slags which fill hollows on their surface, although neither has been dated. One of these, the Drummer Boy Stone (Standing and Tylecote 1977) lies on the surface to the south of Soudley, whilst the other was found among slipped surface material below ground in a disused iron mine at Old Sally Mine southwest of Mitcheldean (Price 1991b). This may have been a secondary use for these stones (Peter Crew pers. comm. in Price 1991b) and a number of similar hollowed stones have been identified throughout the southern part of the district, where they are interpreted as mortars for crushing ore or other industrial processes (Hoyle *et al*, 104; Johns 1990).

8.2.2.6 Undated evidence for bloomery smelting

There are numerous sites in the district where evidence for bloomery smelting, generally in the form of spreads of bloomery slag, is not associated with any datable artefacts or where this association is inconclusive (Hoyle *et al* 2007a, 354-367). Few of these have been investigated and the nature and date of smelting or other metallurgical processes at these sites is unknown.

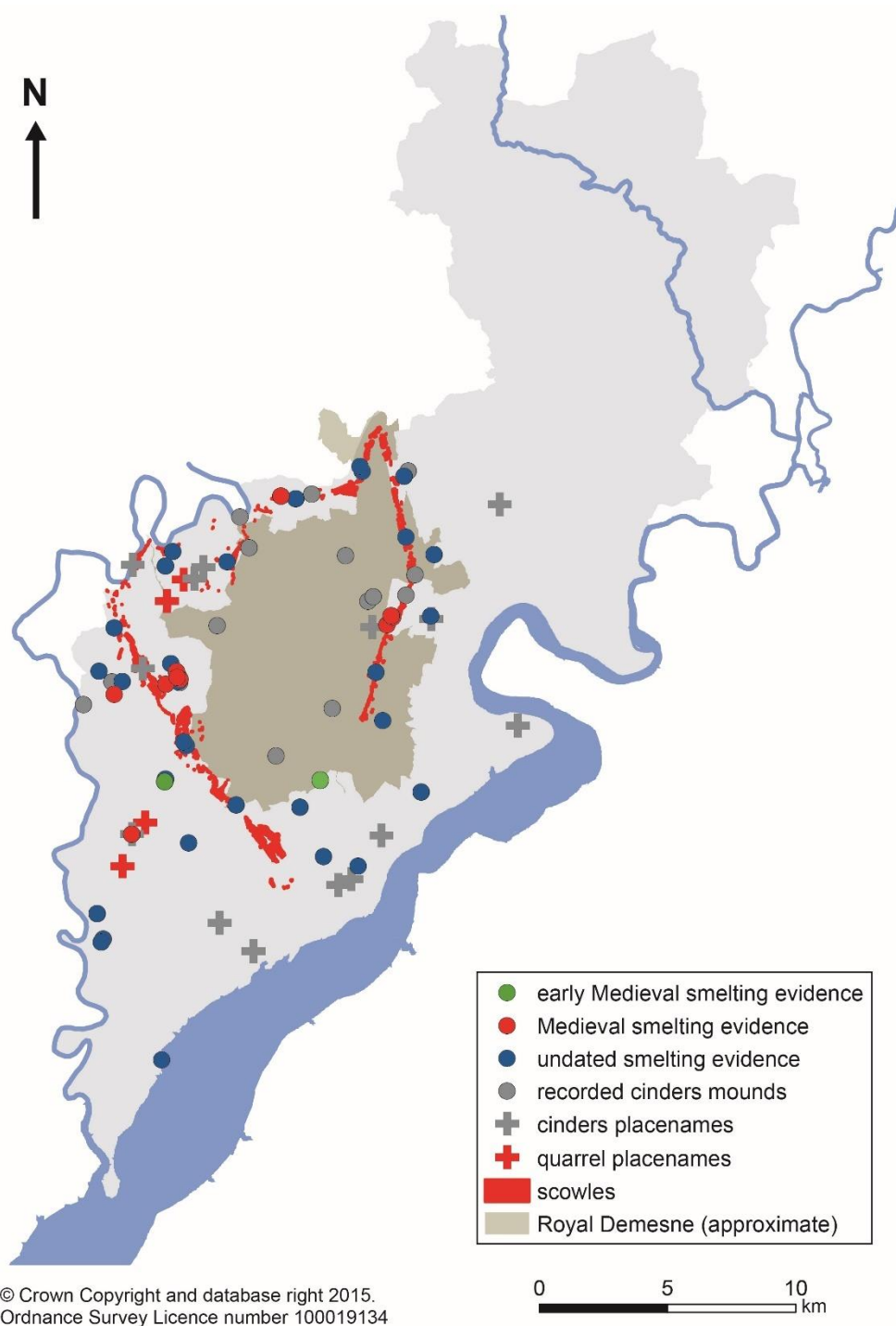


Figure 27: Evidence for Medieval and undated iron smelting

8.2.2.7 Post-bloomery period iron production

The most comprehensive source for the history of the post-bloomery iron industry in the district is undoubtedly Hart (1971, 9-215), which sets out the history of iron working from the introduction of the charcoal-fired blast furnace to the area in the late 16th century (Hart 1971, 8), although this focuses strongly on the main industrial area around the Statutory Forest in the southern part of the district. The 17th and 18th century iron industry is also examined in Johnson (1953) which includes discussion of the industry around Newent in the northern part of the district and the evidence for this is also reviewed in Bick (1987).

The Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13) summarises historical information about these industries, and iron working sites in the district are included in general gazetteers of industrial sites (Awdrey 1983; Bick 1980a, Cross 1982; GSIA 1992; 2005). A useful source of information on the early charcoal fired-blast furnaces in the southern part of the district (the Kings Ironworks) is found in

Schubert (1953), and this period is summarised in Knight (2011). Meredith (2006) also covers the iron industry during this period and Riden (1993) provides concise summaries of known charcoal-fired blast furnaces in use after 1660. Post graduate research by Hammersley (1972) discusses the post-medieval iron industry, exploring its economics and the issue of fuel supply. The impact of the iron industry on the Forest of Dean's woodland, particularly during the period following the introduction of the charcoal-fired blast furnace in the early 16th century (see below), is also examined in Hart (1995).

Where these sources have been accessed much of this information is summarised in the County HER, although generally only in an abbreviated form. The HER also includes information derived from 19th and early 20th century maps (generally Ordnance Survey maps), but these sources have only been systematically searched in the southern part of the district which was covered by the Forest of Dean Archaeological Survey (Hoyle 2008d, 44-46). Gloucestershire Archives hold unpublished documents relevant to these industries, whilst the Dean Heritage Centre also hold photographs of selected 20th century industrial sites, some of which relate to the iron industry (Hoyle 2008, 27).

At a national level the iron and steel industries have been covered by the Monuments Protection Programme and the Step 1 report contains a useful summary of national and regional resources for these industries which may contain data on the Forest of Dean (Crossley 1992, 44). Selected sites such as Whitecliff Furnace Coleford (Standing 1980b; 1981; 1986), Darkhill Furnace, Coleford (Hart 1968a; Bick 1970; Webb 2001b), Cinderford Furnace (Newman 1982), Blakeney Furnace (Bick 1990a), Gunns Mill, Abenhall (Harris 1974; Cave 1981; Demonowicz and Demonowicz 2001; Davenport 2015), Titanic Steelworks, Coleford (Webb 2001b) and Elmbridge Furnace near Newent (Bick 1980b) have been the subject of more detailed research.

Charcoal-fired blast furnaces harnessed water power to achieve greater efficiency in the smelting process through economy of scale, as more ore could be smelted by fewer workers. The higher temperatures enabled more iron to be recovered from the ore and also allowed for the re-smelting of waste (cinders) from the bloomery smelting process (see above). Unlike bloomeries, however, the blast furnaces were permanent structures which needed to be sited close to water supplies and which inevitably led to a greater degree of centralisation of the industry, justifying higher investment in communication systems and engineering works to ensure the works operated as effectively as possible. The process was also separated into two distinct operations undertaken in separate structures. The iron-ore was smelted in a furnace whose air supply was controlled by giant water powered bellows, producing pig iron. This was then transported to a finery forge which contained two types of small hearth blown by water-powered bellows, plus a water-powered trip hammer. In the finery hearth itself, the pig was melted in the air blast to burn out the carbon, the decarbonised iron solidifying as a pasty mass. This was then hammered to expel most of the slag, and then repeatedly reheated in the chafery and hammered to forge it into a bar of wrought iron. The finery could only use charcoal; the chafery could use either charcoal or coal although coal did not become common until the 18th century. A typical finery forge contained two fineries, one chafery, and one hammer, each powered directly by cams on the axle-shaft of a separate waterwheel. The wrought iron bars would then be sold to blacksmiths or other iron workers for conversion into finished products.

Charcoal-fired blast furnaces were introduced to England in late 15th century, but were not adopted in the Forest of Dean region until the late 16th century when furnaces were built at Bishopswood and Whitchurch just over the district boundary in Herefordshire, although there was a forge at Lydbrook by the early 1590s (Meredith 2006, 75). In this period the iron making history of the Royal Forest and the surrounding area diverged sharply (D Cranstone, research in progress). In the areas around the Forest it is now clear that blast furnaces spread rapidly with Whitchurch in 1576 perhaps being the first. A furnace at Huntley adjacent to the steelworks (see below) was proposed in 1585 but not necessarily actually built and there was a furnace at Bill Mill near Ross-on-Wye 1612. Within the district (but outside the Royal Forest) a furnace is recorded between Staunton near Coleford and Redbrook on the 1608 map of the area (PRO 1608; Clissold 1982), another (belonging to the Wintours) was at Lydney by 1606 (Hart 1971, 9) and there was a furnace at Longhope by 1610 (David Cranstone pers. comm.). Within the Royal Forest itself furnaces were not permitted until the foundation of the King's Iron Works in 1612 when furnaces were built at Parkend, Lydbrook (Howbrook Furnace) and Cannop, and forges at Parkend, Lydbrook and Cannop (Knight 2011, 41). The early history of charcoal-fired blast furnaces appears to have been fairly precarious particularly in the southern part of the district where there was a conflict of interest between the Crown (who licensed the works) and the iron works over the timber resource. Furnaces were periodically closed, changed ownership, converted to other uses, demolished and new ones built (Hart 1995; Jurica 1996f, 340-342). In the next 200 years over 50 charcoal fired furnaces and forges were built (Glos HER 2015), the majority in the southern part of the district within or close to the Statutory Forest, although there was a furnace at Newent (Elmbridge Furnace) and a forge at Upleadon by the late 17th century (Bick 1987). By the 19th century Elmbridge Furnace, Newent had closed and the industry was now concentrated in the southern part of the district in or around the Statutory Forest,

although by 1800 the only remaining charcoal-fired blast furnaces were at Bishopswood, Flaxley, Lydney and Redbrook, which was the last to close in 1816.

From the mid 18th century coke increasingly became the fuel of choice for iron smelting, although the Forest of Dean was late to embrace this technology, due partly to the unsuitability of coke made from the coal mined in Dean at that period and inexperience in smelting Dean ore with it (Ian Standing pers. comm.). Coke-fired furnaces were built at Cinderford, Parkend and Whitecliff, west of Coleford between 1795 and 1802 and coke was periodically used at Lydney Furnace by 1803 (Hart 1971, 119). These early endeavours were short-lived (Jurica 1996e, 128-129; 1996f, 342), although technical improvements in the 1820s combined with coke made from coal from the Coleford Low Delf seam, which was more suitable for coking, reinvigorated the industry. The coke-fired furnaces at Parkend and Cinderford were reopened and over the next 30 years, new furnaces and forges were built at these sites and also at Darkhill (where David Mushet experimented with producing wrought iron straight from the furnace), Soudley and Bromley, whilst the charcoal furnaces at Lydney, Lydbrook and Redbrook also tried coke. These new coke-fuelled furnaces also embraced the improved technology of steam power, using steam-driven blowing engines to provide air for the blast furnaces instead of the earlier water-powered bellows, although Parkend furnace also installed a water wheel to supplement steam power (Cross 1982, 13).

8.2.3 Ancillary industries

8.2.3.1 Steel

Traditional steel is iron with a carbon content of 0.5-1.5%, intermediate between wrought iron which is virtually carbon-free and cast iron with a carbon content of 3-4%. Until the development of bulk 'mild' steelmaking in the 1850s it was an expensive specialist product made either from cast iron by the finery process (by not burning out all the carbon to make wrought iron) or from wrought iron by cementation (diffusing carbon into bars of iron at high temperatures). A finery-process steelmaking industry using Dean iron (but located entirely outside the Royal Forest) as developed by the Earl of Shrewsbury from 1582 and was successful until at least 1609 supplying Tintern wireworks, the Midlands and Sheffield, and also selling on the London market (D Cranstone, research in progress). Steelworks were recorded at Huntley in 1585, and Linton (to the west of Newent and just outside the district) in an undated document of c. 1604, although it is not clear if Linton replaced Huntley, or whether other steelworks also existed. The cementation process may have been introduced to Dean in the early 17th century as Sir Basil Brooke, who produced steel by this process in Coalbrookdale, Shropshire, also held the lease of furnaces and forges at Parkend and Soudley. A steelworks at Elmbridge, Newent, which operated adjacent to the blast furnace from the 1660s to the 1680s, probably used the finery process (David Cranstone pers. comm.).

A late 17th century (1677) reference that 'the best steel is made about the forest' (Hart 1971, 168; David Cranstone pers. comm.) suggests that Elmbridge was not the only works, operating at that time although no evidence for other steel works has been found at Parkend or Soudley or anywhere else in the district (Crossley 1992, 46) and whether others steelworks used finery or cementation at that time is unknown (David Cranstone pers. comm.).

The Forest also saw innovation in bulk steel manufacture with Robert Mushet's experiments with crucible steel manufacture and the subsequent development of the Bessemer process which culminated in the opening of his Titanic steelworks at Darkhill, Coleford in 1862.

This was short-lived and within decades a decline in demand for Forest iron (combined with low output, inefficient communication systems and a lack of conversion to bulk steel making) took its toll on the Forest iron smelting industry which ceased to exist with the closure of Cinderford iron works in 1899 (Hart 1971, 152-153).

8.2.3.2 Wire and cable works

Wireworks are known in the Wye Valley from the 16th century (Meredith 2006, 78), although the only recorded wire industry in the Forest of Dean at that time (at Soudley) drew out the wire 'by strength of hand' (Nicholls 1866, 28). Water powered wire mills opened north of Prestbury Farm, Taynton (Newman 1988), at Ayleford Mill, Ruspidge and Soudley (Hart 1971, 201) and at Bradley Forge, Newnham (Jurica 1996f, 340, 344) in the 18th century. There was also a wire mill at Lydbrook in the 19th century (Hart 1971, 203-4), and the 19th century Forest Vale ironworks at Cinderford also had a wire mill (Cross 1982, 22).

8.2.3.3 Other ancillary industries

Other ancillary works which processed wrought iron into finished products included a rolling mill at Lydbrook and tinplate works at Lydbrook, Hawkwell near Cinderford, Parkend, Lydney and Redbrook, whilst 11 foundries have been recorded in the district (Glos HER 2015; Hart 1971). Some of these sites, such as the foundry at Bilson west of Cinderford (Pope 1996), the tin plate works at Lydbrook and the Lower Wye (Morris 2003; 2004) and also the later tinplating industry at Redbrook (Horton 1985) have been researched in greater detail.

Although the decline of the Forest iron industry saw the closure of some of these, others continued using materials imported from outside the district and the tinplate works at Lydney and Redbrook continued to operate until the 2nd half of the 20th century (Cross 1982, 17).

8.2.4 Evidence for the post-bloomery iron industry

Some significant remains survive from this industry with Listed Buildings at Elmbridge Furnace near Newent and the former forge at Camp Mill, Soudley, whilst there are four Scheduled Monuments at Darkhill Ironworks, Titanic Steelworks and Whitecliff Furnace at Coleford and Gunns Mill, Abenhall. There is, however, a lack of consistent information about precisely what survives on many other sites. The HER only lists five other sites where structural remains survive, clearly a gross underestimate as other surviving structures are listed in general gazetteers (Awdrey 1983; Bick 1980a, Cross 1982; GSIA 1992; 2005). The information in these records, however, is not necessarily the result of any systematic assessment of survival and may also be out of date and a review of the survival of these industries is needed.

Few sites have been the subject of archaeological investigation. Watching briefs have been undertaken at Gunns Mill, Abenhall (Bashford 2000) the garden of the adjacent property (Phillips 2015) and also at Lydbrook wire works (Hoyle 1991). Excavations and recording have been undertaken at Lydney Furnace (Rendall 1986; Vallender 2000), Flaxley (Ellis 1991), Camp Mill Soudley (Callister 1984), Whitecliff Furnace (CHAT 1987), Elmbridge Furnace, Newent (Nichols 2008) and Darkhill Ironworks (Standing 2002; Webb 2002). An excavation has also been reported at the 1604 charcoal-fired blast furnace site near the Swanpool, Upper Redbrook (Gordon Clissold pers. comm.). There are no known records of this, although a short section of a leat was uncovered and a slag deposit noted in the stream. A small meadow above displayed charcoal blackened soils when ploughed in the early 1980s (Ian Standing pers. comm.).

Gunns Mill, Abenhall (Shoesmith 1988, Davenport 2015) and Elmbridge, Newent (Gillett 2006) have been the subject of building recording, and Gunns Mill has also had a dendrochronological survey undertaken (Howard *et al* 2001b). There have been few assessments of the industrial residues from these sites with the exception of a very rapid assessment of the potential of slag recovered from Lydney Furnace (Vallender 2000) and a technological report on brass manufacturing residues from Prestbury Farm, Taynton (Dungworth and Wilkes 2010).

8.3 Non-ferrous metals

There were attempts at non-ferrous mining in the May Hill area, which may have been more successful than the poor surviving documentation suggests. In 1676 John Claypole attempted to develop 'rich' silver mines (probably using an argentiferous lead ore) on two sites at Taynton Magna and around 1680 took over a gold mine at Little Taynton (David Cranstone pers. comm.), although the latter was not always economically viable (Bick 1987, 71).

Attempts were also made to mine gold in Lea Bailey near Drybrook area in the early 20th century, although the enterprise (which may partly have been an elaborate confidence trick) was also a failure (Hart 1944, 101-103) and the precise location of these mines, which may be just outside the district, is unknown.

Recent panning showed traces of gold in Glasshouse Brook in Rocks Wood on the Taynton/Newent boundary, and there are disused workings slightly further upstream with evidence of galena (lead ore), zinc ore, and probably copper ore. In 1754 Angerstein reported that a copper mine had been found some years before on 'Thownehill' (possibly May Hill) west of the Gloucester-Upton road (Bick 1987, 71-72; Berg and Berg 2001, 171). It is not clear how successful these were, but the nearby brass works at Prestbury Farm (see below) suggests that these may have achieved some production.

Copper was also manufactured at Redbrook from the 17th century, although this used copper ore from Cornwall which was shipped up the Wye from Chepstow (Hart 1971, 105), rather than the limited resource

available in the Taynton area (see above). The majority of buildings associated with the site are now thought to have been destroyed in the early 1990s (Glos HER 2015). Copper smelting slags were often cast into blocks and used for construction and the distinctive black slag blocks can be found in a number of buildings in the Wye and Severn valleys. These could have been sourced from copper smelting works at Redbrook or in the Bristol area, and perhaps also from the later copper works at Swansea (Spry 2003, 36), although those found in the Wye Valley, and particularly the cluster around Redbrook (Spry 2003, fig 6), were almost certainly derived from the Redbrook copper works.

There was also a brass mill close to Prestbury Farm, Taynton. Nothing now survives of the structure (Cross 1982, 70), but residues found on the field surface have, however, been the subject of a technological report (Dungworth and Wilkes 2010). There may also have been a brass mill at Brass Mill, Newent where Cross (1982, 70) reported pins were manufactured as recently as the 19th century. No remains of this site are known, and although there is evidence that pins were manufactured at this site in the 17th century, it is not clear when the works ceased production (David Dungworth pers. comm.).

8.4 Wood: Charcoal production

Charcoal was used in iron smelting and a variety of other industrial processes throughout the bloomery and early blast furnace periods, and demand in the Forest of Dean was high, before coke began to gain predominance in the 19th century.

Despite the importance of this resource there has been little research into the industry as a whole either nationally or within the Forest of Dean. Charcoal production methods are covered in general works (Armstrong 1978; Kelly 1996) and historical records relating to charcoal production in the Forest of Dean are summarized in general histories such as the Victoria County History volumes 5, 8, 10, 12 and 13, although this tends to record the numbers of illegal charcoal burning sites in the Royal Domesne in the southern part of the district, or the number of charcoal burners in a given parish at a given date. Hart (1966 and 1968b) discusses charcoal production in the Royal Domesne during the medieval and post-medieval periods and contains details of the numbers of charcoal burners at certain times and their disputes with the Crown. It also outlines the economics of charcoal production and types of wood used at different periods. The post-medieval industry of both charcoal production and wood distillation, principally within the southern part of the district in the area of the Statutory Forest, is also outlined in Hart 1966, 1968b and 1971.

8.4.1 Early charcoal production

There is no direct evidence for prehistoric or Roman charcoal production in Dean, although a feature excavated at The Chesters, Woolaston was interpreted as a charcoal store (Fulford and Allen 1992, 177) and it is not clear how charcoal was produced during this period.

The earliest form of charcoal production is generally considered to have been in pits with production in above ground clamps (a stack of timber which was covered in earth and burned in a very limited air supply to produce charcoal) being a later innovation. Terminology is inexact and above ground charcoal clamps are known by a number of names including 'hearths', 'kilns' 'pits', or 'pitsteads' (Armstrong 1978; Rotherham *et al* 2008, 21) and medieval records of 'charcoal pits' in the Forest of Dean (Jurica 1996f, 346) need not indicate pits rather than clamps. No charcoal production pits are known for certain in the Forest of Dean (or in Gloucestershire) and recognized examples tend to be in northern England, Scotland, Ireland and Scandinavia, although few have been excavated or dated. Examples from Trondheim, Norway and Eyjafjallahreppur, Iceland have been dated to the medieval period (Berg 2009, 127; Church *et al* 2007) and early medieval charcoal pits have been excavated at Russagh, County Offaly in Ireland (Kenny and Dolan undated). In Argyll and Bute, Scotland a number of excavated charcoal pits were either undated or were last used in the post-medieval period (Rennie 1991) as above-ground clamps was not introduced until the 16th and 17th centuries when increased demand required more efficient production methods (Rennie 1997, 173). In England, possible evidence for early charcoal production in pits is restricted to an early Bronze Age trench in East Anglia and trenches excavated at a Roman smelting site at Wakeley, Northamptonshire (Tylecote 1986, 225).

Charcoal platforms, level areas where charcoal was produced above ground in stacks or clamps, are abundant in the Forest of Dean with over 1200 recorded on the County HER. Many of these have been recognized from aerial photographs (Small and Stoertz 2006; Crowther and Dickson 2008; Priest *et al* 2008) and field survey (Blake and Briscoe 2002, 9; Monmouth Archaeology 2002; Hoyle 2003a, 2003b; 2008b, 32, 41, 47, 71) although the majority, some 942, were identified by lidar in the southern part of the district. This distribution may have been skewed in favour of the area covered by the 2006 lidar survey, although medieval

records suggest a significant number of charcoal production sites in the southern part of the district, particularly in the Statutory Forest (the former Royal Demesne (Jurica 1996f, 34)) and a higher concentration of charcoal platforms would be expected in this area. Lidar also tended to identify sites on steeper slopes where a clearly-defined platform was created, and charcoal platforms on more level terrain may not have been recognized by that survey (Hoyle 2008c, 78-79).

Few of the lidar-detected sites have been ground-truthed or investigated in any way, and although their interpretation as charcoal platforms is probable, excavation of similar features in Argyll demonstrated that only a proportion were used for charcoal production (Rennie 1997, 167) and alternative interpretations for some of these features remains possible.

The date of most charcoal platforms is unclear as few have been investigated or dated, and these features have a wide potential date range, although even when dating evidence is available it can only date the latest burn on a site which may have been periodically reused for generations

Many charcoal platforms recorded on the county HER have been assigned a medieval date, although classical writers attest that the Romans certainly produced charcoal in above-ground clamps in the Mediterranean (although pits may also have been used (Sim and Ridge 2002, 35)) and this technology may have been introduced by the Romans.

A 3m wide area of burning excavated at the 2nd-3rd century iron working settlement at Bardown, Sussex has been interpreted as the base of a charcoal clamp (Cleere and Crossley 1985, 304), although no other charcoal clamps have been dated as Roman. A platform at Llanelen, Gower, dated from the 13th to 14th centuries (Kissock and Wright 2001) whilst a platform at Lower Wetmore, South Gloucestershire, which produced no dating evidence, was thought to be 18th or 19th century (Hendry *et al* 1984, 53).

In the Forest of Dean 12th to 13th century pottery was found during an excavation of a charcoal platform at Blakeney Hill, which may also have been a smelting or smithing site (Johns 1991, 10), whilst post-medieval (16th-18th century) pottery has been found within a charcoal platform in Cadora Woods, overlooking the River Wye to the south of Lower Redbrook (Monmouth Archaeology 2002). Excavation of a charcoal platform in Welshbury Wood, Blaisdon produced no artefacts but a fragment of charcoal from its base suggested it was in use during the late 18th to early 19th century (Hoyle 2008b, 28). Undated oval spreads of charcoal (c. 0.4-1.2 x 0.35-0.6m) excavated at Stowe Quarry, Clearwell have been interpreted as evidence for charcoal production (in which the charcoal would have been produced above ground rather than in a pit) associated with 7th to 9th century smelting (Pine *et al* 2009, 24-25). These spreads were very small when compared to later examples of charcoal clamps which measure 3-5m in diameter (Kissock and Wright 2001, fig 4; Hoyle 2008b, Fig 9)) and may represent storage rather than production. A shallow sub-circular scoop (c. 1m x 2m x 0.20m deep), and three similar unexcavated features east of Lydney Road, Yorkley have also been interpreted as charcoal platforms (Havard and Guarino 2015, 8), despite an apparent lack of charcoal from their fills. These were associated with evidence for smelting which may be Iron Age, but seems more likely to be early medieval in date (see above).

There continued to be a high demand for charcoal until the 19th century when coke began to replace charcoal as the principal fuel for smelting (see below), and charcoal continued to be produced in the traditional clamp system. Although traditional charcoal burning was in decline during the 19th and 20th centuries, there was still a demand and charcoal continued to be produced commercially in clamps (albeit on a diminishing scale) until the Second World War when portable metal kilns were introduced (Hart 1971, 329).

