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**A Lidar-enhanced
Archaeological Survey of
St Leonard's Forest,
West Sussex**

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Summary

An archaeological survey of St Leonard's Forest was undertaken during 2010/2011 for Forest Enterprise to review its historic environment resource and provide conservation and management recommendations to Forest Enterprise for the heritage of this area of woodland.

Prior to this survey, only 15 archaeological sites had been identified. This survey used a combination of an innovative airborne lidar survey, traditional desk-top methods and field survey to identify or enhance knowledge for a total of 205 sites. This report discusses the methodology used in the survey, describes the archaeology recorded, and makes recommendations for its conservation and management.

This survey provides evidence of some of the alternative activities that took place in what has been widely regarded as a wooded landscape. Although the early (later medieval) historic records show that St Leonard's Forest was a wooded landscape with attendant flora, fauna and large-scale timber production, it is the later iron industry, rabbit farming and late landscape improvement schemes that have left their evidence behind. St Leonard's Forest retains some interesting archaeological features in the mine pits and pillow mounds which can be positively dated through the historic record and provide proof of the changing role of this Forest.

The St Leonard's Forest mine pits are an unusual example of their kind, being much bigger than the average mine pit found in the Western Weald, and were the source of ore for the nearby 16th century iron-works. Later land improvements and 20th century forestry planting have removed most of the evidence for charcoal burning platforms which could have been associated with the iron industry.

The scattered remains of pillow mounds throughout the study area are the surviving remnants of the