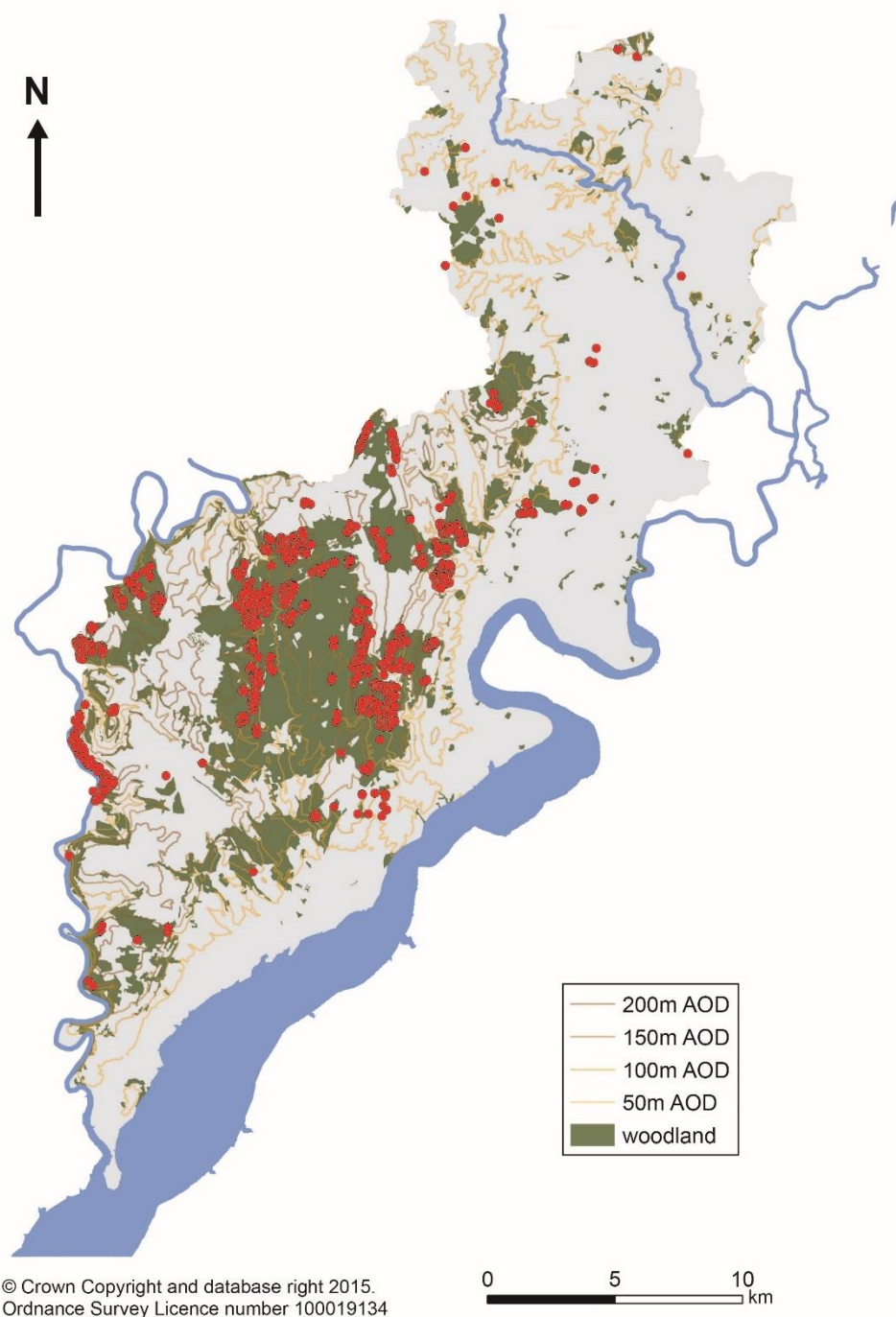


Figure 28: All recorded charcoal platforms

8.4.2 Woodland management for charcoal production

Charcoal was produced from a range of deciduous trees during the Roman period, and oak heartwood appears to have been the most common at early Roman sites such as Dymock and Sallowvallets Wood, Cannop (Gale 2007, 213-214; Challinor 2007, 233; Pearson *et al* 2012, 118), although the evidence from Reddings Lane Staunton near Coleford is less clear (Ellis 2013, Appendix D, Table 1). Later in the Roman period oak was still used in charcoal production (but rarely from mature trees) and small deciduous roundwoods (typically hazel, elm, birch or hawthorn) became more common and were used at The Chesters, Woolaston (Figueiral 1992, 191) and Millend, Blakeney (Gale 2012, 167) during the 3rd and 4th centuries and at *Ariconium* in the late 2nd century.

Cleere and Crossley (1985, 37) have suggested that, in the Weald at least, there is little evidence for deliberate selection of wood for charcoal production. A lack of selection of wood species for charcoal production has also been noted at Dymock (Challinor 2007, 233-234) suggesting that the preference for oak in Roman charcoals may simply indicate this was the most common tree in the Forest of Dean at that time.

The preference for oak heartwood during the early Roman period and the subsequent increase in the use of charcoal from smaller deciduous round-woods may suggest that more woodland was managed as coppice in the Roman period, perhaps to ensure a regular supply of a resource which was under pressure from high demand, or over-exploitation. A cautious approach should, however, be adopted before accepting this interpretation at face value as it is not clear to what extent coppicing can be confidently differentiated from natural scrub and underwood from charcoal remains alone. Gale (2012, 16) suggested that wide growth rings and a straight rod-like form from charcoal at *Ariconium* indicated coppiced woodland as a source, whilst Figueiral (1992, 91) suggested that charcoal from The Chesters, Woolaston was derived from coppice as the most recent annual growth rings were very close together.

Coppiced woodland has, however, been known in Britain since the Neolithic, as coppiced wood was used in the Sweet Track excavated in the Somerset Levels (Hey 1986, 505) and classical writers indicate that the Romans were aware of the principles of managing woodland as coppice (Columella, *Res rustica* IV, cited in Rackham 1995, 74). Bloomery smelting required large amounts of charcoal and, although the quantity needed to smelt 1 tonne of iron appears to have varied depending on the nature of the iron-ore, it has been estimated that at *Ariconium* 1000kg of charcoal would have been used to produce 330kg of bloom (from 1000kg of ore) with at least a further 1000kg needed in the subsequent smithing processes to create 75kg of forgeable iron (Jackson 2012, 193, 196). By this calculation 1 tonne of finished iron would have consumed 26.6 tonnes of charcoal. 26.6ha of coppiced woodland would have been needed to produce this quantity of charcoal (Fulford and Allen 1992, 191) and Jackson (2012, 196) has suggested that the production of charcoal to fuel the Roman iron industry must be regarded as a significant industry in its own right. Given this demand, it would seem likely that large areas of woodland in the Forest of Dean were managed primarily for the production of charcoal during the Roman period, and that this management involved some form of proactive coppicing, rather than simply exploitation of naturally occurring scrub and underwood.

Charcoal from 8th-9th century smelting at Clearwell Quarry, St Briavels was dominated by mature oak (with a secondary use of hazel, birch, wild cherry or ash) although there was no direct evidence for coppicing (Pine *et al* 2009, 36).

No later medieval charcoal assemblages from the district have been studied, although Hart (1968, 33-34) notes medieval records of charcoal burning in the Royal Demesne in the southern part of the district. In this area charcoal burners were using maple, thorn, hazel and dead wood in 1237, underwood in 1325 and in 1565 'underwood together with the lopping and shredding [branches cut from mature standards]' were sold to the 'ore-smiths' (Hart 1968b, 33-34). What is not clear from these records, however, is the extent to which these were the products of coppice or exploitation of naturally occurring underwood and scrub. In 1237, however, Henry III ordered that underwood should only be cut in the dormant season and in a way which allowed for regrowth so 'that no damage should befall the coppice [*coepecia*]' and also that areas should be enclosed 'so that no beasts shall enter to browse there' (Hart 1995, 293). This clearly indicates proactive management of the underwood which is difficult not to interpret as coppicing, although how extensive this practice was, to what extent naturally occurring underwood was also exploited and the point at which the two practices can be differentiated in any meaningful way is not clear.

Some of the woodland in the district was certainly managed as coppice by the late medieval period as eight areas of coppice are recorded on the 'fringes' of the Royal Demesne in the mid 16th century, most notably at Chestnuts Wood, Littledean, Bradley Hill, west of the Soudley Brook, and the Kidnalls, north of Lydney (Herbert 1996h, 362), and by the mid 17th century coppicing was widespread with over 16 coppices named in legal documents dating to 1634 and 1656 (Hart 1996, 68, 108-111). This may represent an increase in managed coppice during this period, perhaps to ensure a consistent supply for the newly introduced charcoal-fired forges and furnaces (Dave Cranstone pers. comm.), although these may be coppices which originated earlier in the medieval period.

The management of woodland as coppice in the Roman and medieval periods is often assumed, and although the limited available evidence hints that this was the case this remains largely speculative. Exploitation of mature timber (including removal of smaller branches from standards) and unmanaged underwood and scrub also seems to have occurred. The relationship between these different resources at different times and the relationship of all woodland management or exploitation with the charcoal production and with iron smelting in the Forest of Dean is poorly understood and warrants further research.

8.4.3 Later charcoal production and wood distillation industries

Although charcoal continued to be produced in a traditional way until at least the Second World War (Jurica 1996f, 346) new production methods began to be introduced from the early to mid 19th century. Wood

chemical works (steweries or distilleries) were established at Broadmoor, Tufts, Whitecroft, Lydbrook, Cannop and Oakwood, all within or close to the Statutory Forest in the southern part of the district, as a means of profitably utilising unsalable timber (Russell 2000, 207-208). At these sites wood was heated in cylindrical vessels (retorts) to separate liquids and solids and the liquids further processed through distillation to separate it into its constituent elements. A range of products were produced including acetate, acids used in the dyeing industry, wood tar which was used in ship building and also charcoal which, although no longer needed to fuel blast furnaces, had a range of industrial uses (Hart 1971, 343). Cannop, Oakwood, Whitecroft and Broadmoor had closed by the early 20th century, although Lydbrook continued until after The First World War, whilst Tufts was operational until 1948 (Hart 1971). A new distillation works was opened on Speech House Road, just to the west of Speech House and immediately south of the old Cannop works, in 1914, principally to provide acetone for the arms industry. This remained open, latterly for charcoal production, until 1970 (Deeks 2010). All of these works have now been demolished to a greater or lesser extent, although, in common with the remains of many industrial sites, information about what currently survives is erratic. All do, however, have potential for buried remains in the form of building foundations or other underground structures such as storage tanks. Broadmoor Chemical works, which is now used as a timber yard and where the stables, smiths shop and other remains survive (Cranstone 2009b, 76), might be the best-preserved wood chemical works in the Forest of Dean, although this has never been evaluated. The wood-based chemical industry of the Forest was generally small-scale and of limited importance in its own right, but represents the first stages in technological developments which became of major importance for the later chemical industries based on coal and oil. This industry has been little studied and all known sites with surviving structures or good potential for below ground remains should be considered of potential significance (Cranstone and Rimmington 2000, 51).

8.4.4 Tanneries

Oak bark was used in the tanning process and plentiful supplies, particularly in the southern part of the district supported tanneries from at least the medieval period (Jurica 1996f, 347). The historical evidence for the medieval and post-medieval tanning industry is summarised in the Victoria County History of Gloucestershire volumes 5, 10 and 12). The majority of references to tanning are in the southern part of the district, although tanning was an important industry in Newent in the early post medieval period (Herbert 2010a, 66) and there was also a tannery at Huntley in the 1680s (Jurica 2010d, 187). Bark supplying the tanning industry was also produced in woodlands at Dymock and Oxenhall (Jurica 2010a, 154; Herbert 2010b, 273).

The physical remains of the tanning industry are all post-medieval in date and buildings used as tanneries are known at Tan House, Woolaston; Tanhouse Farm, Blaisdon; Tanhouse Farmhouse, Newland; Clearwell; Lower Mill and the Old Tannery, Blakeney; Tan House, Newent; Tanhouse Farmhouse, Newnham; Collow, Newnham, Tan House Mill to the south of Longhope and Stenders Road, Mitcheldean. All of these buildings are currently occupied, although only three are listed. Ancillary structures such as bark mills are also known at Tanhouse Farmhouse, Newland and Lower Mill, Blakeney (Glos HER 2015), whilst tanning sheds survive at Tan House, Newent (Cross 1982, 63) and Collow, Newnham (Hart 1971, Fig 40), although it is not clear what other tanning-related features survive at these sites.

8.4.5 Lime

Limestone has been quarried for lime in the district since at least the medieval period (Jurica 1996f). Lime has been used to make mortar from the Roman period in Britain (Williams 1989, 3) and there can be little doubt that this took place in the Forest of Dean at that time (see above), although there is no direct evidence for either Roman or medieval lime production in the district.

There was a great increase in demand for lime for construction projects and agricultural use from the later post-medieval period and many of the post-medieval quarries in the district are associated with stone-built lime kilns. The County HER currently lists 181 limekilns within the district, although many of these have been identified from 19th and early 20th century map sources (principally the Ordnance Survey) and only four are outside the southern part of the district which was covered by the Forest of Dean Archaeological Survey, where these sources have been systematically searched. This distribution may partly be a result of differential investigation, but probably also reflects the limited limestone resources available in the northern part of the district. Some surveys have been undertaken to record the current condition of selected limekilns in the district (Bick 1984; Wilkinson 1992a; 1992b; Phimster and Bashford 2007), although only a small proportion (estimated at less than 20%) of known limekilns have been included in these and the current condition of the majority of limekilns is unknown. Few limekilns are protected as only two within the district (at Green Bottom, Mitcheldean and in Hewelsfield Cliff Wood, Hewelsfield) are Listed Buildings, and one (at Lydney Docks, Lydney) is part of a Scheduled Monument. Some limekilns in the district, for example the Vention Limekilns,

Lydbrook, and a lime kiln at English Bicknor, have been consolidated or repaired to some degree, whilst a limekiln at Lancut is being consolidated. In the early 1990s a conservation needs report was commissioned by the Nature Conservancy Council (now English Nature) on the remains of a number of limekilns in Highbury Wood near Ruardean which are of unusual dry stone construction, although there are no records that conservation works were undertaken (Ian Standing pers. comm.). These represent only a tiny proportion of all known sites and at least three (at Drybrook Quarry, Drybrook; White Cliff Quarry west of Coleford and Great Hoggins Farm St Briavels) have been destroyed since they were originally recorded.

8.5 Other industries

8.5.1 Mills

Mills driven by water were introduced to Britain during the Roman period and a number of Roman mill sites have been identified. No Roman water mills are currently known in the Forest of Dean, although millstones from The Chesters Roman villa, Woolaston (see above), which have a diameter of c. 80cm (Scott-Garrett and Harris 1938, Plate II-B, 122-123), were presumably from a water-powered mill. These had been reused as paving stones and no evidence for the mill itself, or associated water features, has been recorded. Other quern stones have been found at a number of Roman sites in Dean (see above) although none of these are likely to be from water-powered mills.

Many more mills are known from the medieval period and 21 are recorded in the Domesday survey of 1086. Mills are recorded at Alvington, Awre, Hayes and Ketford in Pauntley parish, Kilcot, Longhope, Lydney, Morwents End near Westbury on Severn, Pauntley, Redmarley D'Abitot, Rudford, St Briavels, Staunton near Corse, Upleadon and Woolaston, whilst three mills are recorded at both Murrell's End in Hartpur parish and Newent (Moore 1982). Most (if not all) of these are likely to have predated the Norman conquest.

The HER lists 33 water mills which are known to have existed in the medieval period and a further four sites which are probably the sites of medieval mills, but whose status is not clear. In addition to this, there are a further 16 sites where there is evidence for ponds, leats or other water features associated with medieval mills (Glos HER 2015). Windmills were also in use in the district during the medieval period and ten probable windmill sites are known either on the basis of documentary records, place names which suggest the site of a former windmill or undated mounds which have been interpreted as windmill mounds (Glos HER 2015). None of these sites has, however, been investigated further and no definite medieval windmill sites are known.

In the post-medieval period mills became more prevalent with over 90 examples of water powered mills known in the district, many of which are associated with surviving evidence for leats or ponds. Not all of these were used to grind cereals and fulling mills and paper mills were common whilst a single silk mill was known at Coleford. In fact, many mills had multiple uses, changing use during their life, and a number of mills (for example the paper mills at Gunns Mill, Abenhall and Camp Mill, Soudley) were repurposed from former iron furnaces or forges.

Information about post-medieval mills is contained in the general industrial histories of the area (Hart 1971), gazetteers of industrial sites (Awdrey 1983; Bick 1980a, Cross 1982; GSIA 1992; 2005) and relevant sections of the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13). Mills in Forest of Dean District are included in Beacham (2005), which provides a detailed gazetteer of windmill and watermill sites in Gloucestershire, and some are also included in works discussing mills of a particular type (Shorter 1952; Beacham 2013) or within a particular area (Cave 1974; Davies 1966; Demidowycs 2001; Viner 2006). Information about the 10 listed mills and the single scheduled mill (Gunns Mill, Abenhall) is contained in the relevant documentation for those designations (DoE 1988).

A number of these are known to survive as standing structures including the 10 listed sites and Gunns Mill, Abenhall, the only scheduled site, which is in a ruinous condition and programmed for conservation using funds from the Heritage Lottery Fund. Gunns Mill (Davenport 2015) and Pauntley Mill, Pauntley (Watts 2011) are the only water mills which have been the subject of an architectural survey, and consistent information about the current state of preservation of many of these mills is lacking. Mills (and all other water-powered industries – see above) are also associated with ponds, leats, dams or other features necessary for the controlling or harnessing of water supply. Numerous examples of these are known in the district and the HER records 33 leats, 26 dams and 49 ponds which are likely to be industrial in origin. Leats in the Taynton area have been researched (Bick 1999) although the condition or survival of many of these relic water features is either unknown or has not been well documented. Significant industrial ponds survive at Clanna and to the south of Cannop, although Sutton Ponds at Soudley are probably not industrial in origin (Pope 1990), and

ponds at Mallards Pike, which were not recorded before the mid 20th century, appear to have been created for recreational purposes.

Wind power continued to be used during the post-medieval period with 15 windmills recorded in the district, although structural remains are known to survive at only one of these (Tutshill Mill, Tidenham) which was converted to a folly after it ceased operation in the late 18th century (Cross 1982, 55).

From the 19th century steam power began to be introduced and purpose-built steam-powered mills are known at Cross Mills, Longhope; Steam Mills, Cinderford and Blakeney (Cross 1982, 56; Herbert 1996k, 37, Hoyle 2009, 30), whilst a mill at Oakwood was using steam by 1885 (Jurica 1996f, 346). The mills at Longhope and Steam Mills both retain surviving structures, although neither has been surveyed in any detail.

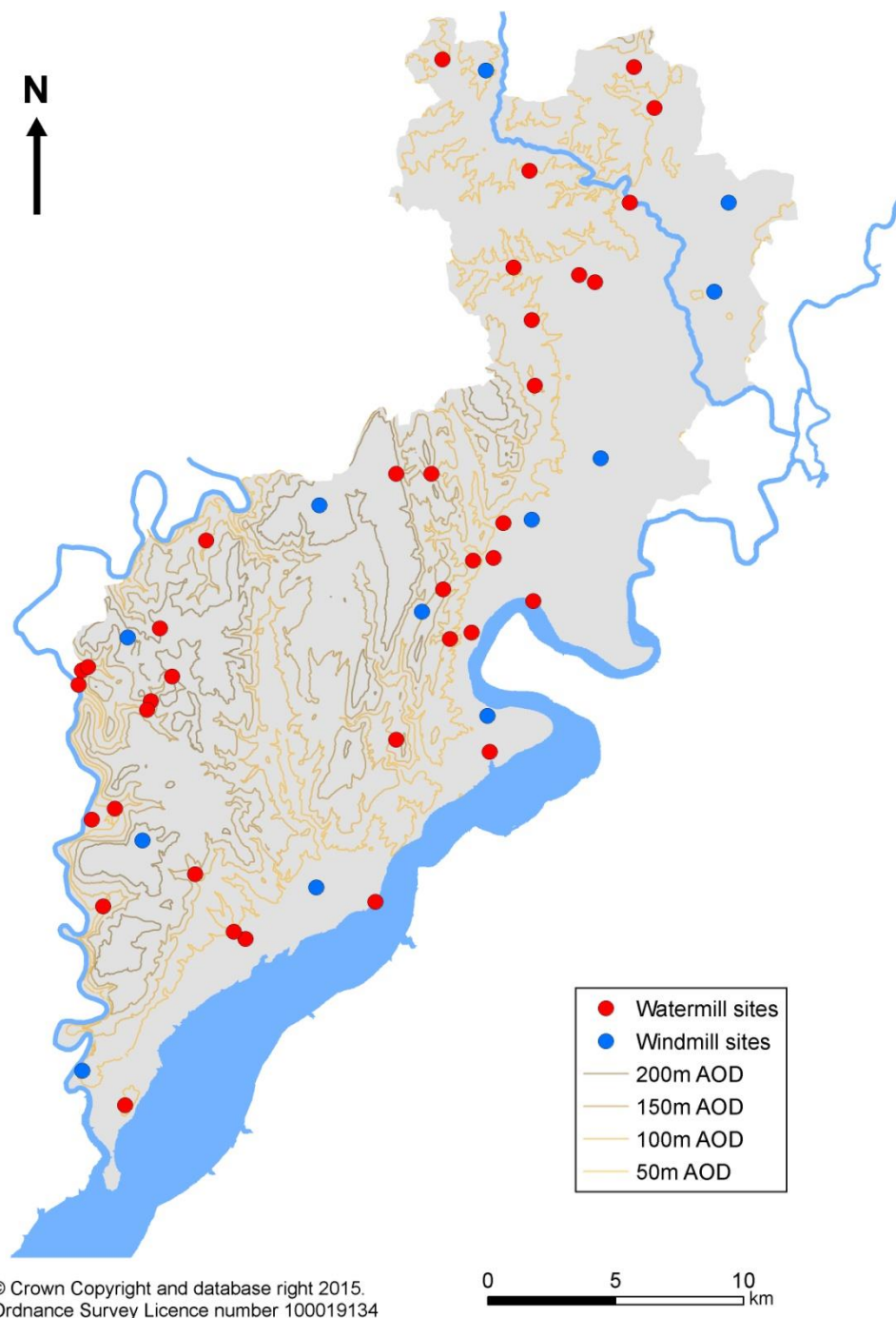


Figure 29: Recorded and possible mill sites

8.5.2 Pottery

Pottery production within the Forest of Dean is not well understood. Remains interpreted as a Roman pottery kiln were excavated to the east of Sedbury Park, Tidenham in the 19th century (Ormerod 1861, 46), and Roman pottery wasters and possible clay extraction sites have been recorded at the Moat, Newent (Walters 1990c, 27). Pottery was also manufactured at Dymock in the Roman period (Timby 2007, 167) where a small up draught kiln has been excavated at Western Way (Crooks 2014, 16-17).

There were a number of post-medieval potteries in the district, but the industry has not been well researched. Evidence for 15th to 17th century pottery manufacture was found during road widening at Stroast, Tidenham (Blake 1994; Hart 1969, 60) and documentary evidence records a pottery at Whitecliff, Coleford between 1720 and the 1880s (Jurica 1996e, 131). A 17th and early 18th century pottery kiln has also been excavated in Haind Park Wood, Dymock (Abbott 1965; Unknown 2001) and the records and finds are currently held in Gloucester Museum, although the site has never been properly published. Pottery was also manufactured at Glass House, May Hill in the 17th and 18th centuries. No excavation has been undertaken at the site, but a considerable amount of material collected from field surfaces during systematic fieldwalking has been reported (Vince 1977). The remains of a 19th century pottery kiln have also been recorded at Fetter Hill south east of Coleford (Marsden and Mayer Jones 1986).

8.5.3 Glass

Glass was manufactured at Glasshouse, May Hill in the late 16th and early 17th centuries and residues recovered from field surfaces (see above; Penn 1983, 7) have been subjected to scientific analysis (Dungworth 2010). There was also a 17th and 18th century glassworks at Newnham on Severn where innovative coal-fired furnaces may have been used (Penn 1983, 8), although the furnace was demolished in the early 18th century. No remains of this structure are known and no investigation of the site has taken place.

8.5.4 Miscellaneous industries not covered by this resource assessment

The district contains evidence for numerous minor post-medieval industries such as brewing, malting, food processing, engineering, ladder manufacture, plywood manufacture or rubber manufacturing (Ray Wilson pers. comm.). These are not reviewed in detail in this resource assessment, although industries of this type (many of which date to the 20th century) are a feature of the industrial history of the district and would warrant more research than has been undertaken in the past.

8.6 Coastal and riverine industries

8.6.1 Salt

The production of and trade in salt has been important both economically and culturally since the prehistoric period (Morris 1994) and salt production, in which saline water was collected and evaporated, is known to have taken place in the Severn estuary since at least the Bronze Age. Excavations at Brean Down, Somerset have found evidence for Bronze Age settlement and salt extraction (Bell 1990, 171) and late Iron Age salterns are known in the Axe Valley and immediately west of Wedmore in Somerset (Leech 1997). Roman salterns have also been found at Huntspill, Somerset (Leech *et al.* 1983, Rippon 1997: 69-71), and also at Weston Super Mare (Mullin *et al.* 2009, 67).

No evidence for prehistoric or Roman salt production has been found on the northern shore of the Severn estuary within Forest of Dean District, although a salthouse with 30 packloads of salt was recorded at Awre in 1086 (Moore 1982, 163a) and salt may have been produced here and in other suitable parts of the Severn Estuary from a much earlier date. The site of this early medieval salt house and saltern is not known for certain, although it may have been on the same site as a salt pan and salt house recorded in Awre in about 1600 (Herbert 1996k, 38). This was probably near Whitescourt, close to the estuary to the south of the village where a field called 'Salt House Orchard' was recorded on the Awre tithe map of 1840 (Gwatkin 1995b), although no evidence for salt production has been found at this site.

In the post medieval period there was a failed 19th century attempt to produce salt from the water of a mineral spring at Ocle Pitcher Mill, Newent (Viner 2006, 33), but no other historic references to salt production in the Forest of Dean are known.

8.6.2 Shipbuilding

From at least the early post-medieval period ship building was widespread amongst the coastal communities of the southern part of the district both along the Wye and Severn, and historical records are documented in the relevant sections of the Victoria County History of Gloucestershire (volumes 5 and 10) and also summarised in Green (1995; 1996), Putley (1996) and Hart (1971, 415-417).

Shipyards dating from the 17th–19th centuries are recorded at Gatcombe, Lydney, Stroat, Tidenham, Newnham; Broadoak in Westbury-on-Severn and Woolaston along the Severn, and at Redbrook, Brockweir and possibly also Symonds Yat along the Wye (Elrington 1972, 43; Herbert 1972a, 72; 1972c, 96; 1996b, 220; 1996c, 74-75; 1996f, 156; 1996k, 39; Jurica 1996b, 112; Smith 1972, 113), although physical evidence for these sites is elusive. A linear marshy area to the west of Woolaston railway station is thought to represent the site of a 17th century boatyard (Scott-Garrett 1919-1958), although no other physical evidence of this industry has been reported.

The remains of locally built ships and trows may also provide evidence of post-medieval shipbuilding techniques. At least 18 wrecks are recorded in the Severn Estuary (Glos HER 2015) and the remains of at least four wooden trows or barges have been recorded in the inter-tidal zone at Lydney and Awre (Chadwick and Catchpole 2013, 53-55). A trow at the mouth of Lydney Harbour has been excavated (Williams and Clark 1992), and the remains of a trow have also been found embedded in the river bank at Brockweir (Hoyle 2007). It is not, however, clear if these boats were constructed locally.

Towards the end of the First World War a shipyard (National Shipyard No 2) was established at Sedbury (see above) as part of the National Shipyard Scheme (Allen 2000, 203; Small and Stoertz 2006, 116-117) and, although no ships were completed, slipways, jetties, accommodation barracks and a network of railway links are recorded on the 1921 Ordnance Survey map. Ceramic material relating to the shipyard has been recorded eroding from the banks of the Wye at Sedbury (Allen 2000, 204), and the Tidenham Historical Group have identified the remains of jetties and railway structures (including a section of narrow gauge railway) and also some intact buildings (Carol Clammer pers. comm.).

8.6.3 Fishing

Fishing in both the Severn and Wye has a long history in the Forest of Dean. The remains of wooden fish traps in the Severn Estuary at Beachley have been radiocarbon dated to the late 8th to 9th centuries AD, whilst another at Grange Pill, Woolaston dates from the late 9th to early 11th century AD (Chadwick and Catchpole 2010, Table 1). The Domesday Survey of 1086 records fisheries at Bledisloe in Awre, Stroat and Woolaston on the Severn, and on the Wye at Madgetts in Tidenham and St. Briavels. Tidenham, which is bordered by both the Severn and Wye, is recorded as having 58 fisheries in the Domesday Survey (Moore 1982), and presumably these were found on both rivers. During the medieval period fishing rights were owned by aristocratic landowners, religious establishments or the Crown and there is a considerable amount of documentary evidence summarised in the relevant sections of the Victoria County History of Gloucestershire (volumes 5 and 10) although as the terminology used in these documents is often inexact is not always clear what fishing methods were being employed (Chadwick and Catchpole 2010, 69-70).

A range of fishing methods appear to have been in use during the medieval and post-medieval periods and Putley (1999, 57-65) provides a useful summary of these whilst Chadwick and Catchpole (2010) outline the physical remains which can still be identified in the inter-tidal zone of the Severn. Although a number of dated medieval fish traps have been recorded in the Severn Estuary (see above), the vast majority of the 74 identified fishing-related structures on the HER are either undated or (more frequently) post-medieval in date. These include fish traps, fish weirs, putcher ranks and a range of miscellaneous wooden or stone structures in the inter-tidal zone. Of the 13 possible fish houses sited on the river bank, eight survive as standing structures, and two (at Newnham and Heald Farm, Westbury-on-Severn) are Listed Buildings. The others are generally in a ruinous or semi-ruinous condition. With the exception of two fish houses on the Wye (one at Lancut, Tidenham and the other close to Coed Ithel Weir, St Briavels) all recorded fishing-related structures are in the Severn Estuary. Almost half of these were identified during the fieldwork stage of the Severn Estuary Rapid Coastal Zone Assessment Survey which undertook systematic field survey in sections of the inter-tidal zone and foreshore (Chadwick and Catchpole 2010, 49). There has been no similar fieldwork in the foreshore of the River Wye and only approximately half of the Severn shoreline in the Forest of Dean was included (Chadwick and Catchpole 2013, Fig 2). Further structures would undoubtedly be discovered if a similar level of field survey were undertaken in these areas.

8.7 Industrial communications

Little is known for certain about the network of tracks or roads which must have linked the numerous smelting sites, mines and quarries, particularly in the southern part of the district, during the prehistoric, Roman or medieval periods. The Dean Road, a stone-paved and kerbed road from Lydney to Mitcheldean has been interpreted as a road constructed during the Roman period to transport iron-ore (Walters 1992, 68), although the date of this road has been questioned (see above). A number of trackways or holloways which are not modern forestry roads or appear to be associated with scowles or undated quarries have been identified in the woodland in the southern part of the district but none of these are known to pre-date the post-medieval period (Hoyle 2008c, 91-92).

During the post-medieval period the transportation needs of the growing industries in the Forest of Dean led to the increase and improvement of communications, and there is a considerable body of evidence on transport links during this period.

Information about industrial transportation systems and related structures is available in general industrial histories of the area (Hart 1971) gazetteers of industrial sites (Awdrey 1983; Bick 1980a, Cross 1982; GSIA 1992; 2005) and also in the relevant sections of the Victoria County History of Gloucestershire (volumes 5, 8, 10, 12 and 13).

Late 19th and early 20th century Ordnance Survey maps are also an invaluable source of information about post medieval communications, particularly railway and tramroad systems, as are other 19th century industrial maps, principally Sopwith's 1835 survey of coal and iron mines in the Forest of Dean (Gwatkin 1996, 1997a, 1997b, 1997c, 1997d). Earlier map sources (for example PRO 1608; Taylor 1777; Clissold 1982) can also provide useful information about road systems at the time when they were published. The railway systems in the Forest have been extensively researched (Clissold and Standing 1980; Norris 1979; Paar 1963; 1965; 1971; 1973; Pope 2011; Pope and Karau 1992; 1997; Standing 1983; Handley 1982, Handley and Dingwall 1998), as have the earlier industrial tramroads (Anstis 1986; 1987; Standing 1982; Paar 1977-78; Pope 1998; 1999b; Youles 2000; 2002) and the steam driven Brain's Tramway (Pope 2003). There has also been research into some specific structures associated with transport, such as an early failed attempt to tunnel under the Severn (Walker 2000) or the Lydbrook Viaduct (Unknown 2010).

The Hereford and Gloucester Canal which runs through the northern part of the district (Bick 1997; Hadfield 1960, 198) and the turnpike roads and toll houses in the district have also been studied (Bick 2002; Hirst *et al* 1999; Hirst and Walker 2010). Willan (1937) discusses the early post-medieval trade along the River Severn, and Putley (1999) is a useful summary of evidence for trade along both the Severn and Wye. Some of the Severn-side ports in the southern part of the district are discussed in Green (1995; 1996), whilst Newnham has been the subject of a more detailed study (Greenhill 1944). The Port Books for the Port of Gloucester from 1575 to 1765, which included all the river ports on the Severn from Beachley upstream to Shrewsbury including those within the district (although excluding internal river trade) are available as an online transcript (Wanklyn 1996) though in a rather complicated format. The Severn Estuary Rapid Coastal Zone Assessment survey has also surveyed sections of the intertidal zone of the northern shore of the River Severn at Beachley, Woolaston, Lydney, Awre, Newnham and Westbury (Chadwick and Catchpole 2013, Fig 2).

8.7.1 Roads

Before the 18th century all industrial products and timber in the Dean were transported by road, but although Turnpike Trusts were established in the mid 18th century their impact was patchy and many roads remained poor.

In the southern part of the district, however, the Crown maintained an interest in road maintenance primarily to improve the transportation of naval timber. Standing (1988, 39-43) has documented evidence for 'stoning' and 'filling' of roads which were constructed to serve increased traffic in timber and coal between 1680 and 1720. The Crown also provided financial support for the turnpike trusts and by 1856 there were 41 miles of Crown road in the Forest (Hart 1971, 391-392). The road system was still poor, however, and a number of trackways in the Cinderford, Popes Hill and Ruardean areas were upgraded in the late 19th century and a new road constructed between Lydney and Myreystock in the early 20th century (Pope 1991).

The tangible remaining evidence for turnpike roads takes the form of milestones and toll houses, and 41 milestones and 26 toll houses are known in the district. Field survey has demonstrated that only 13 of the toll houses still survive as standing structures, although two of these (at Rookery Lane in Newland and Purton) are in a ruinous condition (Hirst *et al* 1999). Thirty of the milestones survive, the remainder having been

identified from documentary sources, principally late 19th and early 20th century Ordnance Survey maps, although some have also been visited in the field (Bick 2002; Hirst and Walker 2010). Only two toll houses (Trow Green, Newland and Parkend) and 22 milestones are Listed Buildings.

The Statutory Forest in the southern part of the district also contains evidence for numerous post-medieval timber haulage roads which were created at the same time as the Crown Enclosures (see above) and which generally survive as low parallel linear earth banks (Small and Stoertz 2006, 77). Although many of these can be identified on late 19th and early 20th century Ordnance Survey maps, and are clearly visible on lidar (although for methodological reasons they were not recorded in the 2006 lidar transcription (Hoyle 2008c, 92)), they have not been well researched and, like Crown Enclosure boundaries (see above) there is very little information on the current condition of many of these.

The district contains numerous road bridges and 32 are recorded on the HER. Eight of these are Listed Buildings including the road bridges over the Wye at Bigsweir, Brockweir and Chepstow, and also the Severn Bridge which carries the M4 over the Severn and Wye at Beachley.

8.7.2 Tramroads

The terminology of rail transportation is confusing and contemporary records use interchangeable terms which do not specify the types of rails used or whether carriages or wagons were mowed by horse or steam power. This section follows the definitions of tramroads, tramways and railways set out in Pope (undated).

The earliest rail transport in the Forest of Dean were tramroads (also known as dramroads) which consisted of horse-drawn cars with unflanged wheels and which rode on L-shaped rails set on parallel lines of evenly spaced limestone blocks.

The earliest of these (Mr Teague's Railway) was constructed in 1795, linking a coal mine in Perch Enclosure to the road linking Coleford and Mitcheldean just less than 500m to its west. The following year Teague built another line (about 700m long) running northwards to the road. The tramroad was built without permission and met with considerable opposition from the Forest authorities who ordered it to be destroyed in 1796 (Anstis 1987, 6-8). By 1803, however, Teague had rebuilt the line (again in the face of opposition from the authorities) and extended it to the Wye at Lydbrook, a total of just under 5km. Although Teague's tramroad was a relatively short-lived and modest affair and had met with resistance from both the Forest authorities and other industrialists and free-miners, it established a principle for tramroad construction in the Forest. When it closed, sometime before 1815, three horse-drawn tramroads (the Severn and Wye, the Bullo Pill and the Monmouth) had already been constructed. By the mid 19th century there was an extensive network of horse-drawn tramroads linking the mines and ironworks within and close to the Statutory Forest in the southern part of the district with each other and with ports at Lydney, Lydbrook, Newnham and Redbrook (Jurica 1996f, 350-352).

In 1810 or 1811 work began on a tunnel under the Severn to provide a tramroad link (and also foot passage) between Newnham to Arlingham. The project was never completed although some surface remains survive close to the Severn to the south of Newnham (Walker 2000, 8-10).

In 1864 steam locomotives were introduced on the Severn and Wye tramroad (Jurica 1996f, 353), and tramways began to appear in some areas. Unlike tramroads, tramways were effectively narrow gauge railways which pulled small pit tubs on plain rails resting on wooden sleepers. The wagons ran on flanged wheels, like a railway, and were usually drawn by a locomotive rather than a horse. The longest was Brains Tramway which linked Trafalgar Colliery west of Cinderford with Drybrook and ran from the 1860s to the end of the 19th century (Pope 2003) although there were other tramways at a number of other industrial sites such as the collieries at Hawkwell, west of Cinderford, Hetwood and Flour Mill, Bream and also at Mireystock, East Slad and Lydney tinplate works (Pope undated).

Some smaller tramroads, generally linking quarries or mines to nearby railway connections, continued to use horse power into the early part of the 20th century, although horse-drawn tramways had largely disappeared by the end of the Second World War.

Outside the main industrial area centred around the Statutory Forest in the southern part of the district the only known tramroad was a short stretch of a former railway branch line which linked the Wye Valley Railway with Tintern wireworks in Monmouthshire. This was reused as a horse drawn tramroad between 1901, when the wireworks closed, and the 1930s (Handley 1982). There is also no evidence that horse-drawn tramroads were constructed in the northern part of the district to service the mines around Newent.

The remains of many former tramroads survive as small embankments or cuttings and in places (for example Bixslade to the northeast of Coleford, at Darkhill furnace south east of Coleford and Oakwood Brook southwest of Parkend) stone blocks, which would originally have supported the rails, still survive. Few tramway rails are known to survive *in situ* and rails were often removed for re purposing or for scrap when lines fell out of use. A short section of L-shaped rail (possibly from the Oakwood Tramroad laid in 827) was exposed by water erosion close to the Oakwood Brook (Hoyle 2003) and more sections may survive in this area and in other parts of the Forest.

Some structures relating to tramroads also survive and the Gloucestershire Historic Environment Record lists 18 tramroad or tramway tunnels (eight of which are Listed Buildings), seven embankments (one of which is a Listed Building) and 26 bridges of which 14 are Listed Buildings. There are also 23 documented inclined planes, generally associated with collieries, iron works or quarries, although only four of these are protected by listing (Glos HER 2015).

There is inconsistent detailed information about the condition of many of the structures associated with the tramroad system, and of the surviving condition of many of the stretches of former trackway which link them. Some former tramroads are now reused as route ways, either for timber haulage or recreational use, and remains may be at risk unless surviving features are recorded and documented in the HER.

8.7.3 Railways

Like tramways, railways were driven by steam locomotives and had (and still have) flanged wheels which ran on plain rails supported by timber sleepers. Unlike the narrow-gauge tramways, which tended to have a gauge of around 2 feet (60cm), railways had either a wide gauge of 7 feet, ¼ inch (2.139m) or a standard gauge of 4 feet, 8½ inches (1.435m), although some narrow-gauge railways, which have not been classed as tramways, were known at Primrose Hill Brickworks, Lydney and there was also an unused line between Mitcheldean Road and Lea Bailey (Pope undated).

As early as the 1830s there was a proposal to build a steam-powered railway (the Purton Steam Carriage Road) to link a colliery at Foxes Bridge, just over 1km to the east of Speech House in the centre of the Statutory Forest, to a proposed crossing of the Severn at Purton which was to make use of an innovative 'movable bridge', a distance of about 11km (Paar 1965, 122). The scheme foundered, principally due to opposition from industrialists with a vested interest in the existing horse-drawn tramroad system, although not before a considerable amount of work had been undertaken. A three-arched viaduct immediately northeast of Purton was constructed and still survives as a Listed Building. The course of the line survives as embankments and cuttings for at least 1km to the north of this.

The introduction of steam railways to the industrial part of the southern Forest of Dean continued to be delayed by vested interests, although by the mid 19th century the tramroad system was becoming increasingly inadequate to meet the needs of mines and other industries. In 1851 the South Wales Railway Company opened a railway line from Chepstow to Gloucester along the northern shore of the River Severn. The company had also purchased the Bullo Pill tramroad and in 1854 this was replaced by a broad-gauge railway which linked the Gloucester/Chepstow line at Newnham with Churchway and Whimsey to the north of Cinderford (Jurica 1996f, 353). Other railway lines followed over the next 50 years replacing existing tramroads or creating new loops to mines, quarries or other works within or close to the Statutory Forest. Outside of this area the Wye Valley line, which ran between Chepstow and Tintern in the southern part of the district, was opened in 1876, whilst the Gloucester to Ledbury line, which transects the northern part of the District, was opened in 1885.

Towards the end of the 19th century the mineral railways serving the industries in or close to the Statutory Forest began to introduce passenger services, although this was always a secondary concern. The decline of local industries after the Second World War and changes in national transportation policies, which favoured road transport, saw the closure of many lines (Jurica 1996f, 350-354).

No railways are currently operational within the district with the exception of the line between Gloucester and Chepstow, much of which follows the northern shore of the River Severn, and the Dean Forest Railway between Lydney Junction and Parkend which is a volunteer-run heritage line.

Physical remains of the Forest of Dean's 19th and early 20th century railway system are abundant. The lines themselves can often be discerned as embankments or cuttings, sometimes bounded by remains of original fencing. The rails, sleepers and other track related items were generally removed shortly after the lines closed and many former railway lines are now used as paths, recreational cycle tracks or forestry roads.

Apart from the lines themselves, the Gloucestershire HER lists 304 associated structures, 172 of which are Listed Buildings. These include 94 bridges (44 of which are Listed), 75 sidings (44 of which are Listed), 55 stations (31 of which are Listed), 27 level crossings (15 of which are Listed), 16 tunnels (9 of which are Listed), 14 viaducts (13 of which are Listed) and 12 goods or engine sheds (7 of which are Listed).

As with the tramroad and tramway remains, although some surviving former railway structures and earthworks are well documented, detailed information about the condition or the survival of many remains is inconsistent. Many former lines are now used for either recreation purposes or as timber haulage of forestry vehicles and they are at risk unless recorded and documented in the HER.

8.7.4 Canals

In the northern part of the district the Herefordshire and Gloucestershire Canal ran for approximately 20km between Leddington in the north to Rudford in the south and its history is summarised in Bick (1979b). Although construction began in 1798 the canal, which included a coal branch between Oxenhall and a colliery at Hill House northwest of Newent, was not completed until 1845. The canal closed in 1881 and part of its bed was reused by the Gloucester and Herefordshire railway (Glos HER 2015). The line of the canal survives as a visible earthwork for much of its length and 12 locks, two bridges, a wharf at Newent and a 2km long tunnel to the east of Oxenhall survive as structures along its route. With the exception of one of the locks and the two bridges, all of the surviving structures are Listed Buildings.

In the southern part of the district a short section of canal was constructed in the 1790s to transport coke from the coke works at Broadmoor to the iron works at Cinderford. The canal was superseded by a later tramroad, and although earthworks survived until at least the beginning of the 20th century visible evidence for this canal no longer survives.

A 2.5km section of canal (Pidcock's Canal) was constructed in the late 18th century to link iron forges immediately north of Lydney to Lydney Pill which leads to the River Severn. This narrow canal was only able to accommodate small tub-boats and included no locks, but still survives as a water-filled feature for much of its length. In 1815 a feeder stream was built from Aylburton to the west of Lydney to meet the Red Hill stream which feeds into Pidcock's Canal to the southwest of the town. The western section of this feature survives as a water-filled culvert; its eastern section has been in-filled but still survives as a visible earthwork in places.

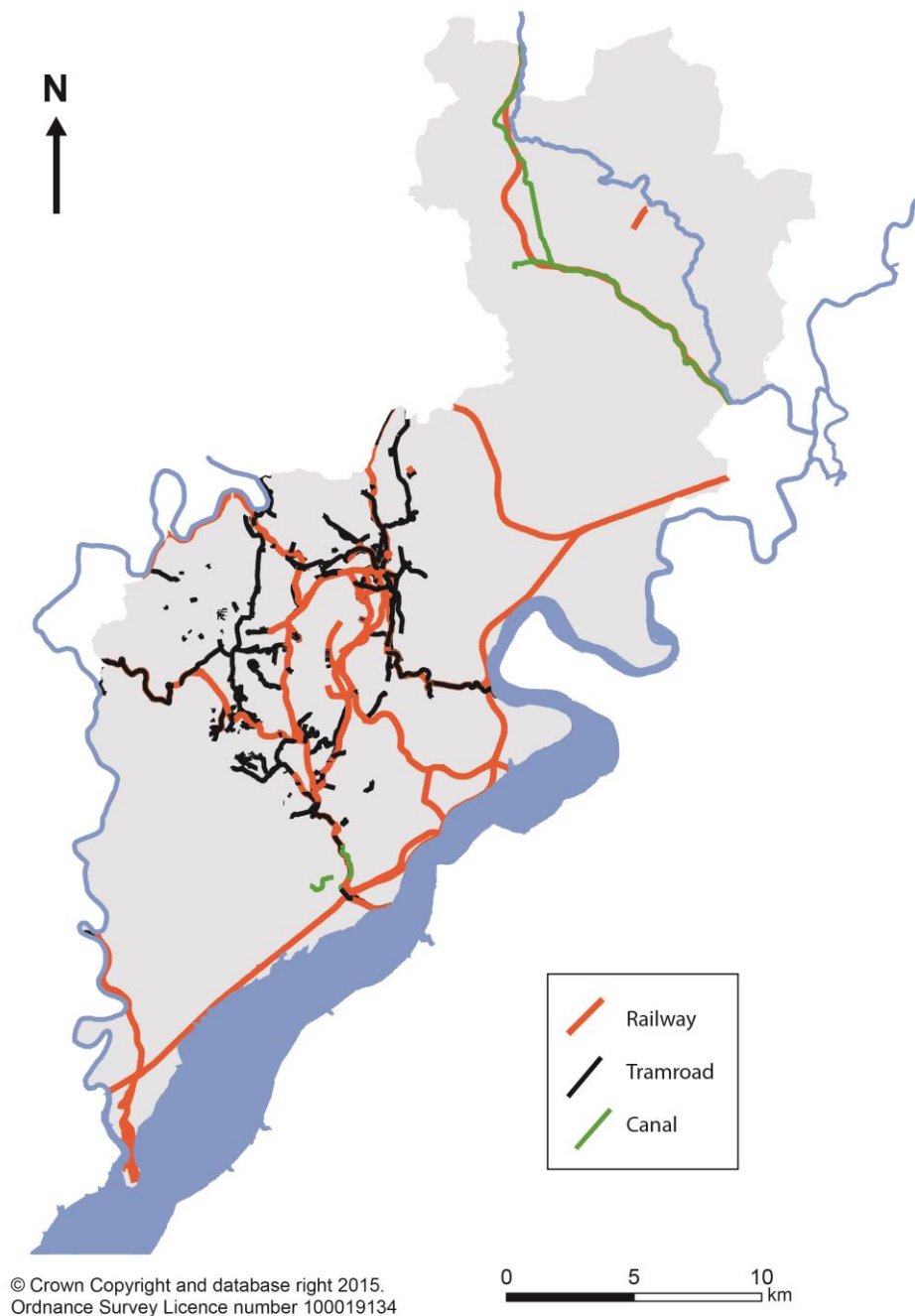


Figure 30: Post-medieval industrial communications

8.7.5 River trade

The Rivers Severn and Wye were also important trade routes, particularly for exporting timber and minerals out of the Forest. By the 17th century the Severn may have been the second busiest river in Europe after the Meuse (Williams and Clark 1992, 6) and in addition to the main ports, small-scale trade will also have taken place between the numerous pills along the Severn (Herbert 1972a, 72) possibly using small or temporary landing stages.

During the Roman period iron from The Chesters Villa, Woolaston may have been shipped along the Severn via Ley Pill, and Brims Pill, Awre may have linked Roman settlement at Blakeney with the river. Other sites were doubtless linked to the Severn in similar ways. Evidence for Roman river ports is, however, restricted to a possible wharf at Park Farm Villa, Aylburton (Fitchett 1986, 25), although features interpreted as navigation beacons have been excavated at The Chesters, Woolaston (Scott-Garrett and Harris 1938, 108-110; fig 2) and Park Farm, Aylburton (Fitchett 1986, 25), whilst a mound at Sedbury Park may also have been the site of a beacon to guide shipping (Ormerod 1861).

A stone-built medieval quay has been recorded at Grange Pill, Woolaston (Fulford *et al* 1992) and post-medieval ports, some of which may have originated in the medieval period (or earlier) are recorded at Newnham, Bullo, Gatcombe, Purton, Lydney and Aylburton along the Severn and Brockweir, Redbrook, and Lydbrook on the Wye. There is also documentary evidence for a former quay at Broadoak, Westbury-on-Severn, and the remains of wooden wharves or jetties of uncertain date have been recorded at Cone Pill and Alvington Pill, Alvington (Allen 2001b, 35; Putley 1996, 32) and at Woolaston (Chadwick and Catchpole 2013). There were also plans to build a port at Brims Pill, Arwe in the 19th century, although this was never completed (Green 1996, 107).

There is considerable documentary evidence for many of these sites (see above) although records of physical remains are more variable. These sites range from the massive stone harbour structures at Lydney with associated buildings and remains of an industrial scale infrastructure, through the stone quays at Brockweir, Gatcombe and Newnham (where warehouses are also found (Putley 1999, 26)) to truncated wooden piers indicating the site of a single jetty. The listed structures at Bullo Pill, Newnham and scheduled site at Lydney Harbour are well documented, but records of what survives at other sites is less consistent. Visible waterfront features were recorded as part of the Severn Estuary Rapid Coastal Zone Assessment Survey, but this only covered some sections of the Severn foreshore and did not include the Wye (Chadwick and Catchpole 2013, fig 2). Many known sites have not been investigated or consistently recorded, whilst others, particularly small-scale jetties may have eluded the historical record, doubtless await discovery.

Research Framework for Forest of Dean District

**Forest of Dean Archaeological Survey Stage 4:
Module 3**

Project Number 5291 ANL

Volume 3: Research Agenda



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9. Research themes and actions

The Regional Research Agenda of the South West Archaeological Research Framework (SWRRA) (Webster 2008, 269-294) includes a wide range of overarching Research Aims covering methodological approaches, and addressing period- or theme-based issues for the region.

The Forest of Dean Research Agenda does not replace the South West Archaeological Research Framework and all research directions set out in that document's Research Strategy for 2012-2017 (Grove and Croft 2012) should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.

It is not the purpose of this research framework to simply re-iterate these wholesale, although the Forest of Dean Research Agenda (FODRA) will work within the framework provided by the South West Regional Research Agenda adopting the same thematic approach and highlighting those themes and research aims which are of particular relevance to the Forest of Dean and enlarging upon them as appropriate.

Other research agendas of particular relevance to the Forest of Dean are the National Association of Historical Mining Organisations (NAHMO) research agenda for the Archaeology of the Extractive Industries (Newman 2016, Section 16), and the Historical Metallurgy Society's (HMS) archaeometallurgical research agenda (Bayley *et al* 2008, section 4). In addition, the key priorities and recommendation of the Monuments Protection Programme (MPP) Step 1 reports for the Iron and Steel Industries (Crossley 1992, 45-46), the Quarrying Industry (LUUA 1996, 55-59), the Coal Industry (Gould and Cranstone 1992, 34-35) and the Chemical Industries (Cranstone 2000, 51) are also relevant and reference is made to research aims set out in these documents as appropriate. The research agenda for 20th century defence heritage (Schofield 2004) is also referenced in section 9.18 (SWRRA Theme: Conflict). Notes towards a research agenda, conservation agenda and research design for Offa' Dyke produced for the Offa's Dyke Collaboratory (Ray 2017) are referenced in sections 9.16 (9.16SWRRA Theme: Social Relations) and 9.18 (SWRRA Theme: Conflict).

9.1 SWRRA Theme: Methodology

FODRA Research Aim 1: Further use of lidar: further analysis of existing data sets

Description	<p>Recent work in the Forest of Dean has demonstrated how effective techniques such as lidar have been for the identification of archaeological features in woodland, and also in more open areas where it complements other landscape-scale research techniques such as aerial photographic interpretation. Analysis of the existing lidar data has already produced significant results, but can in no way be thought of as complete. The majority of lidar-detected earthworks have not been validated in the field and whilst it is acknowledged that certain categories of earthwork (for example surface mining remains or charcoal platforms) can be reasonably interpreted on the basis of lidar information alone, this is a generalisation and certainly not the case with all categories of earthwork. Field validation is still a desirable first step for all investigations of lidar data. Only four lidar detected earthworks have currently been sufficiently investigated to allow reasonable interpretation and dating (Hoyle 2013a), and whilst interpretations from these have been extrapolated across to similar earthworks, more investigation is needed before these interpretations can be accepted with confidence and many other potentially significant earthworks are still poorly understood.</p> <p>The preliminary analysis of the lidar data was targeted towards the identification of new features (Hoyle 2008c, 22) and very little work has been done to systematically integrate the results of lidar information with HER records for sites which were known at the time of the survey (2006). In addition to this, lidar data for much of the area was recorded in a schematic fashion and not all feature types were recorded (Hoyle 2008c, 152).</p> <p>Within the Forest of Dean analysis of lidar has only systematically been undertaken on the area covered by the 2006 Forest of Dean lidar survey, which only covers a section of the southern part of the district (Hoyle 2008c, Fig 1). It was also included as a data set in the Severn Estuary RCZA NMP project which includes Westbury on Severn and the area to the south of Churcham in the central eastern part of the district, although lidar coverage was not complete (Crowther and Dickson 2008, Fig 1.1). Lidar data sets covering other parts of the district (for example those produced by the Environment Agency) have not been systematically analysed.</p>
Actions	<p>Review existing lidar transcription and undertake further more detailed transcription (perhaps of selected feature types) in line with Lidar transcription level 4 (Hoyle 2008c, 161-165). This will include transcription of information already recorded on the HER prior to the 2006 survey and also selected feature types which were not transcribed in the original survey.</p> <p>Undertake systematic analysis of the existing lidar data-sets which have not yet been accessed for archaeological purposes.</p> <p>Integrate information from existing lidar data-sets with HER information where this has not already been undertaken.</p> <p>Develop priorities for the ground-truthing of unvalidated lidar-detected earthworks.</p> <p>Develop priorities for and undertake further field investigation of lidar-detected earthworks which have already been validated.</p>
Contributes to	SWRRA Research Aim 1: Extend the use of proven methodologies for site location and interpretation, and encourage the development of new techniques.

FODRA Research Aim 2: Further investigation of NMP data

Description	NMP projects have covered almost the whole of Forest of Dean District and the information generated by these projects has now been integrated into the county HER. There has, however, been no integrated research into the actual date or status of many of the identified cropmarks, although some have been tested on an <i>ad hoc</i> basis as part of development-led investigations undertaken as part of the planning process (see above).
Actions	Develop priorities for and undertake further field investigation of selected crop mark sites which have been identified by NMP.
Contributes to	SWRRA Research Aim 1: Extend the use of proven methodologies for site location and interpretation, and encourage the development of new techniques.

9.2 SWRRA Theme: Spatial and Temporal Bias

FODRA Research Aim 3: Assessment of validity of current understanding of the distribution of prehistoric and Roman settlement patterns with reference to variables in current landuse and data collection methodologies

Description	Within the Forest of Dean, a considerable amount of information on the prehistoric and Roman periods is based on the results of surface artefact collections which have an inherent bias in favour of areas of arable cultivation and against areas currently under woodland. Little of this artefact collection has been undertaken in a systematic way and the results are also likely to be skewed by different collection methodologies and frequency with which artefacts are collected from the same area. This provides invaluable information for the assessment of the significance of assemblages which are frequently not well documented.
Actions	Undertake further research into collection methodologies of existing field walking assemblages. Re-assess significance of existing surface assemblages in the light of better knowledge of relative collection methodologies. Encourage a more systematic approach to future artefact collection. As much of this is undertaken by local volunteer groups this would involve direct mentoring of local groups and, if desirable, initiation of new artefact collection projects to address gaps in the current spatial distribution of known collections.
Contributes to	SWRRA Research Aim 3: Address apparent 'gaps' in our knowledge and assess whether they are meaningful or simply biases in current knowledge.

9.3 SWRRA Theme: Public Interest

FODRA Research Aim 4: Encourage public participation in archaeological research programmes

Description	Within the Forest of Dean there is considerable potential for wide public participation in archaeological research projects. Projects of particular value to the district would be: <ul style="list-style-type: none"> • Validation and rapid field survey of unvalidated lidar-detected earthworks both within woodland and in open farmland. • Assessment and rapid survey of physical survival of post-medieval industrial sites, structures and landscapes. • Condition surveys of Listed Buildings or Scheduled Monuments, particularly those on Historic England's Heritage at Risk register. • Further systematic surface artefact collection as set out under FODRA Research Aim 3.
Actions	Encourage participation of local volunteer groups through: <ul style="list-style-type: none"> • Liaison with suitable groups. • Development of suitable projects. • Researching appropriate funding sources, for example the Heritage Lottery Fund.
Contributes to	SWRRA Research Aim 4: Encourage wide involvement in archaeological research and present modern accounts of the past to the public.

9.4 SWRRA Theme: Recording

FODRA Research Aim 5: Re-analysis of existing surface artefact assemblages and the undertaking of further systematic collection where appropriate

Description	The significant assemblages of prehistoric flint, Roman pottery and bloomery slag, much of which has been collected from field surfaces, need to be re-assessed by competent specialists to determine the date range and significance of artefacts and also, where possible the relationship between datable pottery and slag assemblages. Any re-assessment of the significance of these assemblages should take into account assessments of methodological and spatial bias set out in FODRA Research Aim 3: Assessment of validity of current understanding of the distribution of prehistoric and Roman settlement patterns with reference to variables in current landuse and data collection methodologies.
Actions	<p>Identify the location of significant assemblages.</p> <p>Liaise with the owners of collections for access to the finds and any existing records of collection methodologies.</p> <p>Engage competent specialist to re-assess the date and significance of assemblages.</p> <p>Initiate new systematic artefact collection projects to address gaps in the current special distribution of known collections in accordance with FODRA Research Aim 3.</p>
Contributes to	SWRRA Research Aim 5: Encourage the study of artefact scatters using innovative methodologies both in the field and on previous collections.

FODRA Research Aim 6: Better integration of Portable Antiquities Scheme records and the Historic Environment Record

Description	The Finds Liaison Officer for Gloucestershire and Avon covers the Forest of Dean District and has received reports of over 6000 artefacts, the majority of which have been reported by metal detectorists. Systems to encourage the reporting of metal detecting finds within the district are already in place. These finds have the potential to be a huge resource to inform the archaeology of the district and their details have been added to the Portable Antiquities database. To be really meaningful to both researchers and planners, however, it is essential that this information is integrated with the County Historic Environment Record. Some attempts have been made to do this, but there are frequently difficulties with accurate locational information. Artefacts have occasionally been reported twice and Historic Environment Record is under resourced to check information or integrate it in a way which is both accurate and meaningful.
Actions	<p>Finds Liaison Officers should encourage metal detectorists to provide better locational information about recovered artefacts.</p> <p>The PAS database Working Group should investigate methods to improve the integration of PAS data to the HER,</p> <p>Historic Environment Records should receive additional resources to ensure that PAS information is both accurate and properly integrated into the HER in a meaningful way.</p>
Contributes to	SWRRA Research Aim 6: Encourage the accurate reporting and identification of metal-detected items in ways that benefit archaeological research as a whole.

FODRA Research Aim 7: Ensure best practice in the collation and deposition of archives from archaeological investigations in the district

Description	Professional archaeological investigations within the district are routinely archived with the appropriate museum in accordance with current professional guidelines and in line with museum specifications. There is, however, a need to ensure that independent researchers and academic organisations also prepare archives and deposit them in an appropriate way (see also FODRA Research Aim 13).
Actions	Encourage academic bodies, independent researchers and contractors to ensure that archives from archaeological investigations are prepared and deposited in accordance with current Museum guidelines. The Portable Antiquities Scheme should also encourage the archiving and deposition of recovered artefacts in an appropriate way.
Contributes to	SWRRA Research Aim 7: Increase and develop the recording of the built environment and improve recording of archaeological collections and other information sources.

FODRA Research Aim 8: Ensure accessibility of information through good communication links between all researchers (academics, contracting archaeologists, local groups and other non-professionals) and the HER and other accessible information repositories.

Description	It is already a standard condition for all archaeological investigations undertaken as part of the planning process that copies of all reports are submitted to the County HER where the information they contain can be added to the publicly accessible database and where the reports themselves can be accessed. There is, however, no imperative for contractors to submit reports to other publicly accessible repositories such as Oasis, or submit non-planning related research to the HER. The results of investigative work undertaken by independent researchers or academic bodies are also not routinely submitted to the HER or Oasis.
Actions	Encourage academic bodies, independent researchers and contractors to develop a protocol for submitting the results of archaeological investigations to the HER and also to other publicly accessible repositories such as Oasis.
Contributes to	SWRRA Research Aim 7: Increase and develop the recording of the built environment and improve recording of archaeological collections and other information sources. SWRRA Research Aim 12: Improve access to and synthesis of 'grey literature'.

FODRA Research Aim 9: Develop local lists of significant undesignated post-medieval and modern buildings, particularly industrial buildings

Description	Given the wealth of post-medieval and modern buildings and surviving remains within the district it is essential that protocols for assessing the relative significance of these are set up to ensure appropriate recording or preservation (see FODRA Research Aim 40).
Actions	Develop protocols for assessing significance of undesignated post-medieval industrial remains. Create local lists of significant undesignated post-medieval structures. Develop strategies for appropriate recording or preservation of post-medieval structures. Ensure conservation and development control officers in local authorities are aware of the significance of undesignated post-medieval and modern structures.
Contributes to	SWRRA Research Aim 8: Utilise the survival of Medieval and later artefacts and buildings to their full extent.

FODRA Research Aim 10: Develop recording strategies for recording surviving examples of medieval and early post-medieval vernacular architecture.

Description	The district contains numerous surviving examples of medieval and early medieval vernacular architecture. Although examples are included on the HER and in documentation for listing and scheduling, this information is not comprehensive and details of what survives may be lacking rendering buildings of this type vulnerable to unsympathetic development or demolition
Actions	<p>Develop projects to identify and record surviving examples of medieval and early post-medieval vernacular architecture. This will include:</p> <ul style="list-style-type: none"> • Documentary research to identify areas where workers' cottages or historic council housing were constructed. • Field survey to record surviving examples of these structures. This will include photographic and written records probably making use of pro forma recording systems. <p>The outcome of these projects would be to identify examples of medieval and early post-medieval vernacular architecture which are a priority for protection.</p>
Contributes to	SWRRA Research Aim 8: Utilise the survival of Medieval and later artefacts and buildings to their full extent.

FODRA Research Aim 11: Develop recording strategies for recording post-medieval worker's housing and early (pre-Second World War) council housing.

Description	The district contains numerous buildings constructed to house for industrial workers in the 19 th and early 20 th centuries and also early examples of council housing (Hoyle 2009b; Jurica 1996e; 1996g), although there is no consistent documentation of what survives of this type of housing and it is therefore vulnerable to unsympathetic development or demolition
Actions	<p>Develop projects to identify and record surviving examples of early purpose-built workers housing or council housing. This will include:</p> <ul style="list-style-type: none"> • Documentary research to identify areas where workers' cottages or historic council housing were constructed. • Field survey to record surviving examples of these structures. This will include photographic and written records probably making use of pro forma recording systems. <p>The outcome of these projects would be to identify examples of purpose-built workers' housing or pre-war council housing which are a priority for protection.</p>
Contributes to	SWRRA Research Aim 9: Prioritise a recording strategy for buildings related to post-medieval and to Modern social provision

9.5 SWRRA Theme: Transitions

FODRA Research Aim 12: Review the evidence for and promote research into key transitional periods

Description	<p>This is an extremely wide ranging research aim which can arguably encompass all processes of change represented within British archaeology.</p> <p>In the South-West Regional Research Framework (Webster 2008, 280) the key transitional periods of particular importance to the region are:</p> <ul style="list-style-type: none"> • Mesolithic to Neolithic. • Later Neolithic to Bronze Age and particularly the impact of the introduction of metalworking. • The 2nd millennium BC and particularly the introduction of field systems and traditions of roundhouse settlement during the Bronze Age. • Late Roman to early Medieval and particularly the survival of Romanised society and the impact Christianity may have had on this. <p>Within the district key transitional themes could also include:</p> <ul style="list-style-type: none"> • The transition from Palaeolithic to Mesolithic and particularly the impact of sea level change in the Severn Estuary. • The late Iron Age to Roman transition and particularly its impact on the iron industry, settlement and landuse. • The expansion of industry in the 18th and 19th centuries and its impact on the population and identity of the district.
Actions	These themes are covered by a number of FODRA Research Aims (see below) and no specific actions are set out to specifically address this.
Contributes to	SWRRA Research Aim 10: Address our lack of understanding of key transitional periods

9.6 SWRRA Theme: Hidden resources

FODRA Research Aim 13: Collect accurate data on museum collections which contain Forest of Dean material

Description	Some important assemblages of Forest of Dean material are held by museums or by individuals outside the district, although information on these is not consistent. In addition, significant assemblages, particularly of artefacts reported to the Portable Antiquities Scheme or collected by non-professional groups, may be held in private collections.
Actions	Instigate a programme for ensuring archaeological collections containing material from the Forest of Dean are properly catalogued and the information is available to the public. All non-professionals who recover archaeological material should be encouraged to deposit artefacts with a suitable museum. The Portable Antiquities Scheme and HER should take a lead role in this
Contributes to	SWRRA Research Aim 11: Improve knowledge and study of under-utilised museum collections

FODRA Research Aim 14: Improve access to and awareness of 'grey literature'.

Description	A considerable amount of recent research into the archaeology of the district is contained within grey literature reports produced mainly by professional archaeologists. The majority of these reports are available through the HER, Oasis or other web-based repositories and issues associated with ensuring the completeness and accessibility of 'grey literature' are addressed in FODRA Research Aim 8 and FODRA Research Aim 44. There is, however a lack of knowledge, particularly amongst independent researchers, that this body of literature exists or how it can be accessed.
Actions	Increase awareness of the existence of 'grey literature' containing information relevant to research into the district. Increase awareness of the ways in which this information can be accessed, particularly by independent researchers. The HER will have a key role in this.
Contributes to	SWRRA Research Aim 12: Improve access to and synthesis of 'grey literature'

FODRA Research Aim 15: Undertake analysis of museum collections of key unpublished or not-fully published sites.

Description	A number of key sites in the Forest of Dean remain unpublished, are not fully published, or need to be reviewed. Examples include: <ul style="list-style-type: none"> • Scott-Garrett's excavations at Park Farm Villa, Aylburton. • Excavation of the putative Roman Temple at Littledean Hall. • Excavation of the putative Roman Temple and 'Warrior' burial at High Nash, Coleford. • Excavations at Dymock Cricket Club undertaken in the 1960s.
Actions	Identify suitable archives requiring further analysis. Assess potential of remaining archives. Undertake appropriate post-excavation analysis and reporting
Contributes to	SWRRA Research Aim 13: Identify and bring to publication key unpublished excavations

9.7 SWRRA Theme: Science

FODRA Research Aim 16: Further use of innovative scientific dating techniques

Description	The Forest of Dean Archaeological Survey made use of Optically Stimulated Luminescence (OSL) to date colluvial deposits within an area of lidar-detected boundary systems, demonstrating the potential of this technique particularly when conventional dating material such as datable artefacts or securely stratified organic material is unavailable (Hoyle 2013a, 43; Toms <i>et al</i> 2012). Similar dating techniques also have the potential to date and sequence Quaternary deposits which may contain artefactual or palaeoenvironmental evidence of value to understanding Palaeolithic environments within the district.
Actions	Liaise with specialists and the scientific community to determine suitable techniques for scientific dating. Identify suitable locations where OSL or other appropriate dating techniques are applicable. Particular attention should be paid to ensuring these are specified in recommendations for both research and developer-led fieldwork where applicable
Contributes to	SWRRA Research Aim 16: Increase the use and improve the targeting of scientific dating

9.8 SWRRA Theme: Past Environments

FODRA Research Aim 17: Undertake further palaeoenvironmental sampling in selected areas of Forest of Dean District.

Description	<p>Some environmental sampling has been undertaken within Forest of Dean District.</p> <p>In the southern part of the district, in the area within or close to the Statutory Forest, Stage 2 of the Forest of Dean Archaeological Survey identified the environmental potential of wide flat-bottomed valleys (Hoyle 2008b, 83). A programme of sampling in the Cannop Valley proved disappointing due to contamination from later industrial residues and perhaps also scouring of earlier water-logged deposits for industrial purposes (Pearson <i>et al</i> 2012). It is not clear how typical these results were and sampling in the Flaxley Valley at the edge of the Statutory Forest has produced potentially significant results (Head <i>et al</i> 2005).</p> <p>In the Severn Estuary there has been widespread sampling of deposits in or close to the inter-tidal zone on both sides of the estuary (Mullin <i>et al</i> 2009, 23-45), although within the district similar sampling has only been undertaken in the Woolaston area (Brown 2007).</p> <p>Peat deposits at Walmore Common have also been sampled (Bartlett 2004) and environmental sampling of Palaeolithic deposits has been undertaken at selected cave sites in the Wye Valley (Barton 1993, 1994, 1995).</p> <p>In the northern part of the district environmental sampling has been undertaken during excavations of Roman sites in Dymock (Crooks 2014; Druce 2007; Jones 2007; Simmonds 2008; Tavener 2001).</p> <p>Although these have provided an invaluable framework against which the environmental history of the Forest of Dean can be discussed, the spread of environmental sampling is patchy, particularly in the northern part of the district where only Roman deposits from Dymock have been sampled, and too few samples have been taken to enable results to be extrapolated across the wider area with any confidence.</p>
Actions	<p>Routinely undertake environmental sampling where suitable stratified deposits are encountered in all excavations. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.</p> <p>Develop strategies to undertake more widespread and systematic environmental sampling of selected deposits to investigate specific environmental issues within the district (see FODRA Research Aim 19).</p>
Contributes to	SWRRA Research Aim 17: Improve the quality and quantity of environmental data and our understanding of what it represents

FODRA Research Aim 18: Ensure stratified charcoal deposits are sampled and analysed and assess the potential of the numerous charcoal platforms (particularly in the southern part of the district) to inform knowledge of earlier woodland environments and management.

Description	<p>In addition to environmental sampling, charcoals have been identified at a number of Roman sites including Dymock (Catchpole 2007, Simmonds 2008, Tavener 2001), Alvington (Hood 2013), Blakeney (Barber and Holbrook 200), the Chesters, Woolaston (Fulford and Allen 1992), Reddings Lane Staunton near Coleford (Ellis 2013), Sallowvallets Wood, Cannop (Hoyle 2013a), the Saxon smelting site at Clearwell Quarry, Stowe (Pine <i>et al</i> 2009) and also at a post-medieval charcoal platform on Welshbury Hill (Hoyle 2008b). Further sampling of dated charcoal deposits has the potential to inform key questions, not only about the woodland resource during certain periods, but also about the way woodland may have been managed for charcoal production and specifically whether it was managed as coppice.</p> <p>The Southern part of the district, particularly the area within or close to the Statutory Forest contains numerous charcoal platforms. These contain residues of charcoal which have the potential to be dated, provide environmental information about the types of woodland which were grown in the area and exploited for charcoal production. They may also inform the debate over the extent to which woodland was managed for coppice at certain periods.</p> <p>Only one sample of charcoal from a charcoal platform in the district has been dated by radiocarbon dating and that proved to be late post-medieval (Hoyle 2008b). It is also recognised that the dating of charcoal platforms may be problematic on account of uncertainty over the security of any samples and the possibility that platforms may have been re-used over a considerable period.</p> <p>However, the potential of charcoal platforms to provide dated evidence which may be of value to understanding the environmental history of the woodland and also inform knowledge of former woodland management practices has not been systematically explored and further exploration of this resource may prove beneficial.</p>
Actions	<p>Routinely undertake sampling and analysis of dated charcoal deposits where these are encountered in all excavations. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.</p> <p>Undertake a pilot study to assess the potential of sampling charcoal platforms. This will entail:</p> <ul style="list-style-type: none"> • Identifying suitable platforms. • Taking samples of charcoal from low in the charcoal profile either through auguring or test pitting. • Identifying the range of species used for charcoal production. • Identifying and quantifying physical evidence which may be indicative of coppice management. • Submitting samples of charcoal for radiocarbon dating
Contributes to	<p>SWRRA Research Aim 17: Improve the quality and quantity of environmental data and our understanding of what it represents</p>

FODRA Research Aim 19: Target quaternary deposits for environmental information

Description	<p>This research aim is particularly relevant to the Forest of Dean District as there are a number of landscapes and which contain soils and sediments of particular interest to informing an understanding of the environmental history of the Forest of Dean.</p> <p>The district contains a number of areas where quaternary deposits (alluvium, head, sand and gravel) have the potential to inform the environmental history of the area.</p> <p>The Southern part of the district, in or close to the Statutory Forest, is an area with a long history of woodland which, in some areas at least, appears to have superseded earlier patterns of enclosure for either agriculture or pasture, and a better understanding of the environmental sequence of these areas is a priority. The environmental potential of the wide bottomed dry valleys in this area has been identified, although sampling in some areas may be compromised by the impact of post-medieval industry. Priority should be given to areas where there is evidence that woodland may have superseded other non-wooded landscapes and where there is less likelihood of contamination from former post-medieval industrial processes. Particular care should be taken to differentiate residues from earlier (prehistoric, Roman or medieval) industrial activity from post-medieval industries.</p> <p>The area along the northern shore of the River Severn and the Severn Vale between Westbury on Severn and Huntley has extensive deposits of alluvium, head and sand and gravel terrace deposits. Environmental sampling in this area has the potential to inform issues such as sea level change and related settlement patterns and landscape exploitation during the early post-glacial (late Upper Palaeolithic and Mesolithic) period. Establishing the date and sequence of Quaternary deposits, which may contain artefactual or palaeoenvironmental evidence, also has the potential to inform wider understanding of Palaeolithic environments within the district, particularly if the deposits themselves can be dated using techniques such as OSL (see FODRA Research Aim 16). There are few similar areas of alluvium or sand and gravel close to the River Wye, although the area around Lindors Farm to the west of St Briavels may have potential.</p> <p>The Leadon Valley in the northern part of the district also has extensive alluvium, sand and gravel deposits particularly in the area around Dymock, between Bromsberrow Heath and Corse and to the south of Newent. The environmental potential of this area has never been assessed, although it has been identified as an area with a relatively low density of known archaeological records where further research would be beneficial (Mullin 2008, 51).</p>
Actions	<p>Develop strategies to assess the environmental potential of areas of alluvium and sand and gravel within the district.</p> <p>Undertake widespread and systematic environmental sampling where suitable areas are identified.</p> <p>Ensure that any archaeological investigations taking place within these areas take full account of environmental potential and include any tasks necessary to fulfil this potential. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.</p>
Contributes to	SWRRA Research Aim 18: Target specific soil and sediment contexts for environmental information

FODRA Research Aim 20: Undertake further sampling and analysis in areas of salt marsh and former salt marsh on the northern shore of the Severn Estuary

Description	<p>The Southwest Regional Research Framework (Webster 2008, 284) has identified salt marsh as a valuable resource for past societies whilst pollen insects and plant macrofossils from waterlogged deposits can provide important information on the management of pasture and meadows.</p> <p>Projects undertaking palaeoenvironmental sampling in areas of salt marsh and former salt marsh along the northern shore of the Severn Estuary in the southern part of the district (see FODRA Research Aim 17) will have the potential to inform this.</p>
Actions	<p>Routinely undertake environmental sampling where stratified deposits are encountered in all excavations in areas of salt marsh or former salt marsh. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.</p> <p>Develop strategies to undertake more widespread and systematic environmental sampling within areas of salt marsh and former salt marsh (see FODRA Research Aim 19).</p>
Contributes to	SWRRA Research Aim 20: Improve our understanding of wild and cultivated plants in the past

FODRA Research Aim 21: Undertake further research into undated boundary systems.

Description	<p>The lidar survey of the southern part of the district has identified numerous relic boundary systems, many of which are in areas of long-term woodland (Hoyle 2008c). Many of the systems identified outside of woodland are currently assumed to be medieval or early post-medieval, although in only a few cases has this been reasonably established. One of these systems (at Welshbury) appears to predate the outer ramparts of an Iron Age hillfort (McOmish and Smith 1996) whilst sample excavation of two others suggested that one (and perhaps both) originated during the later prehistoric period around the middle of the first millennium BC (Toms <i>et al</i> 2012). Accurate dating and a better understanding of these boundary systems is an essential first step in any attempt to understand the nature and extent of farming in the later prehistoric period in the district.</p> <p>Undated boundaries have also been identified as cropmarks in the northern part of the district at Quabbs Cottage, Dymock.</p>
Actions	<p>Undertake preliminary work to establish which relic boundary systems in the district cannot reasonably be interpreted as the remains of medieval or later farming or woodland management (the latter of these has already been largely undertaken as part of Stage 3A of the Forest of Dean Archaeological Survey (Hoyle 2008c).</p> <p>Undertake small-scale excavation of selected remaining boundary systems to:</p> <ul style="list-style-type: none">• Establish the processes which formed them.• Establish their date range making use, where applicable, of scientific dating techniques such as OLS (see FODRA Research Aim 16).• Collect and undertake analysis of dated charcoal and palaeoenvironmental material
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 21: Improve our understanding of the environmental aspects of farming</p> <p>SWRRA Research Aim 40: Improve our understanding of agricultural intensification and diversity in later prehistory</p> <p>SWRRA Research Aim 41: Assess the impact of the Roman empire on farming</p>

FODRA Research Aim 22: Continue to improve understanding of sea level change in the Severn Estuary and its impact on early communities, particularly during the Palaeolithic and Mesolithic periods.

Description	<p>Issues surrounding this Research Aim are summarised in the report on Phase 1 of the Severn Estuary Rapid Coastal Zone Assessment Survey (Mullin <i>et al</i> (2009, 42-45). The following research aims are those which are of particular relevance to the Forest of Dean District.</p> <p>Further sampling of alluvium and quaternary deposits in these areas has already been discussed (see FODRA Research Aim 19), and other recommendations for future research in this area are set out in Chadwick and Catchpole (2013, 133-134).</p>
Actions	<p>Apply the actions set out in FODRA Research Aim 19.</p> <p>Undertake further exploration and sampling of the palaeochannel deposits at Grange Pill.</p> <p>Monitor these areas (particularly the palaeochannels in the Grange Pill area) to identify and record prehistoric artefacts or structures which may be revealed by coastal erosion</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 23: Improve our understanding of past climate and sea level changes together with their effects on the people's relationships with landscape and the sea</p>

FODRA Research Aim 23: Ensure Pleistocene vertebrate faunas are reported, accurately recorded and available for further study.

Description	Although Pleistocene vertebrate remains have been excavated at King Arthur's Cave, Herefordshire, assemblages from within the district are extremely limited and poorly provenanced within cave systems. Although SWRRA Research Aim 24 recommends undertaking further research on the small assemblages available (Grove and Croft 2012, 29) it would be more productive in the Forest of Dean to ensure that any future assemblages which may come to light, particularly from caves within the southern part of the district, are consistently reported and recorded.
Actions	<p>Establish a protocol with the caving community to ensure that vertebrate remains discovered during caving operations are reported to the HER with an accurate and meaningful location.</p> <p>Make an accurate record (including photographs) of the context within which the remains were found. There should be a presumption in favour of leaving assemblages, or the bulk of assemblages in situ.</p> <p>Encourage all non-professionals who recover Pleistocene faunal remains from caves to deposit artefacts with a suitable museum. The Portable Antiquities Scheme and HER should take a lead role in this (see FODRA Research Aim 13).</p>
Contributes to	SWRRA Research Aim 24: Improve our understanding of Pleistocene vertebrate faunas

FODRA Research Aim 24: Realise the potential of existing Palaeolithic and Mesolithic assemblages and re-assess the meaning of these assemblages across the district as a whole

Description	Palaeolithic and Mesolithic landscapes within the district are poorly understood. The Palaeolithic is represented only by chance unstratified finds, whilst the Mesolithic period, although numerically well represented (Mullin 2008, 29) also consists almost exclusively of unstratified chance finds or flint assemblages and very little analysis has been undertaken to interpret their meaning or significance.
Actions	<p>Ensure contractors are made aware of the potential significance of Palaeolithic and Mesolithic remains where these may be encountered in excavations or watching briefs. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits from these periods and for appropriate recording and sampling, particularly of charcoal deposits.</p> <p>Encourage non-professionals who routinely recover and report Palaeolithic or Mesolithic material to approach recovery and recording in a systematic manner to enable the micro distribution of elements within assemblages to be meaningfully interpreted. The Portable Antiquities Scheme and HER should take a lead role in this (see FODRA Research Aim 3 and FODRA Research Aim 5).</p> <p>Encourage all non-professionals who recover Palaeolithic or Mesolithic material to deposit artefacts with a suitable museum. The Portable Antiquities Scheme and HER should take a lead role in this (see FODRA Research Aim 13).</p> <p>Re-assess existing assemblages of Palaeolithic finds or Mesolithic assemblages in a holistic project (see FODRA Research Aim 3 and FODRA Research Aim 5). This should:</p> <ul style="list-style-type: none"> • Identify significant assemblages. • Review identifications of individual pieces. • Review the character and significance of individual assemblages. • Review the character and significance of the totality of known evidence for the Palaeolithic and Mesolithic periods in the Forest of Dean. <p>Undertake further systematic artefact collection in these areas to clarify the distribution pattern of assemblages (see FODRA Research Aim 3 and FODRA Research Aim 5).</p> <p>Undertaken further excavation, geophysical survey or sampling in areas where there is a reasonable expectation that in-situ Palaeolithic or Mesolithic remains may be encountered in areas where surface artefacts have been recovered.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 25: Improve our understanding of Palaeolithic and Mesolithic landscapes</p>

FODRA Research Aim 25: Investigate patterns of landscape change and particularly the distribution of woodland during key periods.

Description	<p>The key research directions identified in SWRRA for this research aim are pollen studies to identify landscape change (particularly woodland regeneration) in the period spanning the late Roman and early medieval periods, and also further study of patterns of land reclamation during this period.</p> <p>This is of particular relevance to the Forest of Dean where it has been recognised that there is a need for further palaeoenvironmental sampling (see FODRA Research Aim 17) and a better understanding of the nature and extent of woodland during different periods, particularly periods of transition during the prehistoric, Roman and early medieval periods.</p>
Actions	<p>Routinely undertake environmental sampling where suitable stratified Roman or early medieval deposits are encountered in all excavations. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system (see FODRA Research Aim 17).</p> <p>Develop strategies to undertake more widespread and systematic environmental sampling of selected deposits to investigate the late Roman to early medieval environment within the district (see FODRA Research Aim 17 and FODRA Research Aim 19).</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 26: Investigate the changes in landscape and population at the end of the Roman period</p>

FODRA Research Aim 26: Re-assess the evidence for, and date of, land reclamation in the Severn Estuary

Description	<p>Although some areas of land reclamation have been recognised and tentatively dated in the Severn Estuary (Allen and Fulford 1987) further refinement of the dating sequence, particularly for reclamation which may have taken place in the Roman period, is desirable.</p>
Actions	<p>Re-assess the evidence for land reclamation along the Severn Estuary, particularly those areas which are currently considered to date to the Roman period, or which are undated.</p> <p>Develop strategies to investigate and date areas of land reclamation.</p>
Contributes to	<p>SWRRA Research Aim 26: Investigate the changes in landscape and population at the end of the Roman period</p>

FODRA Research Aim 27: Investigate the date of the change from hulled to free threshing wheat within Forest of Dean District.

Description	<p>The SWRRA identified establishing the date of change from hulled to free threshing wheat as a priority research direction for the southwest (Grove and Croft 2012, 30). Within Forest of Dean District free-threshing wheat has been found in samples dating to the 2nd century AD at Dymock (Druce 2007, 230-231, Table 22; Jones 2007, 209, Table 17; Clapham 2010, 4, Table 5), which may be unusually early (Webster 2008, 286) but could represent a regional pattern as this has also been found in Roman contexts in southeast Wales and Birdlip, Gloucestershire (Druce 2007, 230). Clarification of the introduction date and the extent to which free-threshing wheat was grown in the Leadon Valley, or other parts of the district during the Roman period may highlight local variations within the district and inform the wider debate concerning its introduction in the southwest region and southern Wales.</p>
Actions	<p>Re-assess the existing evidence for free threshing wheat from early Roman contexts in the Dymock area.</p> <p>Check records from earlier excavations in the district where suitable deposits may have been encountered and revisit these if possible.</p> <p>Ensure contractors or other excavators are aware of the potential significance of deposits which may contain grain, particularly where these date from the late prehistoric to early medieval periods.</p> <p>Routinely undertake environmental sampling where suitable stratified deposits are encountered in all excavations. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system (see FODRA Research Aim 17).</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 27: Investigate the origins of free-threshing wheat</p>

9.9 SWRRA Theme: Settlement: Rural

FODRA Research Aim 28: Realise the potential of existing Neolithic and Bronze Age flint assemblages, and re-assess the meaning of these assemblages across the district as a whole

Description	<p>Within the district the Neolithic landscape is particularly poorly understood and evidence is restricted to unstratified chance finds and flint assemblages, or residual finds in later excavated deposits. With the exception of a small number of ritual (and possible ritual) monuments in the district knowledge of the Bronze Age is equally restricted. Very little analysis has been undertaken to interpret the meaning or significance of Neolithic or Bronze Age assemblages, and no settlement sites have been clearly identified or investigated.</p>
Actions	<p>Ensure contractors are made aware of the potential significance of Neolithic and Bronze Age remains where these may be encountered in excavations or watching briefs. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should acknowledge any potential for recovery of in situ deposits from these periods and for appropriate recording and sampling, particularly of charcoal deposits.</p> <p>Encourage non-professionals who routinely recover and report Neolithic and Bronze Age material to approach recovery and recording in a systematic manner to enable the micro distribution of elements within assemblages to be meaningfully interpreted. The Portable Antiquities Scheme and HER should take a lead role in this (see FODRA Research Aim 3 and FODRA Research Aim 5).</p> <p>Encourage non-professionals who recover Neolithic or Bronze Age material to deposit artefacts with a suitable museum. The Portable Antiquities Scheme and HER should take a lead role in this (see FODRA Research Aim 13).</p> <p>Re-assess existing assemblages of Neolithic and Bronze Age artefacts in a holistic project (see FODRA Research Aim 3 and FODRA Research Aim 5).</p> <p>This should:</p> <ul style="list-style-type: none"> • Identify significant assemblages. • Review identifications of individual pieces. • Review the character and significance of individual assemblages. • Review the character and significance of the totality of known evidence for the Neolithic and Bronze Age periods in the Forest of Dean. <p>Undertake further systematic artefact collection in these areas to clarify the distribution pattern of assemblages (see FODRA Research Aim 3 and FODRA Research Aim 5).</p> <p>Undertake further excavation, geophysical survey or sampling in areas where there is a reasonable expectation that in-situ Neolithic remains may be encountered where surface artefacts have been recovered.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 28: Improve our understanding of Neolithic settlements and landscapes</p>

FODRA Research Aim 29: Investigate the lack of Neolithic field monuments in Dean district.

Description	<p>The lack of Neolithic field monuments in the district is particularly striking, particularly as these are known in surrounding areas and there is increasing evidence for Bronze Age ritual activity within the district. A Neolithic presence in the district is known (although not well understood, see FODRA Research Aim 28) and establishing whether Neolithic field monuments are actually absent from the district, or whether they are present but have not yet been recognised, is a priority. A considerable amount of research (e.g. lidar and NMP) has failed to recognise Neolithic field monuments in the district, but dedicated projects reviewing information which has already been accessed may prove beneficial. Priority should be given to areas where Neolithic artefacts are already known or where there is existing evidence for (or suggesting) Bronze Age ritual activity.</p>
Actions	<p>Review unpublished or antiquarian accounts of field monuments in the Forest of Dean (for example Ormerod 1841; 1861a; 1861b; Scott-Garrett 1918-1958, Scott-Garrett and Harris 1932) for references which could be interpreted as Neolithic field monuments, including evidence which was subsequently discounted by the author.</p> <p>Review placename evidence which may indicate Neolithic field monuments.</p> <p>Review lidar and aerial photographic information for sites which could be interpreted as Neolithic field monuments.</p> <p>Undertake field visits and rapid recording to validate prospective sites.</p> <p>Undertake further excavation, geophysical survey or sampling to confirm the status or date of prospective sites.</p>
Contributes to	SWRRA Research Aim 28: Improve our understanding of Neolithic settlements and landscapes

FODRA Research Aim 30: Review evidence for Iron Age and Roman rural settlement in Forest of Dean District.

Description	<p>There is now a considerable body of evidence for iron Age and Roman rural settlement in the district, although this is variable and ranges from chance finds or scatters of Roman pottery recovered through field walking to excavated sites. Although some individual sites are reasonably understood, many have not been explored and many questions remain. There have also been few attempts to synthesise the data and produce a coherent narrative of the development of iron Age and Roman rural settlement.</p>
Actions	<p>Undertake a synthetic review of the evidence for iron Age and Roman rural settlement in Dean district. Particular attention should be paid to:</p> <ul style="list-style-type: none"> • The relationship between late prehistoric settlement and early Roman rural settlement and how rural settlement patterns developed throughout the Roman period. • The relationship between Iron Age and Roman rural settlement and currently undated boundary systems in the district known either as earthworks, cropmarks or excavated features. • The extent to which undated earthwork enclosures may have been occupied during the Iron Age and Roman period. • The status, function and date range of sites interpreted as Iron Age hillforts. • The status of sites interpreted as Roman villas and other sites (for example Rodmore Farm or Popes Hill), which may or may not be associated with them. • The relationship between apparently contemporary settlement of different types in the Iron Age and Roman periods and particularly between contemporary hillfort/non-hillfort and villa/non-villa settlement. • The economic basis of rural settlements in the Iron Age and Roman periods and in particular what role iron production and associated industries played in this (see FODRA Research Aim 54). • Communications between contemporary rural settlement and particularly how late Iron Age/early Roman settlement related to the known framework of early Roman military roads. <p>Review existing assemblages of unstratified iron Age and Roman material, particularly large assemblages recovered by field walking (see FODRA Research Aim 3 and FODRA Research Aim 5). This should:</p> <ul style="list-style-type: none"> • Identify significant assemblages. • Review identifications of individual pieces. • Review the character and significance of individual assemblages. • Review the character and significance of the totality of known evidence for the Roman activity recovered as surface artefacts. <p>Review placename evidence which may indicate iron Age or Roman settlement.</p> <p>Review lidar and aerial photographic information for sites which could be interpreted as Iron Age or Roman settlement particularly in areas where other indicators suggest settlement may be found.</p> <p>Undertake field visits and rapid recording to validate prospective sites.</p> <p>Undertake further excavation, geophysical survey or sampling to confirm the status or date of prospective sites.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 29: Improve our understanding of non-villa rural settlement</p>

FODRA Research Aim 31: Review the evidence for early medieval settlement in Forest of Dean District and undertake further research to identify and categorise sites.

Description	<p>Early medieval settlement in the Forest of Dean is poorly understood; in particular:</p> <ul style="list-style-type: none"> • The relationship between late Roman and early post-Roman settlement. • The possible reoccupation of hillforts during this period. • The distribution of new settlements founded by culturally Germanic groups in the 6th and 7th centuries. • The relationship of these with settlements occupied by the indigenous 'British' population.
Actions	<p>Review the evidence for late Roman or post-Roman occupation, for example at villas, and attempt to identify areas where there is potential for refining the dating sequence. Particular attention should be paid to the possibility of scientific methods (e.g. radiocarbon dating) rather than cultural methods (e.g. pottery) which may not be refined enough to securely distinguish between Roman and post-Roman activities.</p> <p>Review the evidence for the post-Roman re-occupation of hillforts, particularly at Lydney Park and Welshbury where this has been suggested by field evidence.</p> <p>Review documentary and placename evidence which suggests early Medieval settlement.</p> <p>Review lidar and aerial photographic information for sites where early Medieval settlement is suggested.</p> <p>Undertake field visits and rapid recording to validate prospective sites.</p> <p>Undertake further excavation, geophysical survey or sampling to confirm the status or date of prospective sites.</p> <p>Undertake further dating of identified fish traps in the Severn and Wye (see FODRA Research Aim 65) which has the potential to identify early post-Roman examples.</p> <p>Ensure contractors or other excavators are aware of the potential significance of deposits which may inform the late Roman to early post-Roman transition or the early 'Saxon' period and ensure that samples are routinely taken for dating where suitable stratified deposits are encountered in all excavations. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 30: Develop and test methodologies to identify early Medieval rural settlement</p>

FODRA Research Aim 32: Research the date of the sub-circular churchyards at Woolaston and Hewelsfield

Description	<p>The circular churchyards at Woolaston and Hewelsfield may represent early 'Celtic' Christian (or possibly pre-Christian) sites, but this has never been established.</p>
Actions	<p>Observe groundworks undertaken within or close to these churchyards to identify any evidence for an early Christian or pre-Christian.</p> <p>Undertake geophysical survey and sample excavation of the boundaries of these churchyards to establish their date if possible.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 32: Investigate and identify the locations of early medieval religious buildings monuments and landscapes</p>

FODRA Research Aim 33: Further research into the possible Minsters at Westbury on Severn, Lydney and Newent.

Description	Pre-conquest Minsters have been suggested at Westbury on Severn, Newent and Lydney, although the evidence for these is largely circumstantial and only at Newent has evidence for the pre-conquest Christian church been identified.
Actions	<p>Re-assess documentary or landscape (e.g. parish boundaries) evidence for these foundations.</p> <p>Undertake more detailed new research into individual sites. This could include:</p> <ul style="list-style-type: none"> • Landscape analysis. • Observation of any groundworks undertaken within or close to existing churches to identify any evidence for an early Christian foundation. • Excavation and/or geophysical survey in appropriate areas.
Contributes to	SWRRA Research Aim 32: Investigate and identify the locations of early medieval religious buildings monuments and landscapes

FODRA Research Aim 34: Investigate the date of origin of medieval churches in the district.

Description	Although few churches within the district are known to pre-date the Norman Conquest this is likely to under-represent the actual distribution of pre-conquest churches, the evidence for which may now be hidden within or close to the buildings which superseded them.
Actions	<p>Review the documentary evidence for pre-conquest churches within the district.</p> <p>Observe groundworks or renovation work undertaken within or close to medieval churches or their churchyards to identify any evidence for a pre-conquest foundation.</p> <p>Undertake geophysical survey and sample excavation of selected sites. Priority should be given to sites where there is documentary or other (e.g. fragments of pre-conquest sculpture) evidence for a pre-conquest foundation. These would include Lancut, Awre, Dymock, Tidenham and Tibberton and also possibly Lydney, Newent and Westbury on Severn where there may have been pre-conquest minsters (see FODRA Research Aim 33).</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 32: Investigate and identify the locations of early medieval religious buildings monuments and landscapes</p>

FODRA Research Aim 35: Explore the development of non-urban settlement within the Forest of Dean District.

Description	<p>The district contains a wide range of non-urban settlement types. These range from dispersed settlement patterns (particularly in the southern part of the district in Tidenham parish but also in other areas) to more nucleated villages and hamlets. In addition the district has a number of settlement types which originated (or at least largely developed) in the post-medieval period, principally settlement derived from assarting and squatting around the periphery of the former Crown estate (now the Statutory Forest) in the southern part of the district (and in other areas such as Hewelsfield and St Briavels Commons to the southwest of St Briavels) and also the planned Chartist settlement of Snigs End, Staunton near Corse and Lowbands, Redmarley D'Abitot.</p> <p>Although the broad historic background and development of many of the district's settlements is outlined in general histories of the area (e.g. the Victoria County History, volumes 5, 8, 10, 12 and 13) very little targeted work has been undertaken on the origins and development of individual settlements.</p>
Actions	<p>Develop projects to explore the origin of settlements (see FODRA Research Aim 4). This will include:</p> <ul style="list-style-type: none"> • Documentary research to access existing published, unpublished and HER data. • Recording of significant buildings and identification and recording of early settlement features. • Surveys to characterise boundary types surrounding the settlement. • Extensive test pitting (for example in back gardens) to retrieve archaeological information about settlements over a wide area.
Contributes to	SWRRA Research Aim 33: Widen our understanding of the origins of villages

9.10 SWRRA Theme: Settlement: Urban

FODRA Research Aim 36: Explore the Roman origins and possible small-town status of selected settlements in the district particularly Dymock and Newent.

Description	No Roman towns are known in Forest of Dean District, although small town status has been suggested for Dymock and perhaps also Newent, whilst the meaning of widespread settlement evidence in other areas, particularly around English Bicknor, Lydney and Blakeney, is not well understood. A synthetic study has been undertaken for Dymock (Catchpole Copeland and Maxwell 2007b) although new information has come to light since that time, but no similar work has been undertaken for Newent (where it is badly needed) or for Lydney, Blakeney or English Bicknor.
Actions	<p>Set up projects to synthesise the existing evidence for Roman settlement at selected sites and explore what evidence exists for the nature of these sites. This may include re-assessment of excavation records and artefact assemblages, particularly those recovered by field walking.</p> <p>Develop strategies to explore the nature of these settlements and undertake further research as appropriate. This could include:</p> <ul style="list-style-type: none"> • Targeted systematic field walking. • Geophysical survey. • Trial excavation.
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 34: Improve our understanding of early Roman urban settlement</p>

FODRA Research Aim 37: Investigate the possible early medieval urban status of selected settlements, particularly Lydney and Newent

Description	Although the modern towns of Lydney, Mitcheldean/Littledean, St Briavels and Newent are mentioned in the Domesday Survey of 1086 (or before) there is no evidence that these (or any other settlements in the district) had acquired anything which could be recognised as urban status during the early Medieval period. Both Lydney and Newent may, however, have acquired small-town status by the later Roman period (see FODRA Research Aim 36) and they may have fulfilled a similar role in the post-Roman and early Medieval periods. Both these settlements have also been postulated as the sites of pre-conquest minsters (see FODRA Research Aim 33 and also Webster 2008, 287) although this (and also their status as small Roman towns) is far from clear and much more research is needed before they can be considered as early medieval towns.
Actions	Undertake research into the early-Medieval urban status of Lydney and Newent as part of any projects to investigate their urban status during the Roman period (see FODRA Research Aim 36), or to investigate the possibility that they were the sites of minsters in the pre-conquest period (see FODRA Research Aim 33).
Contributes to	SWRRA Research Aim 35: Developing our understanding of early medieval urban settlement

9.11 SWRRA Theme: Production and Trade: Maritime

FODRA Research Aim 38: Monitor and record any newly exposed wreck sites in the Severn Estuary or River Wye.

Description	<p>The Severn Estuary acted as a conduit for maritime trade with Forest of Dean ports until recent years and wrecks are known. All known wreck sites within the district have now been added to the County HER, although others may become exposed in the future by shifting sandbanks in the estuary or coastal erosion. The majority of known wrecks are post-medieval, although some remain undated, and there are no wrecks which are known to date to the Roman or medieval periods. The remains of some small trows or lighter boats within the intertidal zone have been recorded in more detail (Williams and Clark 1992), there is little opportunity to record submerged, or largely submerged remains due to the extreme tidal range and high energy currents of this waterway.</p> <p>The remains of a single trow have been recorded within the banks of the Wye at Brockweir (although it is not clear whether this constituted a wreck or was just abandoned on the river bank). There is, however, the potential for other remains of vessels to be exposed in the inter-tidal zone of the lower Wye or through river bank erosion.</p>
Actions	<p>Monitor the Severn Estuary and River Wye for newly exposed wrecks.</p> <p>Ensure any such wrecks are recorded to an appropriate level and added to the HER.</p> <p>If possible record wrecks in greater detail and take samples for dating.</p>
Contributes to	SWRRA Research Aim 37: Increase our knowledge of maritime archaeological sites

9.12 SWRRA Theme: Production and Trade: Extractive industries

The extractive industries are of particular relevance to the Forest of Dean where iron coal and stone resources have been extracted and processed since early times. The following FODRA Research Aims are set out separately under Stone, Coal and Iron and are also linked to the research aims set out in the National Association of Historic Mining Organisations Research Agenda (Newman 2016) which covers these areas in much greater detail than the South-West Regional Research Agenda. NAHMO general Research Aims 01 to 12 are generally applicable to the Forest of Dean and these should form part of a general framework within which future research into the mining and quarrying industries in the Forest of Dean should be undertaken.

FODRA Research Aim 39: Undertake integrated survey of extensive later post-medieval mining and quarrying landscapes

Description	<p>The district contains a number of important landscapes which contain a wide range of later post-medieval and modern mining and quarrying remains and the remains of associated transportation systems. Some of these areas have been researched in the past (see for example Standing 1987) although the new information from large landscape-scale survey projects such as lidar or NMP provides opportunities to review these areas.</p> <p>The actions for this Research Aim should follow on from FODRA Research Aim 41, and may also overlap with studies of surface or near surface coal mining remains (FODRA Research Aim 45).</p>
Actions	<p>Review the historical evidence for 19th and 20th century mining and quarrying landscapes, earlier research and the results of further analysis and detailed transcription of lidar data undertaken as part of FODRA Research Aim 41.</p> <p>Prioritise 19th and 20th century mining and quarrying landscapes which may be suitable for further field survey.</p> <p>Develop suitable strategies for further field survey at an appropriate level to record and characterise the surface remains and those of associated transportation systems. Any methodologies will draw on existing standards for field survey (Ainsworth <i>et al</i> 2007) and also make full use of existing high quality data sets such as lidar.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 16: Record the surviving evidence of modern mining and quarrying while there are still opportunities to do so, and document the memories and knowledge of the people involved</p> <p>NAHMO Research Aim 39: Improve our knowledge of the chronology, extractive techniques and social impact of the coal industry from the Roman period to the 20th century</p> <p>MPP Step 1 Priority: The coal industry: 19th and 20th century mining landscapes</p> <p>MPP Step 1 Priority: Quarrying: A sample of post-medieval quarries of the industrial and modern periods</p>

FODRA Research Aim 40: Develop strategies for recording surviving post-medieval industrial buildings and other remains

Description	<p>Within the Forest of Dean there are the remains of numerous post-medieval industrial buildings in a variety of conditions. The majority of these are not afforded any statutory protection and are at risk from both neglect and development. Few of these have been adequately recorded and there is often inadequate information about their current condition or what survives on the site and it is often difficult to make informed decisions about appropriate mitigation strategies. There is a high risk that important information will be lost if structures are demolished or decay without adequate provision for recording and without better information it is difficult to categorise sites in terms of their significance or make reasonable decisions about priorities for further research or preservation. Recording projects should be undertaken in two stages. Stage 1 will provide base-line data on the location and current condition of the resource as a whole. Stage 2 will consist of more detailed recording of priority sites. This Research Aim would also contribute to SWRRA Research Aim 7.</p>
Actions	<p>Instigate a programme for the systematic recording of the physical remains of post-medieval industrial structures. This could be undertaken with voluntary groups in accordance with the specification of FODRA Research Aim 4, and should make use of a systematic approach at an appropriate level based on current guidelines (English Heritage 2006). This will include:</p> <ul style="list-style-type: none"> • Documentary research to identify surviving sites. • Field survey to record surviving examples of these structures. This will include photographic and written records probably making use of pro forma recording systems. <p>The outcome of these projects would be to identify sites for further more detailed recording projects and sites which are a priority for protection.</p> <p>Undertake more detailed recording of selected sites. Suitable recording strategies will be determined at the start of this stage, but will take full account of current good practice (English Heritage 2006).</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 16: Record the surviving evidence of modern mining and quarrying while there are still opportunities to do so, and document the memories and knowledge of the people involved</p> <p>MPP Step 1 Priority: The coal industry: 19th and 20th century mining landscapes</p>

FODRA Research Aim 41: Make better use of lidar and other aerial reconnaissance techniques to map and characterise surface mining and quarrying remains

Description	<p>Although the 2006 lidar survey of the Forest of Dean (Hoyle 2008c) and NMP (Small and Stoertz 2006; Crowther and Dickson 2008; Priest <i>et al</i> 2008) mapped the field evidence for quarrying and surface mining remains there were limitations (particularly in the lidar transcription) in the way this was undertaken. The main limitations were:</p> <ul style="list-style-type: none"> • The lidar survey did not attempt to record features which were already recorded on the county HER and accordingly the lidar transcription data is not, in itself, comprehensive. This is particularly noticeable for (but not restricted to) features such as scowles where the lidar data provides considerably more precision in recording than is available on the HER. • Areas of surface mining remains, quarries and unrecorded scowles were recorded in outline only and no attempt was made to characterise details or stratification within recorded areas. • Not all quarries outside of Forestry Commission woodland were recorded and no attempt was made to characterise quarries in any way <p>Further work is needed to fully realise the potential of this resource.</p> <p>Not all available lidar data sets have been accessed and Environment Agency lidar data is available for areas not covered by the 2006 Forest of Dean survey such as the Severn coast and the northern part of the district</p>
Actions	<p>Undertake further more detailed transcription of lidar data in accordance with the specifications set out in FODRA Research Aim 1.</p> <p>Undertake projects to characterise details of selected features from the lidar information (see also FODRA Research Aim 45).</p> <p>Undertake field survey to validate lidar information.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 17: Make use of Lidar and other aerial reconnaissance techniques as a means of recording surface evidence, discovery of unrecorded sites and as an aid to the interpretation of field remains</p> <p>NAHMO Research Aim 27: Develop research approaches and techniques for the landscapes investigation of the quarrying industry in England</p> <p>NAHMO Research Aim 29: The dichotomy between parish and other 'tied' quarries worked commercially needs to be better understood, as do the functional and chronological relationships between small quarries worked for stone on particular projects and others where stone was used elsewhere</p> <p>MPP Step 1 Priority: The coal industry: 19th and 20th century mining landscapes</p>

FODRA Research Aim 42: Determine strategies for targeted excavation of both surface and subterranean mineral extraction sites

Description	<p>Virtually no systematic excavation of mineral extraction sites in the district has ever been undertaken in the district. Current research directions to date mineral extraction sites tend to be focused towards analysis of dated residues of coal or iron objects and slag to closely identify the source of minerals and date extraction sites. Although these methods have been identified as most likely to produce fruitful results, there may also be a place for careful excavation of mineral extraction sites which have the potential to provide dating evidence and also information about mining or quarrying techniques which may not have been recorded in contemporary records. Very careful consideration, however, must be given to identifying sites where this type of investigation is most likely to provide high quality information in a cost-effective way.</p>
Actions	<p>Review existing records of excavations or other investigations of mineral extraction sites.</p> <p>Determine suitable techniques for excavation and recording of mineral extraction sites. This should take account of sites in other areas where successful projects have been undertaken, in particular excavation work which has taken place at Alderley Edge, Cheshire.</p> <p>Determine priorities for further excavation in selected mineral extraction sites. These should target:</p> <ul style="list-style-type: none"> • Sites which have the potential to provide information which has been identified as a priority research question. • Sites where there is a reasonable expectation that significant remains may be preserved. • Sites where the practicalities of excavation and recording can reasonably be realised. <p>Liaise with specialist mine researchers and other scientists to identify and develop suitable scientific technique for dating mining remains.</p> <p>Techniques to further investigate the status of scowles set out in FODRA Research Aim 47 may also be applicable in some instances.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 19: Increase the understanding of all types of mineral extraction and associated sites by making greater use of archaeological excavation</p> <p>NAHMO Research Aim 20: Increase our knowledge of underground mineral extraction by encouraging and resourcing more archaeological investigations</p> <p>NAHMO Research Aim 21: Take advantage of scientific dating and analytical techniques, to increase knowledge of prehistoric, Roman and medieval period mining and quarrying, but also develop techniques relevant to the analysis of later period mining, quarrying, dressing and smelting methods</p> <p>NAHMO Research Aim 22: Improve the effectiveness and relevance of scientific techniques by promoting dialogue between mine researchers and scientists</p> <p>NAHMO Research Aim 43: Address the lack of archaeological data for prehistoric, Romano-British and Dark Age iron mining in England</p> <p>NAHMO Research Aim 44: Increase our knowledge of iron extraction in England during the medieval, post-medieval and modern periods, using the full range of investigative techniques available</p> <p>HMS Research theme: Develop techniques to identify prehistoric mines in the absence of stone hammers and, more generally, to date ancient mine working</p>

FODRA Research Aim 43: Ensure that suitable samples are taken and analysed in all investigations of prehistoric sites close to pigment sources

Description	The origins and date of ochre extraction in the district are unknown and at present are based on a number of stone tools of unclear status found close to outcrops of the iron-ore bearing carboniferous limestones (Hoyle <i>et al</i> 2007, 86).
Actions	Ensure contractors or independent researchers are made aware of the potential significance of pigment residues where these are encountered in excavations or watching briefs and the potential they may have to inform the debate on the origins of ochre extraction in the district. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits from these periods and make provision for their appropriate recording, sampling and analysis.
Contributes to	SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates NAHMO Research Aim 23: Make more use of mineral samples within finds assemblages from prehistoric sites close to pigment sources as a means of scientific provenancing

FODRA Research Aim 44: Ensure that information about mining and quarrying sites and published and unpublished research data is publicly available

Description	Publicly accessible data sets of information about known mining and quarrying sites and any investigations which have been undertaken of them already exist within the district in the form of the HER and online resources such as the Archaeology Data Services and Oasis. There is, however, still the need to ensure that HER records are accurate, up to date and easily accessible. The HER should also have access to all research undertaken by professional contractors, independent researchers or academics, and also published and unpublished research should be made available through existing web services such as Oasis (see FODRA Research Aim 8).
Actions	Encourage academic bodies, independent researchers and contractors to develop a protocol for submitting the results of archaeological investigations to the HER and also to other publicly accessible repositories such as Oasis. Review existing HER records for mineral extraction sites in the district and take any necessary steps to ensure that they are as accurate and as up to date as possible. Ensure that the HER continue to make selected sections of the database easily accessible via the internet (e.g. Heritage Gateway).
Contributes to	SWRRA Research Aim 12: Improve access to and synthesis of 'grey literature' SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates NAHMO Research Aim 24: Improve access to past archaeological and historical research by creating an online information point listing published material relevant to the extractive industries NAHMO Research Aim 25: Make detailed gazetteers of mine and quarrying sites with physical remains more available NAHMO Research Aim 26: Encourage and enable more dissemination of research and synthesis, including traditional publishing methods and use of the World Wide Web

9.12.1 Coal

FODRA Research Aim 45: Undertake further field survey to better understand the good evidence for surface or near surface coal mining in the district

Description	<p>The southern part of the district contains good evidence for surface or near surface coal mining remains, mostly identified by NMP or lidar. These consist of a palimpsest of remains, possibly of different periods. Despite the wealth of evidence few of these areas have been further investigated and there have been few attempts to categorise what survives or to disentangle remains which may represent evidence for extraction of different types undertaken at different times and using different techniques. There is much less known physical evidence for early (pre-dating 19th century deep mining) coal extraction at the Newent coalfield in the northern part of the district, but this area should be included in any future projects to investigate early coal extraction in the district. The actions for this Research Aim should follow on from FODRA Research Aim 41.</p>
Actions	<p>Review the historical evidence for early surface or near surface (pre-dating the introduction of deep mining in the 19th century) coal extraction in the district and also the results of further analysis and detailed transcription of lidar data undertaken as part of FODRA Research Aim 41.</p> <p>Prioritise areas of surface mining remains which may be suitable for further field survey.</p> <p>Develop suitable strategies for further field survey of surface remains of coal mining at an appropriate level to record and characterise the surface remains of surface or near surface coal mining and extricate stratification within surface remains. Any methodologies will draw on existing standards for field survey (Ainsworth <i>et al</i> 2007), but will also ensure that full use is made of existing high quality data sets e.g. lidar in any mapping and recording projects.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 39: Improve our knowledge of the chronology, extractive techniques and social impact of the coal industry from the Roman period to the 20th century</p> <p>NAHMO Research Aim 40: Increase our knowledge of the various technological and chronological differences between coal extraction methods over the entire temporal range of the industry in Britain</p> <p>MPP Step 1 Priority: The Coal industry: Early mining landscapes</p>

FODRA Research Aim 46: Improve knowledge of post-medieval coke manufacture in the district

Description	<p>Within the district coke was made to fuel coke-fired blast furnaces, and appears to have been manufactured at, or close to, the furnaces themselves. Coke manufacture was a process within the smelting operation rather than an industry in its own right, and there has been little research into the actual processes involved, or of surviving structural remains.</p>
Actions	<p>Review existing evidence for coke production in the district. This will involve a review of:</p> <ul style="list-style-type: none"> • Published accounts of coke-fuelled industries. • Mapped information showing the sites of coke-fuelled industries. • Other unpublished sources for coke-fuelled industries available in archives. • Information available from aerial survey or lidar. <p>Prioritise sites where evidence of coke production is most likely to survive.</p> <p>Develop suitable strategies for further field survey or investigation of suitable sites. These may include:</p> <ul style="list-style-type: none"> • Topographical or structural survey at an appropriate level. • Geophysical survey. • Trial excavation. <p>Ensure contractors or independent researchers are made aware of the potential for significant remains of coke manufacture which may be encountered in excavations or watching briefs. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ remains of coke manufacture and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 41: Widen our understanding of coke making</p> <p>MPP Step 1 Priority: The Coal industry: Coking ovens</p>

9.12.2 Iron

Iron ore extraction: Scowles

FODRA Research Aim 47: Explore the status of the full range of features in the Carboniferous Limestones which have been identified as Scowles, their relationship between scowles of different types and also the gaps between scowles

Description	<p>This research aim is linked to FODRA Research Aim 42: Determine strategies for targeted excavation of both surface and subterranean mineral extraction sites, but involves detailed study of a range of features in the Carboniferous Limestones around the edge of the Statutory Forest which have been identified as scowles. These represent a survival of early iron ore mining remains of immense importance to the district (and perhaps also at a national level) and their preservation should be seen as a priority (Crossley 1992, 45), but the features themselves are not well understood.</p> <p>The Scowles and Associated Iron Industry Survey (Hoyle <i>et al</i> 2007) identified six categories of scowles which broadly fall into two main groupings; large cavernous interconnected linear hollows with varying degrees of infill and generally more discrete pits and hollows with and without associated spoil heaps. The actual variety of these features, however, defies simple classification and they are likely to represent a range of features of different dates and formed in different ways. Only further detailed survey and analysis of selected areas can begin to unravel the complexity and interconnectivity of these features.</p> <p>Detailed recommendations for further research into the features are set out in Hoyle <i>et al</i> 2007, Appendix C, and to fully understand these features it is necessary to identify the extent to which:</p> <ul style="list-style-type: none"> • Identified scowles represent geomorphological or humanly created features. • Iron ore or ochre was extracted from scowles as surface exposures, and when this took place. • These features acted principally as a conduit to subterranean iron ore or ochre deposits, and when this exploitation first occurred. <p>The status of gaps between scowles is not well understood and the essential issue is whether gaps are genuine or represent the site of backfilled scowles. The areas of large amorphous hollows, which are currently interpreted as backfilled scowles but which may be natural sinkholes or collapse into underground workings also need more research.</p>
Actions	<p>Select areas suitable for more detailed survey. Areas should include a range of scowle forms and, where available, some indications of dates at which iron ore is likely to have been exploited at that location.</p> <p>Undertake detailed survey of the physical form of all scowles within selected areas.</p> <p>Record the topographical trends of the landscape of the survey area.</p> <p>Record details of geological changes and landuse in areas selected for study. A specialist geologist and environmentalist should be consulted as part of this process.</p> <p>Inspection and record details of exposed rock surfaces where these occur in scowles. This should be targeted towards differentiating surfaces which are clearly geological in origin from those which display evidence of physical ore extraction. Specialist input from a geologist should be included in any projects.</p> <p>Subject selected exposed rock surfaces to scientific techniques to determine the extent to which these represent natural exposures or quarried faces. Liaison with specialist geologists or other scientists will be necessary to determine suitable techniques, although these may include:</p> <ul style="list-style-type: none"> • Thin section analysis. • Optically Stimulated Luminescence. • Thermoluminescence dating. <p>Undertake geophysical survey, trial excavation, bore hole excavation or auguring to determine the form and depth of scowles and also determine the status of gaps between scowles and the form and depth of any identified backfilled scowles. Suitable specialist advice would be sought to determine the most appropriate methodologies to be adopted, and future projects would employ a specialist geologist as a consultant on geological formations.</p>

Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 22: Improve the effectiveness and relevance of scientific techniques by promoting dialogue between mine researchers and scientists</p> <p>NAHMO Research Aim 43: Address the lack of archaeological data for prehistoric, Romano-British and Dark Age iron mining in England</p> <p>NAHMO Research Aim 44: Increase our knowledge of iron extraction in England during the medieval, post-medieval and modern periods, using the full range of investigative techniques available</p> <p>MPP Step 1 Priority: Iron and Steel Industries: Ore mining</p>
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FODRA Research Aim 48: Prioritise research into the origin of the iron ores smelted in the Forest of Dean and surrounding areas and, in particular, identify which areas of the outcrop were exploited at different times.

Description	<p>Research into the origin of ores smelted in the district at different times is ongoing (Young 2012; 2013), but this should be seen as a priority for the Forest of Dean and better knowledge of this is essential for any understanding of the scale of the industry at different times or the way in which it may have been organised.</p> <p>Of particular interest are details of:</p> <ul style="list-style-type: none"> • The sources and date of exploitation of ores from the carboniferous limestone outcrops in the southern part of the district. • The origin of ores smelted in the Dymock and Newent areas, in the northern part of the district, particularly during the Roman and post-medieval periods.
Actions	<p>Collect samples of ore from recorded locations to contribute to a reference collection or ores from different parts of the Carboniferous Limestone outcrops in the southern part of the district and from the Newent and Dymock areas in the northern part of the district.</p> <p>Retain all dated assemblages of slag and ore from archaeological excavations in the district for assessment. This should be a condition of all written schemes of investigation for investigation undertaken as part of the planning process, and independent researchers or academic institutions should be encouraged to conform to this (see FODRA Research Aim 7).</p> <p>Submit dated slag and ore assemblages to a recognised specialist for assessment.</p> <p>Analyse suitable samples of dated slag and ore assemblages to determine the provenance of ore and of the ores smelted to produce slag. Advice should be sought from the recognised specialist to determine appropriate samples for this level of analysis and suitable analytical techniques.</p> <p>Retain appropriate samples of dated slag and ore assemblages to contribute to a reference collection of slags and ore from the area. Advice should be sought from the recognised specialist to determine appropriate samples for this level of analysis and suitable analytical techniques.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 22: Improve the effectiveness and relevance of scientific techniques by promoting dialogue between mine researchers and scientists</p> <p>NAHMO Research Aim 43: Address the lack of archaeological data for prehistoric, Romano-British and Dark Age iron mining in England</p> <p>NAHMO Research Aim 44: Increase our knowledge of iron extraction in England during the medieval, post-medieval and modern periods, using the full range of investigative techniques available</p> <p>MPP Step 1 Priority: Iron and Steel Industries: Ore mining</p> <p>HMS Research theme: Develop techniques to identify prehistoric mines in the absence of stone hammers and, more generally, to date ancient mine working</p> <p>HMS Research theme: Develop provenancing tools to clarify the nature of trade in metals both within the British Isles and with external areas</p>

9.12.3 Stone

FODRA Research Aim 49: Use dated stone artefacts or building materials as a means to identify prehistoric, Roman or medieval quarries in the district.

Description	There are no known prehistoric, Roman or medieval quarries within this district. A number of stone artefacts (quern stones, millstones and whetstones) or building materials (roof tiles) manufactured from Forest of Dean stone have been recovered from dated contexts (generally Roman, but also prehistoric and medieval) during excavation and better knowledge of the precise provenance of the stone used in their manufacture has the potential to lead to the identification of quarries from these periods.
Actions	<p>Review the existing evidence for dated stone artefacts manufactured from stone probably provenanced in the district.</p> <p>Review the geological evidence for outcrops of suitable stone. This should be undertaken with advice from a qualified geologist or archaeological specialist with particular knowledge of Forest of Dean stone.</p> <p>Review historical and archaeological evidence for quarries in suitable areas.</p> <p>Develop sampling strategies to establish a reference collection of stone which can be compared with dated artefacts. Any comparison should take account of developments in scientific techniques and advice should be sought from specialist geologists or other scientists to explore suitable procedures.</p> <p>Undertake further fieldwork where possible sources of stone have been identified in accordance with the proposed actions for FODRA Research Aim 43.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 22: Improve the effectiveness and relevance of scientific techniques by promoting dialogue between mine researchers and scientists</p> <p>NAHMO Research Aim 38: Investigate further the source of specific types of stone (non-flint) utilised in prehistory for tool making, including identifying quarry sites. This should also include characterisation of the extraction scale and processes involved at specific sites</p> <p>MPP Step 1 Priority: Quarrying: Prehistoric stone quarries</p> <p>MPP Step 1 Priority: Quarrying: Reliably identified Romano-British quarries</p> <p>MPP Step 1 Priority: Quarrying: Quarries with good evidence for extraction at any period between the fifth and twelfth centuries</p> <p>MPP Step 1 Priority: Quarrying: Well-preserved medieval quarries</p> <p>MPP Step 1 Priority: Quarrying: Millstone extraction sites which retain a sufficient range of features to permit an interpretation of the methods of extraction and manufacture.</p>

FODRA Research Aim 50: Use dated stone artefacts or building materials as a means to identify sources of prehistoric flint or stone artefacts from outside the district.

Description	Numerous prehistoric stone tools made from flint or other stone which was imported into the district are known in the Forest of Dean, but little research has been undertaken to identify the sources of stone used in their manufacture, or to investigate methods of trade and distribution of such items or to determine whether finished tools or raw materials were imported into the area.
Actions	<p>Undertake more detailed analysis of existing assemblages of datable flint or stone tools (see FODRA Research Aim 24 and FODRA Research Aim 28) with the specific aim of attempting to identify the source of flint or stone artefacts.</p> <p>Liaise with specialists from other areas to compare samples of datable flint or stone artefacts and determine the sources of flint or stone used in their manufacture. Any comparison should take account of any developments in scientific techniques and advice should be sought for specialist geologists or other scientists to explore suitable procedures.</p> <p>Undertake more detailed analysis of existing assemblages of datable flint (see FODRA Research Aim 24 and FODRA Research Aim 28) with the specific aim of attempting to determine the extent to which tools may have been manufactured on site from raw materials imported to the area.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 22: Improve the effectiveness and relevance of scientific techniques by promoting dialogue between mine researchers and scientists</p> <p>NAHMO Research Aim 38: Investigate further the source of specific types of stone (non-flint) utilised in prehistory for tool making, including identifying quarry sites. This should also include characterisation of the extraction scale and processes involved at specific sites</p>

FODRA Research Aim 51: Investigate Roman, medieval and early post medieval lime production in the district.

Description	The district contains no known evidence for lime production which predates the later post-medieval production of lime in permanent kilns. Before this lime may have been produced at a fairly small-scale, perhaps associated with specific construction projects such as villas, castles or churches and evidence may be expected in the vicinity of these structures rather than close to sources of suitable lime (Carlton 1989, 2; Williams 1989, 4). During these periods lime was often produced in temporary structures which may have been mis-interpreted in earlier excavation reports.
Actions	<p>Review existing evidence for both excavations and other investigations within or close to Roman, medieval or early post medieval structures to identify evidence for lime kilns which may have been misinterpreted.</p> <p>Ensure contractors or independent researchers are made aware of the potential significance of evidence for Roman, medieval or early post-medieval lime burning where these may be encountered in excavations or watching briefs. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should acknowledge the potential for recovery of evidence for lime burning from these periods where there is a reasonable expectation that they might be found, and make adequate provision for their appropriate recording and for the sampling and analysis of suitable deposits.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 36: Increase our knowledge of limestone extraction, lime burning and lime kilns of all periods in England</p>

FODRA Research Aim 52: Improve recording and characterisation of post-medieval limekilns in the district

Description	Although 181 stone-built post-medieval limekilns have been recorded in the district, only a small proportion of these (probably less than 20%) have been surveyed in any detail. There has been little attempt to characterise the types of surviving kiln in the district, or develop a chronology for their construction and use, and the current condition of the majority of limekilns is unknown.
Actions	<p>Develop projects to identify and record surviving examples of post-medieval limekilns. This will include:</p> <ul style="list-style-type: none"> • Documentary research to identify limekiln sites and, where possible, establish their date of construction and purpose. • Field survey to record surviving examples of these structures. This will include photographic and written records probably making use of pro forma recording systems, which will record (where possible) key structural elements leading towards a typology of principal types. • Field survey to assess the current condition of surviving kilns. <p>Use the results of these projects to establish a chronology and typology of post medieval limekilns in the district and also prioritise sites for renovation, remedial repair or statutory protection.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 36: Increase our knowledge of limestone extraction, lime burning and lime kilns of all periods in England</p>

9.12.4 Other metals

FODRA Research Aim 53: Undertake further research into the mining of other metals (e.g. gold and copper) in the district

Description	There are historical records of mining of minor metals (mainly gold and copper) in the northern part of the district, but little is known about these mines, what processes were involved, or what, if anything, remains of these industries.
Actions	<p>Review existing evidence for gold and copper mining in the district. This will involve a review of:</p> <ul style="list-style-type: none"> • Published accounts. • Unpublished sources available in archives. • Information available from aerial survey or lidar. <p>Identify sites where evidence of gold or copper mining is most likely to survive.</p> <p>Develop suitable strategies for further field survey or investigation of suitable sites. These may include:</p> <ul style="list-style-type: none"> • Rapid field survey to record visible features which may be the remains of these industries. • Topographical or structural survey if appropriate. • Geophysical survey. • Trial excavation <p>Ensure contractors or independent researchers are made aware of the potential for significant remains of gold or copper mining where these may be encountered in excavations or watching briefs. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ remains and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>NAHMO Research Aim 63: Broaden existing knowledge of copper mining and dressing during the 18th and 19th centuries and develop a national archaeological research programme that brings together regional and local studies</p> <p>NAHMO Research Aim 64: Broaden our knowledge of gold extraction in England from the prehistoric period to the 19th century AD</p>

9.12.5 Iron ore processing

FODRA Research Aim 54: How was the bloomery iron smelting industry organised at different periods? What changes in the technology of bloomery smelting (including early steel production) took place in the Forest of Dean over time? How do technologically different sites relate to each other?

Description	<p>This is a very wide ranging research aim which can be broken down into numerous topics and questions</p> <ul style="list-style-type: none"> • When was iron ore first exploited in the Forest of Dean? How was iron smelted at this time and when was slag tapping technology introduced? • To what extent was the Roman army directly or indirectly involved in the Roman iron industry and is it possible to differentiate smelting residues associated with civilian settlement (for example from Ariconium), and those which appear to represent a slightly different smelting process (for example Sallowvallets) and which may be associated with sites with a military and/or official connection (Hoyle 2013a, 38; Young 2013). • How significant were centralised iron production sites at some distance from the ore sources (for example Newent, or other centres outside the district) and what is the relationship between these and smaller contemporary sites where smelting occurred? • How significant was Later Roman production at villa sites and what is the relationship of villas with smaller contemporary sites where smelting occurred? • Post Roman/early medieval smelting, where did it take place? How was it organised? When did slag tapping furnaces fall out of use and when were they re-introduced? • How widespread was the early medieval iron industry in the district and were both slag tapping and non-tapping furnaces used, as reported at Clearwell Quarry, Stowe (Pine <i>et al</i> 2009). This topic falls within SWRRS Research Aim 44: Develop an understanding and identification of early medieval technologies • How was smelting organised in the medieval period? How did itinerant forges operate and what was their relationship with charcoal production and the woodland management cycle? • What was the impact of the introduction of the charcoal-fired blast furnace and when did bloomery smelting fall out of use? • What were the differences between urban/suburban and rural smelting at different periods? • What changes in the technology of bloomery smelting took place in the Forest of Dean over time? This should be particularly targeted at:- <ul style="list-style-type: none"> ○ Why, where and when was there a change from non-slag tapping to slag tapping furnaces and vice versa? ○ Is it possible to differentiate official/military and civilian smelting during the early Roman period? ○ Can late medieval/early medieval water-powered bloomery sites be identified and what is their relationship to the sites of later charcoal-fired blast furnaces? ○ Can bloomeries in which steel was produced be identified? <p>Although these research questions cannot easily be comprehensively addressed in the short term, they are material to an understanding of the bloomery smelting industry in the area and all future research into these industries should take full account of them.</p> <p>A better general understanding of all aspects of the bloomery iron industry is needed before the above questions can easily be refined and prioritised and there should be continued good practice in all investigations where bloomery smelting remains are recovered (see FODRA Research Aim 48). Research projects targeted towards improved understanding of the distribution and date of smelting sites of different periods would be a useful first step providing a framework in which more research priorities and more targeted research strategies can be defined.</p>
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Actions	<p>Undertake a programme of investigation in the following sequence. At the end of each process the collected evidence should be reviewed and decisions made about suitable sites to target with more intensive survey. Appropriate specialists should be involved at all stages of this process, both in the formulation of project designs and assessment of the results.</p> <ul style="list-style-type: none"> • Review existing evidence for the location of smelting sites and charcoal production sites. This should focus on existing records including surface artefact scatters which have slag finds. • Undertake field reconnaissance of identified sites to assess their current condition. • Undertake further more detailed fieldwork of selected sites. This will make use of techniques such as: <ul style="list-style-type: none"> ○ Further systematic field walking to determine relationships between slag and dated artefacts. ○ Geophysical survey. ○ Trial excavation or full excavation as appropriate on identified sites. <p>Undertake trial excavation of earthworks which have been interpreted as possible Roman military installations, particularly those close to the iron ore outcrops (FODRA Research Aim 71).</p> <p>Analyse all bloomery slag which can be securely dated to the early Roman period to identify characteristics which may indicate different smelting processes.</p> <p>Undertake further exploration to identify early Roman smelting sites. This should target areas where early Roman activity might be expected or is already known, and also include random areas in suitable woodland. Exploration would include:</p> <ul style="list-style-type: none"> • Systematic scanning of selected areas to identify smelting residues which may have left no visible trace on the surface. This could include magnetic scanning (e.g. magnetic susceptibility survey) or low tech methods such as auguring or shovel pitting. • Sampling of identified smelting residues to provide dating evidence – principally radiocarbon dating of charcoals. <p>Further excavation of any residues dated to the early Roman period to recover a sufficient sample of slag for analysis.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>SWRRA Research Aim 62: Investigate the relationship between early Roman period metal mines and the involvement of the Roman military</p> <p>MPP Step 1 Priority: Iron and Steel Industries: The bloomery</p> <p>MPP Step 1 Priority: Iron and Steel Industries: The steel industry</p> <p>HMS Research theme: Investigate continuity versus replacement for iron technology and production in the early medieval period, particularly comparing different areas of the British Isles</p> <p>HMS Research theme: Further investigate the nature and production of early medieval steel</p> <p>HMS Research theme: Investigate and date the beginning of iron technology in Britain</p>

FODRA Research Aim 55: Improve understanding of the post-medieval charcoal-fired blast furnace period iron industry

Description	The district contains good documentary and archaeological evidence of the post-medieval charcoal-fired blast furnace period iron industry and a number of structural remains survive. There has, however, been a lack of excavation and metallurgical analysis of residues (Webster 2008, 288). Forges, and particularly the details of finery hearths, are not well understood, and the relationship between furnaces and forges and the sites of former bloomeries remains unclear (Crossley 1992, 45).
Actions	<p>Review archives of excavations or watching briefs of known sites to identify assemblages which may require further analysis.</p> <p>Undertake further fieldwork of selected sites. This may include:</p> <ul style="list-style-type: none"> • Geophysical survey. • Trial excavation or full excavation as appropriate. • Retention of artefacts and residues analysis. <p>Ensure contractors or independent researchers are made aware of the potential significance of sites relating to the post-medieval, charcoal-fired, blast furnace period iron industry. In particular, any stratified residue assemblages should be retained in their entirety for analysis by a recognised specialist. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits or finds of this nature and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>SWRRA Research Aim 45: Broaden our understanding of post-medieval to modern technology and production</p> <p>MPP Step 1 Priority: Iron and Steel Industries: The blast furnace period</p> <p>HMS Research theme: The development of finery forges in the 15th -18th century</p>

FODRA Research Aim 56: Improve understanding of the post-medieval coke-fired blast furnace period iron industry

Description	The district contains good documentary and archaeological evidence and surviving structures for the post-medieval coke-fired blast furnace period iron industry, although there has been a lack of excavation and metallurgical analysis of residues (Webster 2008, 288), particularly from sites such as Darkhill Iron works where there were innovative developments such as the production of refined iron direct from the furnace.
Actions	<p>Review archives of excavations or watching briefs of known sites to identify assemblages which may require further analysis.</p> <p>Undertake further fieldwork of selected sites. This may include:</p> <ul style="list-style-type: none"> • Geophysical survey. • Trial excavation or full excavation as appropriate. • Retention of artefacts and residues analysis. <p>Ensure contractors or independent researchers are made aware of the potential significance of sites relating to the post-medieval coke-fired blast furnace period iron industry. In particular, any stratified residue assemblages should be retained in their entirety for analysis by a recognised specialist. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits or finds of this nature and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>SWRRA Research Aim 45: Broaden our understanding of post-medieval to modern technology and production</p> <p>HMS Research theme: 19th century ironworks, especially the foundry and forge sectors</p>

FODRA Research Aim 57: Improve understanding of the development of post-medieval steel production in the district

Description	<p>The cementation process for steel manufacture may have been introduced to Dean in the early 16th century, although no evidence for this has been found and little research has been undertaken.</p> <p>In the 19th century there were further developments in steel production at Darkhill furnace near Coleford where Robert Mushet experimented in crucible steel manufacture, developed the Bessemer process and opened the Titanic Steelworks for the mass production of steel. Although there is a reasonable amount of documentary and historical evidence for these processes, there has been little systematic fieldwork at recognised sites and no analysis of residues.</p>
Actions	<p>Review the historical evidence for steel production sites, and sites where the cementation process may have been undertaken in the early 17th century.</p> <p>Review archives of excavations or watching briefs of known sites to identify assemblages which may require further analysis.</p> <p>Undertake further fieldwork of selected sites. This may include:</p> <ul style="list-style-type: none"> • Geophysical survey. • Trial excavation or full excavation as appropriate. • Retention of artefacts and residues analysis. <p>Ensure contractors or independent researchers are made aware of the potential significance of steel production sites, and also the potential of early blast furnaces to contain evidence for the cementation process. In particular, any stratified residue assemblages from these sites should be retained in their entirety for analysis by a recognised specialist. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits or finds of this nature and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>SWRRA Research Aim 45: Broaden our understanding of post-medieval to modern technology and production</p> <p>MPP Step 1 Priority: Iron and Steel Industries: The steel industry</p> <p>HMS Research theme: Early cementation steel furnaces from the 17th century</p>

9.12.6 Minor metal industries

FODRA Research Aim 58: Improve understanding of other Roman metal processing industries in the district.

Description	<p>There is some evidence for Roman bronze working and brooch manufacture at Dymock (Cool 2007; Williams 2011a), The Mount Lydbrook (Walters 1985b) and possibly also at the Moat near Newent (Walters 1990c), whilst silver refining may also have been taking place at Dymock (Williams 2011a) and the Moat (Walters 1990c). These industries are, however, poorly understood and more research is needed.</p>
Actions	<p>Review archives of excavations from Roman sites. This should not only include archives from known sites but also sites where recovered evidence for these industries may have been overlooked.</p> <p>Review assemblages of Roman material recovered from field surfaces to ensure that recovered evidence for these industries has not been overlooked.</p> <p>Undertake further fieldwork of selected sites. This will make use of techniques such as:</p> <ul style="list-style-type: none"> • Further systematic field walking to better define smelting sites and link them to datable artefacts. • Geophysical survey. • Controlled metal detector survey. • Trial excavation or full excavation as appropriate. <p>Submit suitable samples of residues or manufactured items for analysis. Analysis will be targeted towards identification of production methods and the source of raw materials. Advice from suitable specialists should be sought on appropriate analysis techniques.</p> <p>Ensure contractors or independent researchers are made aware of the potential significance of evidence for bronze working, silver refining or other metallurgical industries which may be encountered in excavations or watching briefs. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits or finds of this nature and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>HMS Research theme: Identify where the raw materials for making Roman copper alloys come from</p> <p>HMS Research theme: Clarify the nature, status and sources of the Roman industries working in lead, tin pewter and silver</p>

FODRA Research Aim 59: Further investigate the post-medieval brass industry in the northern part of the district

Description	There is some evidence for post-medieval brass manufacture in the northern part of the district, although this industry is not well understood. None of the brass mills in the Taynton and Newent area have been researched in detail and none of the sites have been identified for certain.
Actions	<p>Review the evidence for post-medieval brass mills in the Taynton and Newent areas and attempt to identify sites. This will include:</p> <ul style="list-style-type: none"> • Historical sources. • Published and unpublished research. • Early map information. • Lidar and aerial photographic information if available. <p>Undertake fieldwork to record any visible remains or surface artefact scatters which may indicate sites of former mills.</p> <p>Undertake systematic field walking, topographical survey, geophysical survey or trial excavation as appropriate to refine and interpret site locations.</p> <p>Retain any artefacts and residues for specialist analysis.</p> <p>Submit suitable samples of residues or manufactured items for analysis. Analysis will be targeted towards identification of production methods and the source of raw materials. Advice from suitable specialists should be sought on appropriate analysis techniques.</p> <p>Undertake further fieldwork of selected sites. This will make use of techniques such as:</p> <ul style="list-style-type: none"> • Further systematic field walking to better define smelting sites and link them to datable artefacts. • Geophysical survey. • Trial excavation or full excavation as appropriate.
Contributes to	<p>SWRRA Research Aim 38: Widen our understanding of the extraction, processing and transportation of mineral, stone and aggregates</p> <p>HMS Research theme: Location of brass and copper production sites dating before the 18th century, and recording of 18th and 19th century brass production sites outside of Bristol</p>

9.13 SWRRA Theme: Production and Trade: Food production

FODRA Research Aim 60: Identify Neolithic and Bronze Age deposits or assemblages which have the potential to provide information on the exploitation of plants and animals and undertake any necessary analysis and sampling

Description	Within the Forest of Dean there are no known Neolithic or Bronze Age settlement sites and no potential sites have been investigated (but see FODRA Research Aim 28) and there are no assemblages of animal bone which date to these periods. Given this, there is currently not enough data to instigate further investigation of the issues relating to SWRRA Research Aim 39 (Webster 2008, 289) within the district. Suitable remains may, however, come to light in the future as a result of development-led investigations, or through research projects undertaken in accordance with FODRA Research Aim 28..
Actions	<p>Ensure contractors or independent researchers are made aware of the potential significance of Neolithic and Bronze Age remains where these may be encountered in excavations or watching briefs and the potential they may have to inform knowledge of animal or plant exploitation during those periods. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits from these periods and make provision for their appropriate recording, sampling and analysis.</p> <p>Undertake further excavation, geophysical survey or sampling in areas where there is a reasonable expectation that in-situ Neolithic or Bronze remains may be encountered where surface artefacts have been recovered (see FODRA Research Aim 28). Particular attention should be given to the recovery of suitable deposits for palaeoenvironmental sampling and stratified animal bone.</p> <p>Ensure that further exploration of possible Bronze Age ritual monuments (see FODRA Research Aim 77) takes particular account of the potential of buried soils or other suitable deposits or assemblages to inform this issue.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 39: Understand better the relationships of Neolithic and Bronze Age people to plants and animals</p> <p>SWRRA Research Aim 40: Improve our understanding of agricultural intensification and diversity in later prehistory</p>

FODRA Research Aim 61: Re-assess the evidence for late Iron Age and Roman agriculture in Forest of Dean District.

Description	<p>In order to understand the impact of the Roman empire on farming it is necessary to identify and understand changes which may have occurred both between the late Iron Age and early Roman periods and between the early and later Roman periods to identify key points at which large-scale changes may have taken place: Particular attention should be paid to discernible changes in:</p> <ul style="list-style-type: none"> • Boundary types. • Types of crop grown. • Types of animals kept. • Types of tools and equipment used. <p>It is also necessary to identify differences in farming regimes, not only through time but also in different areas of the district with different topographies, geologies and soils, which may have been used in different ways during these periods.</p>
Actions	<p>Undertake a synthetic review of the evidence for late Iron Age and Roman agriculture in Dean district. This would include analysis and synthesis of:</p> <ul style="list-style-type: none"> • Reports (either published or grey literature), records and archives of excavations where palaeoenvironmental deposits or assemblages of animal bone from these periods have been recovered. • Reports (either published or grey literature), records and archives of excavations where features interpreted as field boundaries from these periods have been recorded, including those where boundaries are not visible as either cropmarks or on lidar. • Museum collections of relevance to late Iron Age and Roman farming in the district. <p>Ensure that all written schemes of investigation and project briefs for excavations undertaken as part of the planning system (see FODRA Research Aim 17) specify that:</p> <ul style="list-style-type: none"> • Contractors or other excavators are aware of the potential significance of deposits which may contain palaeoenvironmental remains dating to these periods and also the potential significance of animal bone assemblages. • Environmental sampling and analysis of suitable stratified deposits from these periods is undertaken where these are encountered during excavations. • All stratified animal bone assemblages from these periods are subject to specialist analysis.
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 41: Assess the impact of the Roman empire on farming</p> <p>SWRRA Research Aim 50: Improve understanding of the effects of the Roman army on the local population</p>

FODRA Research Aim 62: Improve understanding of the date and extent of wood pasture in the southern part of the district

Description	<p>Historical records of medieval open fields have been well researched in the district (Victoria County History volumes 5, 8, 10, 12 and 13; Hoyle 2006), and evidence for the extent of ridge and furrow has been recorded through NMP and lidar. An understanding of the extent of wood pasture is beginning to emerge (Hoyle 2006) but more research is needed. The principal synthetic analysis of the medieval landscape of the Forest of Dean (Townley 2004) pre-dates the most recent research and focuses on the southern part of the district.</p> <p>Although extensive areas of open fields seem to have predominated in the Leadon Valley and along the northern shore of the River Severn, wood pasture, a landscape of woodland, small closes, and perhaps also open common grazing, may have been widespread on the higher ground of the southern part of the district. The extent of this during different periods and its relationship with open field systems which also existed in the area is not well understood.</p> <p>This research aim is linked to FODRA Research Aim 21 and is targeted towards a better understanding of the numerous relic boundary systems identified by lidar (Hoyle 2008c) or as cropmarks (Small and Stoertz 2006) in the southern part of the district, particularly those outside of woodland which are currently assumed to be medieval or early post-medieval and relic of a wood pasture landscape of woodland and small paddocks.</p> <p>Better knowledge of the date of these boundaries will inform an understanding of the relationship between open field ridge and furrow farming systems which predominated in the Leadon Valley and the low ground along the northern shore of the River Severn, and a wood pasture landscape of woodland and areas of small paddocks or enclosures which may have been more common in the higher ground of the southern part of the district.</p>
Actions	<p>Undertake small-scale excavation of selected boundary systems (targeting those found outside of woodland) to:</p> <ul style="list-style-type: none"> • Establish the processes which formed them. • Establish their date range making use, where applicable, of scientific dating techniques such as OLS (see FODRA Research Aim 16). • Collect and undertake analysis of dated charcoal and palaeoenvironmental material.
Contributes to	SWRRA Research Aim 42: Improve our understanding of medieval farming

FODRA Research Aim 63: Improve understanding of medieval meadows, pasture and water management systems.

Description	<p>Better understanding of medieval meadows, pasture and water management systems is seen as a priority research direction in the SWRRA (Gove and Croft 2012, 35) and further research into this within the district would contribute towards regional and national studies (Grove and Croft 2012, 16). The reclamation of coastal salt marsh, areas of open communing on the steep slopes and higher ground above the Severn Estuary and areas of meadowland away from traditional riverside areas of alluvium (for example in Whitecliff near Coleford, Clearwell and Hewelsfield) may be seen as of particular interest to the district, but research should not be exclusively focused on these areas.</p>
Actions	<p>Review previous research and in particular existing palaeoenvironmental evidence relevant to medieval meadows or commons in the district (for example Bartlett 2004; Head <i>et al</i> 2005).</p> <p>Routinely undertake environmental sampling where suitable deposits are encountered in all excavations. This should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.</p> <p>Develop a strategy for a synthetic project to investigate meadows and common pasture within the district. This should include:</p> <ul style="list-style-type: none"> • Historical research to synthesise existing records, including excavation records. • Field survey to identify water management systems. • Palaeoenvironmental sampling.
Contributes to	SWRRA Research Aim 42: Improve our understanding of medieval farming

FODRA Research Aim 64: Improve understanding of the medieval landscape and the interrelationship of different farming regimes, settlement and high status sites and landscape features

Description	<p>There is a considerable body of information available on the medieval landscape in the district and individual components such as settlement, moated sites, fish ponds, deer parks or rabbit warrens are reasonably well known. More research is needed on the exact status, date and (in some instances) the location of individual sites and what currently survives of these. There have been few integrated attempts to draw together these components into a coherent narrative.</p> <p>Parish-based studies which synthesise historical records, the results of excavations and large scale surveys (for example lidar and NMP) would be a good starting point for research of this kind, but further more detailed investigation of some features may be needed.</p> <p>Projects to investigate the medieval landscape could be linked to and be an extension of similar projects to investigate non-urban settlement patterns (see FODRA Research Aim 35).</p>
Actions	<p>Develop projects to explore the medieval landscape (see FODRA Research Aim 4). This will include:</p> <ul style="list-style-type: none"> • Documentary research to access existing published, unpublished and HER data including NMP and lidar where available. • Field survey to identify field evidence for the medieval landscape (for example surviving ridge and furrow, water management features, moated sites, fish ponds, deer parks or rabbit warrens), characterise boundary types, and record any remaining structures. • Identify features which may require further more detailed recording or investigation. <p>Undertake further investigation or recording of selected features. This may include:</p> <ul style="list-style-type: none"> • Earthwork survey. • Geophysical survey. • Trial excavation • Sampling of suitable deposits for palaeoenvironmental evidence.
Contributes to	<p>SWRRA Research Aim 40: Improve our understanding of agricultural intensification and diversity in later prehistory</p> <p>SWRRA Research Aim 41: Assess the impact of the Roman empire on farming</p> <p>SWRRA Research Aim 42: Improve our understanding of medieval farming</p>

9.14 SWRRA Theme: Technology

FODRA Research Aim 65: Further research into the early medieval fishing industry

Description	<p>The Domesday survey of 1086 records fisheries at Bledisloe and Stroath on the Severn, Madgetts, Wyegate and St Briavels on the Wye and at Tidenham perhaps on both rivers. In addition, phase 2 of the Severn Estuary Rapid Coastal Zone Assessment identified the remains of early medieval fish traps and woven fishing structures in the intertidal zone at Beachley and Woolaston Grange (Chadwick and Catchpole 2010). Further research into these would form part of a wider project to identify and investigate early fishing structures in the Severn Estuary (see FODRA Research Aim 68).</p>
Actions	<p>Undertake further research into known early fishing structures in the Severn Estuary (see FODRA Research Aim 68).</p> <p>Undertake intertidal and foreshore survey in accordance with the specifications of the Severn Estuary RCZA project in those areas of the Severn Estuary where this has not yet been done.</p> <p>Undertake intertidal and foreshore survey in accordance with the specifications of the Severn Estuary RCZA project in the Wye Valley.</p> <p>Where structures are identified undertake further research into these in accordance with the actions set out in FODRA Research Aim 68.</p> <p>Where possible repeat visits to selected structures should be undertaken following storms as new information may have been uncovered.</p>
Contributes to	<p>SWRRA Research Aim 44: Develop an understanding and identification of early medieval technologies</p>

9.15 SWRRA Theme: Trade, Transport and Communications

FODRA Research Aim 66: Investigate the remains of Roman coastal trade particularly along the Severn Estuary, but also along the Wye

Description	<p>The presence of a Roman and early medieval maritime trade along the Severn is assumed, but the evidence is not always clear and no known certain remains of wharves or other structures associated with Roman riverine trade are known in the Forest of Dean.</p> <p>Structures at The Chesters Villa Woolaston and Park Farm Villa, Aylburton have been interpreted as the remains of navigation beacons and a wall at Park Farm has been interpreted as a quay (Fitchett 1986; Scott-Garrett and Harris 1938). Both these sites were associated with iron production, possibly on a semi-industrial scale (Fitchett 1986; Fulford and Allen 1992) and numerous other sites where residues from iron smelting and Roman pottery have been found are known close to the Severn (Allen 2009, 90-91), suggesting that iron was traded along the river during the Roman period. Although beaching craft directly on the shoreline may have been common, waterfront structures might be expected at these sites and also at Woolaston and Lydney (Chadwick and Catchpole 2013, 134).</p> <p>There was also probably trade along the River Wye during this period (as suggested by the Riverside Roman villas at Huntsham and Hadnock in Herefordshire), but no evidence for this is known.</p>
Actions	<p>Undertake further investigation to determine the character and date of sites where Roman activity is known close to the Rivers Severn and Wye, which may be linked with riverine trade and where evidence for riverside structures might reasonably be expected. This could include:</p> <ul style="list-style-type: none"> • Detailed ground survey to establish the extent of sites. • Geophysical survey. • Targeted excavation. • Monitoring of coastal erosion at these locations. • Sampling and dating of any timber structures either in the inter-tidal zone or exposed by coastal erosion in these areas.
Contributes to	SWRRA Research Aim 46: Assess the information for Roman ports

FODRA Research Aim 67: Investigate the remains of medieval coastal trade particularly along the Severn Estuary, but also along the Wye

Description	<p>As with Roman riverine trade (see FODRA Research Aim 66) details of medieval trade along the Severn are not well understood and medieval coastal remains are limited to a medieval stone quay at Woolaston (Fulford <i>et al</i> 1992). Post medieval ports such as Newnham, Bullo, Gatcombe, Purton, Lydney and Aylburton along the Severn and Brockweir, Redbrook, and Lydbrook on the Wye may have had antecedents and medieval (or earlier) structures may survive (perhaps hidden by alluvial build up) at these locations.</p> <p>Undated remains of wooden wharves or jetties at Cone Pill and Alvington Pill, Alvington (Allen 2001b, 35; Putley 1996, 32) and at Woolaston (Chadwick and Catchpole 2013) may prove to be medieval and detailed foreshore survey, such as that undertaken by the Severn Estuary Rapid Coastal Zone Assessment Survey, has not been consistently undertaken in the Forest of Dean (Chadwick and Catchpole 2013, fig 2).</p>
Actions	<p>Undertake further investigation to determine whether the remains of structures associated with medieval riverine trade survive in areas where later evidence is known and characterise and record these where they are located. This could include:</p> <ul style="list-style-type: none"> • Detailed ground survey to establish whether earlier remains survive. • Geophysical survey. • Targeted excavation. • Monitoring of coastal erosion at these locations. • Sampling and dating of any timber structures either in the inter-tidal zone or exposed by coastal erosion in these areas. <p>Undertake rapid survey of the intertidal zone and foreshore to the same specifications as the Severn Estuary Rapid Coastal Zone Assessment in those areas where this has not been undertaken along the Severn and also along the Wye.</p> <p>Where structures have already been identified by Rapid Coastal Zone Assessment, or where new structures are found, undertake:</p> <ul style="list-style-type: none"> • Further limited cleaning of the intertidal surface of identified structures to both expose surviving remains and draw out further details of their construction and phasing. • Detailed scale planning of cleaned structures at an appropriate scale to show each visible timber element and/or detailed scanning or photogrammetric recording. <p>Further sampling of surviving wooden remains to date structures and identify species used in their construction to detect any preferences for utilisation of species or woodworking techniques during different periods.</p>
Contributes to	SWRRA Research Aim 47: Assess the archaeological potential for studying medieval economy, trade technology and production

FODRA Research Aim 68: Undertake further exploration of recognised early fishing structures in the Severn Estuary

Description	<p>Phase 2 of the Severn Estuary Rapid Coastal Zone Assessment identified the remains of stake-built fish traps and woven fishing structures in the intertidal zone at Beachley and Woolaston Grange within Dean District, some of which were shown by radiocarbon dating to date to the early medieval period (Chadwick and Catchpole 2010). These are particularly vulnerable to coastal erosion and although that survey made a basic record of their size and location more detailed recording and sampling of these structures is a priority and recommendations for this are set out in Chadwick and Catchpole (2013, 133).</p>
Actions	<p>Undertake further limited cleaning of the intertidal surface of identified structures to both expose surviving remains and draw out further details of their construction and phasing.</p> <p>Undertake detailed planning of cleaned structures at an appropriate scale to show each visible timber element and/or detailed scanning or photogrammetric recording.</p> <p>Undertake further sampling of surviving wooden stakes to date structures, identify species used in their construction and any preferences for utilisation of species and also to record woodworking techniques used during different periods.</p>
Contributes to	SWRRA Research Aim 47: Assess the archaeological potential for studying medieval economy, trade technology and production

FODRA Research Aim 69: Improve the record of what survives of former railway and tramroad systems within the district

Description	Post-medieval and modern transportation systems are reasonably well researched in the Forest of Dean, particularly tramway and railway systems, and although any further historical research will prove beneficial this is not considered a priority at the present time. Accurate information on the current condition of these systems and associated structures, and what survives, is inconsistent. This is particularly problematic when decisions have to be made about potential threats to them through the planning process, forestry operations or any other form of development.
Actions	Develop community or interest group projects to consistently record and photograph what actually survives of former railway and tramway systems and associated structures. Ensure that any recorded information is compatible with the county HER and is incorporated into it in a meaningful way.
Contributes to	SWRRA Research Aim 48: Widen our understanding of post-medieval and modern transport and communications NAHMO Research Aim 75: Expand our knowledge of the importance of mines and quarries with regard to transport systems and industrial infrastructure

FODRA Research Aim 70: Undertake further research into the medieval and post-medieval road system in the district and in particular the status of the Dean road.

Description	There is a reasonable amount of documentary and historic map information about the network of pre-modern roads, particularly those used for the transportation of timber or minerals. There has, however, been little synthetic research into these and there is no consistent information about what survives on the ground. Areas of particular concern would include: <ul style="list-style-type: none"> • Routes connected with post-medieval Crown enclosures. Many of these are mapped on 19th century maps and their surviving earthworks are visible on lidar. • Other routes which may have been connected with timber haulage (see for example Standing 1988). • The Dean Road which may (in its current form) be a post-medieval road, although its status and date remains controversial. Accurate information on the current condition of these systems and any associated structures is needed to ensure they are adequately protected from forestry operations or any other form of development.
Actions	Develop community or interest group projects to: <ul style="list-style-type: none"> • Research the routes of post-medieval timber roads within or close to the Crown estate (the Statutory Forest). This will include historical records of Crown enclosure and map and lidar information on where enclosure boundaries would be expected or appear to survive as earthworks. These could be undertaken in conjunction with projects to investigate Crown enclosure (FODRA Research Aim 88). • Make consistent records and photograph what actually survives of these routes. Particular care should be taken to identify and record boundary features or surviving metalling. • Ensure that any recorded information is compatible with the county HER and is incorporated into it in a meaningful way. Undertake further research into the status of the Dean Road. This may include: <ul style="list-style-type: none"> • Reviewing documentary and map research undertaken to establish when the road was recorded as a coherent route way (see Standing 1988). • Making consistent records and photographing what actually survives of the Dean Road throughout its length. Particular attention should be paid to recording surviving metalling, and the results should be compared with Trotter and Hicks' 1932-35 survey (Trotter 1936). • Undertaking trial excavation of sections of the road to establish its structure at different locations, recover dating evidence and ascertain whether the road in its present form followed the line of a former road.
Contributes to	SWRRA Research Aim 48: Widen our understanding of post-medieval and modern transport and communications NAHMO Research Aim 75: Expand our knowledge of the importance of mines and quarries with regard to transport systems and industrial infrastructure

9.16 SWRRA Theme: Social Relations

FODRA Research Aim 71: Undertake more research into the early Roman military presence in the district mainly through the investigation of recognised features

Description	<p>The district contains a number of sites whose form is consistent with early Roman military installations, but only two have been investigated in modern times. One of these (at Ruardean Hill) was shown to be early Roman, but its interpretation as a military site is not unequivocal, whilst another at Yorkley proved to date to the medieval period.</p> <p>Further research to establish the function, date and inter-relationship of potential early Roman military sites is needed before a coherent narrative of early Roman military occupation in the Forest, and the impact the Roman army had on the local population can be formulated.</p> <p>The construction sequence and precise course of early Roman military roads needs more research, as does the role of the military in establishing <i>mansiones</i> at Dymock and perhaps also at Blakeney.</p>
Actions	<p>Review the evidence for a military and/or official association with Dymock and Blakeney, particularly the possibility that there were <i>mansiones</i> at these sites, and the relationship of these with the likely course of the Roman road system.</p> <p>Review the evidence for early Roman military forts, fortlets and roads in the district.</p> <p>Undertake further analysis of data sets, for example lidar and aerial photographs (NMP) which may provide further evidence for early Roman military installations or roads (see FODRA Research Aim 1 and FODRA Research Aim 2).</p> <p>Undertake further field investigation of earthworks which have been interpreted as possible Roman military installations, or the likely course of early Roman roads using topographical survey, geophysical survey or trial excavation as appropriate.</p>
Contributes to	SWRRA Research Aim 50: Improve understanding of the effects of the Roman army on the local population

FODRA Research Aim 72: By what processes and at what times did sections of Forest of Dean District become incorporated into early 'Saxon' territories and to what extent did some areas remain essentially ethnically or culturally 'British' and perhaps also politically outside the Saxon sphere of influence?

Description	<p>The ethnic/cultural mix of populations during the post-Roman and early medieval periods, and to what extent people either were ethnically, or considered themselves to be, culturally Germanic or British at different periods, is a wider question for British archaeology. This is particularly relevant to the Forest of Dean which is on the boundary between the 'Saxon' and the 'Celtic' world, and an area where political boundaries during the early medieval period are poorly understood and are likely to have fluctuated over time. Much of the evidence for this takes the form of historic records such as charters or land grants many of which have been studied (Victoria County History, volumes 5, 8, 10, 12 and 13; Hare and Heighway 2012), and although archaeology does have the potential to address issues such as cultural influences, it is doubtful whether it can fully answer these questions. The status of the linear earthwork overlooking the Wye in the southern part of the district known as Offa's Dyke may have the potential to inform some issues about post-Roman/early Medieval territoriality and the results of any investigations to determine the date and function of this earthwork (see FODRA Research Aim 81) should be taken into account in any consideration of these issues.</p>
Actions	<p>Encourage closer synthesis of historical and archaeological records and investigate whether theories about territoriality suggested in historical documents are, or have the potential to be, detectable as archaeological evidence.</p> <p>Develop parish surveys which link historical with archaeological data may inform issues about continuity between parish boundaries and Roman estates.</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 31: Address the long-running debates about early medieval landscape and territories</p> <p>SWRRA Research Aim 51: Utilise the high-quality evidence from the region to investigate early medieval ethnicities and identities</p> <p>Offa's Dyke Collaboratory, notes towards a research agenda, conservation agenda, research design and research programme for Offa's Dyke (Ray 2017): Key questions:</p> <p>27: How permanent was it as a border, and why were there gaps in it?</p> <p>41: How frequently can we extrapolate the prior existence of 'English communities' west of the Dyke?</p> <p>42: What evidence is there for the absorption/survival of British communities east of the Dyke?</p> <p>45: Were there areas of particularly intense Anglo-Saxon settlement to the east of the Dyke, for instance in the Shropshire Plain?</p> <p>55: Was the Dyke supposed to be a boundary-marker or was it the main, but not the only, defining feature of the frontier?</p> <p>59: Was the Dyke built to some extent to provide an exhibition of Mercian military might to inhibit dissent within, or rivalry beyond, Mercia; or as a means of occupying the efforts of forces subject to Mercia to distract them from dissent?</p> <p>100: What came first, Dyke or frontier?</p>

FODRA Research Aim 73: Improve understanding of the principal sources of immigrants to the Forest of Dean in the 18th and 19th centuries and of the origins of the current population of the district.

Description	SWRRA Research Aim 53 identified the 19 th century 'Cornish diaspora of mining technology' as an area warranting further research. The Forest of Dean, and particularly the southern part of the district, has a strong sense of its own identity although the population of this area grew rapidly in the 18 th and 19 th century attracting industrial workers, particularly from the mining industries, from diverse parts of the country. There has been little synthetic research of the makeup and origins of these immigrant groups. A better knowledge of this is vital to understanding the identity of the current inhabitants of the Forest of Dean.
Actions	Promote community projects which investigate the sources of 18th and 19th century immigration to the area. These will typically use genealogical records (birth, death, marriage and baptismal records, trade directories and census information) and may most effectively trace the origins of exemplar families or individuals to provide information which can be extrapolated to create a more general picture.
Contributes to	SWRRA Research Aim 10: Address our lack of understanding of key transitional periods SWRRA Research Aim 52: Use archaeological evidence to better understand identities, such a Cornish, through time SWRRA Research Aim 53: Increase our knowledge of the effects of colonialism on the region and on the wider world

9.17 SWRRA Theme: Religion

FODRA Research Aim 74: Improve understanding of standing stones and other possible megalithic monuments within the district.

Description	Too little is currently known about some categories of Neolithic and Bronze Age monuments within the district to construct meaningful research aims which would address SWRRA Research Aim 54, although FODRA Research Aim 77 has the potential to contribute towards this in the future. There may, however, be some potential to undertake further research into the district's megalithic structures (principally standing stones) to better understand their date, significance and relationship with other monuments.
Actions	Undertake detailed analysis of what is known of standing stones, or the known sites of former standing stones, and of other prehistoric sites or finds the vicinity. This will include analysis of other data sets such as lidar. Undertake surveys of existing or former standing stones and their immediate environs. These will include: <ul style="list-style-type: none"> • Photographic, drawn and written records of standing stones. • Topographic and geophysical survey of the environs of known or former standing stones. • Small-scale excavation to investigate associated features or possible features. This will include palaeoenvironmental sampling as appropriate. Undertake further targeted investigation of antiquarian or placename evidence which may indicate the former site of megalithic monuments. References to the 'Stone row' or the 'Hoar Stones' on Tidenham Chase, for example, require further consideration.
Contributes to	SWRRA Research Aim 54: Widen our understanding of monumentality in the Neolithic and early Bronze Age

FODRA Research Aim 75: Better understanding of the status of structures in the district which have been interpreted as Roman temples.

Description	The Roman ritual landscape of the Forest of Dean is not well understood and confined to the single known site of Lydney Park temple, cropmark evidence from Blackrock Farm Lydney which may represent a <i>temenos</i> enclosure and two excavated structures (at High Nash, Coleford and Littledean Hall) which have been interpreted as temples, but for which the evidence is less clear. In addition, other earthworks (at Willsbury Farm, St Briavels; Haywood Lodge, Cinderford and Morse Lane, Ruardean) may also represent Roman temples but are currently thought more likely to be other types of site.
Actions	<p>Review the existing evidence and excavation archives for the two possible temple sites at Littledean Hall and High Nash Coleford.</p> <p>Undertake further fieldwork at possible temple sites which have not been explored. This will include:</p> <ul style="list-style-type: none"> • Detailed re-assessment of known Roman sites or assemblages in the vicinity. • Geophysical survey. • Trial excavation. • Palaeoenvironmental sampling if appropriate.
Contributes to	SWRRA Research Aim 55: Improve our understanding of later Roman religion

FODRA Research Aim 76: Ensure post-medieval and modern religious structures are adequately recorded prior to demolition or conversion to other uses.

Description	Within the district a number of post-medieval and modern religious houses, principally non-conformist chapels but also some corrugated iron churches, are falling out of use and are at risk from unsympathetic redevelopments or demolition, particularly where they are not protected either through listing or scheduling. Where decisions about the fate of these structures fall within the local authority planning system adequate provision should be made to ensure that any structures at risk are adequately recorded either prior to their change in use, or before demolition.
Actions	<p>Develop projects to record post-medieval and modern places of worship. This should not necessarily be confined to structures which have fallen out of use, but should also include active churches and chapels. Recording will include:</p> <ul style="list-style-type: none"> • Systematic photographic records of both the interior and exterior of selected structures. • Written and drawn records as appropriate. • Data trawl for historic records of the places of worship, typically historic photographs or unpublished accounts, but also including published histories. • Oral history recording the significance of these places of worship within the community within living memory.
Contributes to	SWRRA Research Aim 56: Utilise surviving buildings and records to understand liturgical and social change in post-medieval to modern places of worship and cemeteries

FODRA Research Aim 77: Undertake further investigation of possible Bronze Age ritual monuments in the district.

Description	There is an urgent need to better understand the Bronze Age ritual landscape of the district (see also FODRA Research Aim 74) as although a number of possible monuments (mainly undated mounds) have been identified through field survey or lidar, few have been investigated and their status remains unclear. Of particular interest are mounds in the Tidenham Chase area and close to the Long Stone, Staunton, but future research should not be confined to these.
Actions	<p>Undertake further study of identified mounds or ring ditches which have the potential to be Bronze Age burial mounds. This will include:</p> <ul style="list-style-type: none"> • Assessment of other artefacts or possibly contemporary features with the vicinity. • Geophysical survey of mounds and their immediate vicinity where possible. • Trial excavation to determine the status and date of mounds. • Palaeoenvironmental sampling as appropriate. <p>Undertake further study of other possible Bronze Age ritual monuments in the district, and in particular the ring cairn in East Wood Tidenham and other circular structures in the vicinity including the monument to the west of the ring cairn and the putative hut circles in East Vaga Wood. This will include</p> <ul style="list-style-type: none"> • Geophysical survey of features and their immediate vicinity where possible. • Further excavation of the ring cairn in East Wood, Tidenham. • Trial excavation to determine the status and date of other features. • Palaeoenvironmental sampling as appropriate.
Contributes to	SWRRA Research Aim 57: Widen our understanding of Neolithic and early Bronze Age mortuary practice

FODRA Research Aim 78: Review the evidence for Roman burial traditions within the district

Description	<p>Most of the evidence for Roman burial tradition within the district is from Dymock where 2nd century crouched and supine inhumations have been found (Cole 2007; Tavener 2001) and where there are hints of late Iron Age or Roman cremations (Gethyn-Jones 1991; Ratkai 2001; Tavener 2001).</p> <p>There are also suggestions of late Iron Age or Roman burials and cremations in other parts of the district, but the evidence for these is less clear.</p> <p>This limited evidence base may be too small and inconclusive to develop into meaningful conclusions about Roman burial traditions within the district, although further work could provide information which would contribute to future discussions of this. The available evidence, particularly for Dymock, but also from the wider district, should be reviewed. Of particular interest is:</p> <ul style="list-style-type: none"> • The extent to which early Roman burial traditions are a continuation of late Iron Age traditions. • The extent to which individuals within burial groups are related. • Whether it is possible to discern a sequence from crouch burial to supine burial and from burial to cremation or vice versa.
Actions	<p>Undertake radiocarbon dating of burials from Dymock to determine the precise date of individual burials and ascertain whether there is a detectable progression from crouch to supine burial traditions.</p> <p>Undertake DNA analysis of burials from Dymock if possible to determine the ethnicity and interrelationship of buried individuals.</p> <p>Undertake radiocarbon dating of other human remains from the district (for example from Reddings Lane, Staunton near Coleford) to determine their precise date.</p> <p>Undertake specialist dating and analysis of the possible cremation urns from Newent to determine whether they do represent the remains of cremation urns.</p> <p>Trawl antiquarian and earlier observations to identify overlooked evidence for Roman burial practice in the district.</p> <p>Search museum collections to try and identify the location of 'missing' possibly Roman assemblages, particularly the burials and cremations from close to Dymock church and the cremated remains and pottery from Lindors Farm, St Briavels (see FODRA Research Aim 13).</p>
Contributes to	SWRRA Research Aim 58: Widen our understanding of Roman burial traditions

FODRA Research Aim 79: Review the evidence for early medieval burial within the district and explore possibilities for further research

Description	With the possible exception of apparently post-Roman burials from Boughspring Roman Villa (Pullinger 1990), there is little known evidence for early medieval burials within the district. This research aim is generally applicable to the Forest of Dean. The Research directions set out in the South West Archaeological Research Framework Research Strategy 2012-2017 for SWRRA Research Aim 59 (Grove and Croft 2012, 33) could be applied in the district.
Actions	<p>Undertake radiocarbon dating of human remains from Boughspring Roman Villa to determine their precise date.</p> <p>Undertake a trawl of antiquarian and earlier observations to identify overlooked evidence for early medieval burial in the district.</p> <p>Review existing evidence for undated burial in the district, particularly in areas (for example churchyards) where early medieval burial might be expected.</p> <p>Ensure that any contractors or other researchers are aware of the research issues surrounding early medieval burials and that the research directions set out in the South West Archaeological Research Framework Research Strategy 2012-2017 for SWRRA Research Aim 59 (Grove and Croft 2012, 33) are included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system where early medieval burials might be expected.</p>
Contributes to	SWRRA Research Aim 59: Utilise the potential for good evidence from early medieval burials to address research questions

9.18 SWRRA Theme: Conflict

FODRA Research Aim 80: Review evidence for Neolithic and early Bronze Age conflict in the district.

Description	There is no known evidence for Neolithic or early Bronze Age conflict in the district, and no sites have been identified (for example defended Neolithic settlements) where evidence for such conflict might be expected.
Actions	<p>Ensure the research directions set out in the South West Archaeological Research Framework Research Strategy 2012-2017 (Grove and Croft 2012) should be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system where evidence for Neolithic and Bronze Age conflict might be expected.</p> <p>Undertake a trawl of antiquarian and earlier observations to identify overlooked evidence for Neolithic or early Bronze Age conflict in the district.</p> <p>Review existing assemblages of Neolithic and Early Bronze Age flint or other artefacts (for example axes) for evidence of conflict (see FODRA Research Aim 28).</p>
Contributes to	<p>SWRRA Research Aim 10: Address our lack of understanding of key transitional periods</p> <p>SWRRA Research Aim 61: Address the lack of knowledge of Neolithic and early Bronze Age conflict</p>

FODRA Research Aim 81: Undertake further investigation to determine the date and function of 'Offa's Dyke'

Description	<p>The status of the linear earthwork overlooking the Wye in the southern part of the district known as Offa's Dyke may have the potential to inform some issues about late Roman/early medieval territoriality. The monument in the Forest of Dean is undated and there is some debate as to whether it was constructed as a single coherent earthwork, whether it represents a number of discrete earthworks which were at some point (perhaps in the late 8th century during Offa's reign) combined into a single defensive/boundary system, or whether it ever formed a single unit and is in fact made up of disparate earthworks built at different times for different purposes which have been linked by antiquarians and archaeologists to conform to the supposed model of Offa's Dyke as an earthwork which ran from 'sea to sea'. Outside of the district, excavations of linear earthworks (including Offa's and Wat's Dykes) are increasingly demonstrating that they were originally constructed in the late Roman/early post Roman periods and better information about the construction date of different sections of the earthwork in Gloucestershire is needed before more general models of significance and function can be determined.</p> <p>Detailed recommendations for further investigation of Offa's Dyke are included in Hoyle and Vallender (1997) and immediate priorities are targeted excavation and sampling of a number of sections along its length to determine their date and whether they were originally part of a single coherent monument. Other investigations set out in Hoyle and Vallender 1997 may be of lower priority, but have the potential to inform an understanding of the monument and therefore its significance in terms of post-Roman/early medieval territoriality. Research questions and potential projects set out in the Offa's Dyke Collaboratory notes towards the creation of a research agenda, conservation agenda, research design and research programme for Offa's Dyke (Ray 2017) will also be of value to further research into the Dyke in the Forest of Dean. Key questions and projects identified in 2017 are referenced below, although others will be of general relevance to further research. In 2017 the formulation of a national research framework for Offa's Dyke was in progress and may be refined in the future.</p>
Actions	<p>Excavate and record areas where there are existing cuts through the monument which could be cleaned as sections (Hoyle and Vallender 1997) and also undertake trenching through selected well preserved sections of the monument. Care should be taken to record details of construction as this may inform issues about the extent to which it is a single coherent monument. Explore the use of scientific dating techniques such as radiocarbon dating or OSL as datable cultural material may not be expected in a monument constructed in a rural setting away from habitation (Hoyle and Vallender 1997).</p> <p>More detailed field investigation of the monument to identify and record elements of its structure.</p> <p>Investigate negative features such as the outer ditch or inner quarries, which may contain significant environmental and dating information. This could combine conventional excavation and also less-invasive exploration (for example auguring) which may be suitable to gain additional samples once an infilling sequence has been established.</p> <p>Investigate sections of earthwork which may be part of the monument (for example the Elm Villa Lynchet, see Hoyle and Vallender 1997) to determine their status and date.</p> <p>Investigate the monument's relationship with other, possibly earlier, features, such as the Iron Age hillforts at Lancaut and Symonds Yat and the possible prehistoric enclosures at Madgetts, Tidenham and Highbury Wood, Newland which may have been incorporated within it.</p> <p>Investigate the relationship of the monument with earthworks such as Buttington Tump and Tallard's Marsh, Tidenham, and perhaps also the lidar-detected earthwork in High Wood, Tidenham which may have been original components of the monument.</p> <p>Investigate possible original entrances through the monument for example the Devil's Pulpit re-entrant and those associated with 'gate' place names.</p> <p>Further investigation of areas where the monument has never been recorded, particularly the large gap between Redbrook and English Bickor and to the east of Lydbrook</p>

Contributes to	<p>SWRRA Research Aim 62: Examine the evidence for early medieval defence and conflict sites across the region</p> <p>Offa's Dyke Collaboratory, notes towards a research agenda, conservation agenda, research design and research programme for Offa's Dyke (Ray 2017): Key questions:</p> <p>4: Why, if the Gloucestershire 'component' is integral to the scheme, is there a massive 'gap' across south Herefordshire?</p> <p>21: When exactly was Offa's Dyke built?</p> <p>22: Can we demonstrate that Offa's Dyke was built as a single monument?</p> <p>23: Was it built in one effort, over a short span, or piecemeal over an extended time?</p> <p>24: Did it simply 'connect up' pre-existing lengths?</p> <p>25: Is there any evidence for multi-phase construction of the Dyke in any one place?</p> <p>26: Is there any evidence for maintenance or re-digging?</p> <p>65: What evidence is there for frontal 'walling' of lengths of the Dyke, and how common a practice was this?</p> <p>66: Is there much evidence for a segmented form of build of the Dyke over long distances, even where these segments are not 'adjust'?</p> <p>67: what evidence is there for 'marker banks' as a distinct part of the construction process?</p> <p>68: How extensive is the evidence for the digging of substantial quarries to the rear of the Dyke?</p> <p>70: How frequent is the evidence for the former existence of a prominent counterscarp bank?</p> <p>74: Are there any other 'landscape features' related to the Dyke and contemporary with it, such as road systems, river-ports, trading places, markets, defended positions, settlements, and field boundaries?</p> <p>81: Were there gateways through the Dyke?</p> <p>82: If there were gates, what kinds of location were chosen for them (eg river-valleys, passes, on former trackways, or all of these)?</p> <p>83: If so, what form did the gates take?</p> <p>96: How could we tell if Offa's Dyke was a composite structure, literally building upon earlier linear works?</p>
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FODRA Research Aim 82: Review the evidence for and investigate the date and function of surviving ringworks, mottes and other possible medieval defensive sites in the district

Description	The date and function of mottes, ringworks and other possible medieval defensive sites are poorly understood and few investigations have taken place at these sites. Most mottes are considered to be adulterine castles but accurate dating is needed to determine if this is the case. The date of ringworks is also unclear and further research is needed to test theories (for example Townley 2004) that some of these may be pre-Norman. Other earthworks (for example Soudley Camp, Soudley) may be medieval defences but further investigation is needed to clarify this.
Actions	<p>Review existing evidence for the date of identified mottes, ring ditches or other possible medieval fortifications. This will include review of:</p> <ul style="list-style-type: none"> Archives of earlier investigations where available. Known finds assemblages. <p>Undertake a trawl of antiquarian and earlier observations to identify overlooked evidence for the date or function of medieval fortifications in the district.</p> <p>Undertake more detailed field survey and investigation of medieval fortifications. This will include:</p> <ul style="list-style-type: none"> Geophysical survey where possible. This is particularly recommended for the interior of medieval ringworks or similar earthworks such as Soudley Camp, Soudley. Trial excavation to determine the status and date of features. This should be guided by the results of geophysical survey and should also investigate large negative features such as ditches. If datable cultural material is not retrieved any investigations should make provision of scientific dating techniques such as radiocarbon dating or OSL. Palaeoenvironmental sampling as appropriate.
Contributes to	SWRRA Research Aim 63: Deepen our understanding of medieval and later medieval defence and conflict sites

FODRA Research Aim 83: undertake further research into civil war battles in the district and in particular the battle of Redmarley

Description	Few details are known of Civil War conflicts in the district and in particular the course of the moderately sized engagement west of Redmarley D'Abitot (Smith 2005) and the so-called Battle of Barber's Bridge (Putley 2006, 38) are not well understood (for example there is debate over whether artillery was used at Redmarley) and further research is needed. Further work is also needed to clarify the date and function of earthworks which have been interpreted as civil war defences, and particularly the possible reuse of earlier earthworks at Ley Park Wood Westbury on Severn, Newnham and Sedbury.
Actions	<p>Develop community projects to research selected Civil War engagements in the district. These will include:</p> <ul style="list-style-type: none"> Review earlier research and contemporary accounts. Field survey to identify structures or landscape features identified in contemporary records. Systematic metal detecting surveys to identify and plot the location of ordnance used in the battle. <p>Undertake small-scale excavation of selected earthworks to establish whether they were constructed or reused during the Civil War.</p>
Contributes to	SWRRA Research Aim 64: Improve our understanding of the less-researched areas of post-medieval to modern defence and warfare

FODRA Research Aim 84: Undertake further research into the impact of 20th century conflict on the Home Front.

Description	<p>This is a very wide ranging research aim covering the impact all 20th century conflict, not just the First and Second World Wars, but also the Boer War and the Cold War had on the Home Front within Forest of Dean District.</p> <p>This would include investigation of:</p> <ul style="list-style-type: none"> • The impact of conflict on the civil infrastructure particularly industry, agriculture, forestry, the emergency services and transportation, and the role service personnel (either military or non-combatant) played in this. • The involvement of the local population in civil defence. • Interaction between the local population and temporary residents including allied service personnel and prisoners of war. • The impact of conflict on the civilian built environment and particularly the extent to which buildings were commandeered or modified for war time use, the provision of civilian air raid shelters or civil defence structures (including drill halls for territorial forces), the effects of enemy action on the built environment and the need for temporary accommodation to house displaced personnel, or the provision of housing for returning service personnel. <p>Some research has already taken place or is in progress which will contribute to this aim (see for example the Forest of Dean Local History society 'Home Front Dean' project which explores the social history of the Forest of Dean during the First World War and also Putley and Webb (2004) which explores some areas of the home Front during the Second World War) but more research is needed to provide a complete picture of the totality of the impact of 20th century conflict on the Home Front in the district</p>
Actions	<p>Develop community projects to research and record the impact of 20th century conflict on the home front. These will:</p> <ul style="list-style-type: none"> • Review earlier research, particularly the Forest of Dean local History Society's 'Home Front Dean' project and earlier published work (for example Putley and Webb (2004)). This will identify areas where further research is necessary. • Develop new projects to address gaps in existing research, or expand areas of existing research as appropriate. • Undertake field survey to identify and record surviving structural or other physical evidence of the impact of 20th century conflict on the Home Front. This will include recording surviving civilian emergency shelters, civil defence structures and any evidence of military use surviving in commandeered civilian buildings. <p>Ensure that any World War Two artefacts recovered in the district which relate to home Front or civil defence activities are reported to a relevant museum and recorded by the HER. Finds in this category should also be recorded to the Portable Antiquities Scheme in case they fall within their remit for recording significant finds less than 300 years old.</p> <p>Encourage local groups involved in research of these themes to record their data via the Council for British Archaeology's Home Front legacy project which can be accessed at http://www.homefrontlegacy.org.uk/wp/</p>
Contributes to	<p>SWRRA Research Aim 64: Improve our understanding of the less-researched areas of post-medieval to modern defence and warfare</p> <p>20th Century Defence Heritage Research Aim A: Improve understanding of the built resource.</p> <ul style="list-style-type: none"> • Specific Research Area A4 – Civil infrastructure • Specific Research Area A2 – Camps <p>20th Century Defence Heritage Research Aim B: Improve understanding of surviving resources.</p> <p>Specific Research Area B10 – Civil Defence</p> <p>Specific Research Area B14 – The countryside at war</p>

FODRA Research Aim 85: Undertake detailed recording of abandoned 20th century military sites.

Description	<p>The district contains remains of a number of sites constructed by the military in response to 20th century conflict, and also conflict remains such as military aircraft crash sites.</p> <p>Of particular interest are the temporary Second World War sites, such as Prisoner of War camps or dispersed storage for both conventional and chemical supplies and their associated infrastructure, but other sites relating to different aspects of the Second World War, or relating to other 20th century conflicts are known in the district and other doubtless await discovery.</p> <p>Many of these have been identified through projects such as the Defence of Britain Project (Dobinson 1996a-g; 2000a-j) or NMP (Small and Stoertz 2006; Crowther and Dickson 2008; Priest <i>et al</i> 2008) or other research (Webb and Putley 2004), and some sites were visited as part of the Defence of Britain Project (Putley 2003; Unknown 2003)</p> <p>No recent systematic surveys have, however been undertaken and there is a lack of consistent information about the current condition and state of preservation of many of these sites. This information is essential if remaining structures are to be protected from development and sites in Forestry Commission land may be a priority for this to ensure that the Forestry Commission can be provided with accurate advice to ensure that surviving structures on their land are protected from forestry operations.</p>
Actions	<p>Develop community projects to research and systematically record surviving 20th century military sites and structures in the district. These will include:</p> <ul style="list-style-type: none"> • Review earlier research particularly the Defence of Britain project and NMP and other published works. • Review existing oral history projects particularly for records of First and Second World War sites and Develop new oral history projects specifically targeted at reminiscences of Second World War or later sites while eye witnesses are still alive. • Field survey to identify and record surviving structures in a systematic way. Particular attention should be paid to Second World War dispersed storage sites which have been under researched in the field, although all 20th century military sites and remains would warrant systematic recording. Field survey should not be restricted to surviving military structures but should include records of surviving remains of transport infrastructure such as access roads or railway links. Projects may include systematic metal detecting survey, or test pitting of selected sites to retrieve items which are not visible on the surface <p>Ensure that any 20th century military artefacts recovered in the district, particularly those found within or close to known military sites, are reported to a relevant museum and recorded by the HER. Finds in this category should also be recorded to the Portable Antiquities Scheme in case they fall within their remit for recording significant finds less than 300 years old.</p> <p>Encourage investigations of military aircraft crash sites to follow Historic England guidelines on best practice (Holyoak and Schofield 2002).</p>
Contributes to	<p>SWRRA Research Aim 64: Improve our understanding of the less-researched areas of post-medieval to modern defence and warfare</p> <p>20th Century Defence Heritage Research Aim A: Improve understanding of the built resource.</p> <ul style="list-style-type: none"> • Specific Research Area A1 - D-Day preparations and support • Specific Research Area A2 – Camps <p>20th Century Defence Heritage Research Aim B: Improve understanding of surviving resources.</p> <ul style="list-style-type: none"> • Specific Research Area B8 – PoW camps • Specific Research Area B12 – Cold War <p>20th Century Defence Heritage Research Aim C: Pressures and perceptions.</p> <ul style="list-style-type: none"> • Specific Research Area C1 – Crash sites

9.19 FODRA Research aims which do not contribute directly to SWWRA Research Aims

There are a number of research aims specific to the Forest of Dean District which do not appear to contribute towards the Research Aims set out in the Southwest Regional Research Framework (Webster 2008) and their associated Research Directions (Grove and Croft 2012). These research aims are, however, thought to be of particular relevance to the district, and further research may contribute towards the broad aims of the SWWRA.

FODRA Research Aim 86: Undertake further research into post-medieval industries associated with the iron industry

Description	<p>There has been little integrated research into the wireworks in the district and none of the known sites have been investigated.</p> <p>There has also been little research into other ancillary industries with only the foundry at Bilson west of Cinderford (Pope 1996), the tin plate works at Lydbrook and the Lower Wye (Morris 2003; 2004), and the later Redbrook tinplate industry (Horton 1985) researched in greater detail. More research is needed into these industries, particularly foundries (which produced castings from re-melted pig iron) which are identified as a priority in the Step 1 report on the Iron and Steel industries (Crossley 1992). There is also concern over the lack of consistent information about the current condition or degree of survival of many of these sites which limits decisions over priorities for research or protection.</p>
Actions	<p>Review the historical evidence for wire works and other ancillary industries.</p> <p>Undertake further fieldwork at selected sites. This may include:</p> <ul style="list-style-type: none"> • Field visits to undertake basic recording of survival. It may be appropriate for these to be undertaken as community projects. • Building survey to an appropriate level (Ainsworth <i>et al</i> 2007). • Earthwork survey. • Geophysical survey. • Trial excavation or full excavation as appropriate. • Retention of artefacts and residues for analysis. <p>Ensure contractors or independent researchers are made aware of the potential significance of wire works and other ancillary industries. In particular, any stratified residue assemblages from these sites should be retained in their entirety for analysis by a recognised specialist. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits or finds of this nature and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	<p>MPP Step 1 Priority: Iron and Steel Industries: The foundry</p> <p>MPP Step 1 Priority: Iron and Steel Industries: The secondary trades</p> <p>HMS Research theme: The development of wire drawing and other secondary iron industries</p> <p>HMS Research theme: 19th century ironworks, especially the foundry and forge sectors</p>

FODRA Research Aim 87: Undertake further research into post-medieval wood chemical industry in the district

Description	<p>There has been very little study of the wood-based chemical industry in the district and all known sites with surviving structures or good potential for below ground remains should be considered of potential significance (Cranstone and Rimmington 2000, 51).</p> <p>The lack of systematic survey of known sites, and particularly the lack of information about their current condition or archaeological potential limits the possibility to determine priorities for research or protection.</p>
Actions	<p>Review the historical evidence for the wood-based chemical industry.</p> <p>Undertake further fieldwork of selected sites. This may include:</p> <ul style="list-style-type: none"> • Field visits to undertake basic recording of survival. It may be appropriate for these to be undertaken as community projects • Building survey to an appropriate level (Ainsworth <i>et al</i> 2007). • Earthwork survey. • Geophysical survey. • Trial excavation or full excavation as appropriate. • Retention of artefacts and residues for analysis. <p>Ensure contractors or independent researchers are made aware of the potential significance of the wood-based chemical industry. In particular, any stratified residues or assemblages from these sites should be retained in their entirety for analysis by a recognised specialist. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits or finds of this nature and make provision for their appropriate recording, sampling and analysis.</p>
Contributes to	MPP Step 1 Priority: The Chemical industries: The wood based chemical industry

FODRA Research Aim 88: Improve knowledge of surviving post-medieval crown enclosure boundaries within the Statutory Forest

Description	<p>The Statutory Forest in the southern part of the district contains numerous Crown enclosure boundaries which were established at various times in the post-medieval period to enclose areas of newly planted timber. These are significant features relating to post-medieval forestry management of the Crown Estate and there are good historical records of these boundaries (Hart 1995). Many are mapped on early Ordnance Survey Maps and visible on lidar.</p> <p>There has, however, been little research to record what currently survives of these boundaries (they were not, for example, consistently recorded during lidar transcription (Hoyle 2008c, 75)), or to link surviving boundaries with dated periods of enclosure.</p>
Actions	<p>Develop community or interest group projects to:</p> <ul style="list-style-type: none"> • Research historical records of Crown enclosure and map and lidar information on where enclosure boundaries would be expected or appear to survive as earthworks. Any projects could be undertaken in conjunction with projects to investigate timber haulage routes established as part of these enclosures (see FODRA Research Aim 70). • Make consistent records (probably using pre-prepared pro formas) and photograph what actually survives of these boundaries. • Particular care should be taken to identify and record any associated features such as stones or other monuments which record the date of enclosure. • Ensure that any recorded information is compatible with the county HER and is incorporated into it in a meaningful way.

FODRA Research Aim 89: Improve understanding of charcoal production in the district

Description	<p>This Research Aim can be subdivided into the following topics:</p> <ul style="list-style-type: none"> • What charcoal production methods were used at particular periods and in particular when was the charcoal clamp introduced to the Forest of Dean? • What is the relationship between charcoal production and industrial processes, particularly smelting at different periods? • What was the relationship between charcoal production and woodland management at different periods? <p>Few charcoal production sites in the Forest of Dean have been dated with any certainty and no charcoal pits (i.e. sites where charcoal was produced in pits rather than platforms) have been identified. Given the probable close relationship between charcoal production and iron smelting in the district, better information about the date of recognised charcoal production sites is a vital part of any understanding of the bloomery iron industry (see FODRA Research Aim 54). Of particular relevance to this discussion is establishing the date at which charcoal production in above-ground stacks (clamps) was first introduced to the district. There is also a question as to what woodland resources were used to produce charcoal at different periods and whether these were produced from woodland managed specifically for charcoal production (for example coppice), whether charcoal was produced through exploitation of naturally occurring scrub or underwood, or both (see also FODRA Research Aim 18).</p>
Actions	<p>Review existing evidence for charcoal production sites in the district. This should take full account of:</p> <ul style="list-style-type: none"> • Historical records which may provide information on the location of production sites, production methods used and types of woodland exploited. • Historical records which may provide information on the location and date of coppices and of any physical remains of these (e.g. boundary banks). • Data sets recording the location of known production sites. In particular, the HER, Lidar and NMP data. • Former excavations of sites which may have produced dating evidence. • The results of any projects undertaken to better date smelting sites (see FODRA Research Aim 54). • The relationship between identified charcoal production sites and dated evidence for other activities, particularly iron smelting. <p>Attempt to identify any physical differences in recognised charcoal production sites which could lead towards establishing a local typology.</p> <p>Identify charcoal production sites which may be most suitable for dating. Priority should be given to sites in close proximity to known dated smelting sites.</p> <p>Take samples of charcoal from low in the charcoal profile either through auguring or test pitting. Samples will be:</p> <ul style="list-style-type: none"> • Analysed to identify the range of species used for charcoal production. • Submitted for radiocarbon dating.

FODRA Research Aim 90: Improve understanding of pottery manufacture in the district during the Roman period

Description	There is some evidence for Roman pottery manufacture at Dymock (Timby 2007, 167, Crooks 2014, 16-17) and the Moat, Newent (Walters 1990c, 27), whilst remains interpreted as a pottery kiln were excavated to the east of Sedbury Park Tidenham in the 19th century (Ormerod 1861, 46). Further research is needed to fully understand these sites and the nature and extent of the Roman pottery industry in the district
Actions	<p>Review archives of excavations from Roman sites. This should not only include archives from known sites but also sites where recovered evidence for pottery manufacture may have been overlooked.</p> <p>Review assemblages of Roman material from field surfaces to ensure that evidence for pottery manufacture has not overlooked.</p> <p>Undertake further fieldwork of selected sites. This will make use of techniques such as:</p> <ul style="list-style-type: none"> • Further systematic field walking to better define smelting sites and link them to datable artefacts. • Geophysical survey. • Trial excavation or full excavation as appropriate on identified sites. <p>Ensure contractors or independent researchers are made aware of the potential significance of evidence for pottery manufacture which may be encountered in excavations or watching briefs. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge any potential for recovery of in situ deposits or finds of this nature and make provision for their appropriate recording, sampling and analysis.</p>

FODRA Research Aim 91: Undertake further research into mill sites

Description	<p>Although there are numerous records of mills in the district and some individual sites have been researched, the milling industry as a whole is not well understood. Themes of particular interest are:</p> <ul style="list-style-type: none"> • The relationship between early records of mills and the sites of later mills in the same area. • The relationship between mill sites and other industries and particularly those sites where mills were converted to or from other uses such as furnaces or forges. • The water management systems which drove mills, and particular consistent records about what survives of these. • Windmills in the district. These need further research and possible windmill mounds need to be investigated. • The lack of consistent information about what survives at many mill sites. There has been little integrated research into milling complexes. • Surviving remains of 19th century steam mills and associated structures which also need further investigation and recording. • The palaeoenvironmental potential of waterlogged deposits within former water features associated with mills. This needs further research and development.
Actions	<p>Review the historical evidence for the mills, possible mill sites and associated remains including water systems and records of excavations surveys or other forms of recording</p> <p>Prioritise mill sites for further investigation or recording.</p> <p>Undertake further fieldwork of selected sites. This may include:</p> <ul style="list-style-type: none"> • Field visits to undertake basic recording of survival. It may be appropriate for these to be undertaken as community projects. • Building survey to an appropriate level (Ainsworth <i>et al</i> 2007). • Earthwork survey. • Geophysical survey. • Trial excavation or full excavation as appropriate. • Palaeoenvironmental sampling of suitable deposits if appropriate. • Retention of artefacts and residues for analysis. <p>Ensure contractors or independent researchers are made aware of the potential significance of milling sites. All written schemes of investigation and project briefs for excavations undertaken as part of the planning system should be required to acknowledge the potential of these and make provision for their appropriate recording, sampling and analysis.</p>

9.19.1 SWRRA Research Aims which are generally applicable to Forest of Dean District, but for which there are no specific research aims

A number of the Research Aims set out in the Southwest Regional Research Framework (Webster 2008) and their associated Research Directions (Grove and Croft 2012) are not directly applicable to the Forest of Dean. This is generally because there is currently too little known information relevant to these themes for the proposed research directions to be applied in any meaningful way, but this does not mean that research within the district will not contribute towards these aims in the future.

The following SWRRA research aims fall into this category, although the research directions relevant to these (Grove and Croft 2012) relevant to these should be acknowledged and be included in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.

SWRRA Research Aim
<p>2: Encourage works of synthesis within and across periods, settlements, monuments and areas</p> <p>The encouragement of works of synthesis within and across periods is a constant theme in archaeological research, and within the district there are numerous areas where there is potential for works of this nature. Possible themes would include:</p> <ul style="list-style-type: none"> • The interrelationship of all industries for all periods and the relationship between these and patterns of settlement, landuse and communication. • The relationship between settlement and landuse during different periods and issues of continuity and change across periods and areas. • The relationship between coastal and inland settlements, landuse and industries through time.
<p>14: Widen our understanding of Late Bronze Age and Iron Age material culture</p> <p>With the possible exception of Bronze Age flint work recovered by field walking, or Bronze Age axes and palstaves (and in particular the possible hoard of Bronze Age axes from Sling Common) there are no major Bronze Age assemblages from the district and the only major Iron Age assemblage is from the Wheelers' excavation at Lydney Park.</p>
<p>15: Use innovative techniques and methodologies to ask sophisticated questions of post-medieval to modern artefacts and buildings</p>
<p>19: Improve our understanding of wild and domestic animals in the past</p>
<p>22: Improve our understanding of insect faunas and what they can tell us about past environments</p>
<p>36: Improve our understanding of medieval and later urbanism</p> <p>The small towns within the district have been included in the Gloucestershire Historic Towns Survey (Douthwaite and Devine 1998) and also in general histories of the area (Victoria County History, volumes 5, 8, 10, 12 and 13). A detailed history of Coleford has been published (Hart 1983).</p> <p>Although these works were published between 18 and 30 years ago there has been little further research (for example development-led excavations) within the medieval towns in the district which has produced information relevant to an understanding of their medieval or later development (Charles Parry, Gloucestershire County Council pers. comm.) and consequently although the existing data should be reviewed at some time in the future (perhaps as part of larger-scale regional reviews of the development of medieval and later townscapes) there is little new information to add to this debate at the present time.</p>
<p>43: Address the lack of knowledge of post-medieval to modern food production</p>
<p>49: Improve our knowledge of Neolithic and early Bronze Age social life</p> <p>Too little is currently known about the Neolithic and Bronze Age periods within the district to construct meaningful research aims which would fall within SWRRA Research Aim 49, although FODRA Research Aim 28, FODRA Research Aim 60 and FODRA Research Aim 77 all have the potential to contribute towards this.</p> <p>Of particular interest to the district is the fact that the available evidence from Tidenham Chase in the southern part of the district would suggest that, during the Bronze Age, this area was at a nodal point of cultural influences from both the east (with the Wessex style dagger burial at Soldiers Tump round barrow (Scott-Garret 1955)) and the west (with the ring cairn in East Wood, Tidenham (Hoyle 2013a)). Further research may be able to clarify this.</p>
<p>60: Use the excavation of medieval and post-medieval burials to study wider population and social issues</p>

9.19.2 NAHMO Research Aims which are generally applicable to Forest of Dean District

A number of the Research Aims set out the National Association of Historical Mining Organisations research agenda for the Archaeology of the Extractive Industries (Newman 2016) are generally applicable to the Forest of Dean, but are so wide ranging that it is difficult to identify a meaningful set of specific actions to address these.

All researchers should, however, be aware of these overarching research aims and seek to contribute to them in future projects, and these should be acknowledged in all written schemes of investigation and project briefs for excavations undertaken as part of the planning system.

NAHMO Research Aim
<p>18: Increase our knowledge of how mining and quarrying have impacted on other aspects of human activity in the landscape, such as agriculture, non-extractive industries, urbanisation, transport infrastructure, security and defence, monasticism</p> <p>Whilst the inter-connection between mineral extraction (particularly coal) and settlement and other industries during the post-medieval period is reasonably well understood in the district, this is not the case for earlier periods. The spatial connections between mineral extraction sites and some prehistoric or Roman sites (for example the connection between scowles and hillforts and possible early Roman fortlets) have been noted (see for example Hoyle 2013a), but little detailed research has been undertaken. This is an extremely wide-ranging topic which covers many areas of archaeology and geography, however within the district the relationship between iron ore extraction sites (particularly during the prehistoric and Roman periods), other related industries (particularly smelting and charcoal production) and patterns of contemporary settlement are poorly understood.</p>
74: Broaden the scope of archaeological research to include the social contexts of mine and quarry communities
75: Expand our knowledge of the importance of mines and quarries with regard to transport systems and industrial infrastructure

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Any errors and inconsistencies remain the responsibility of the author.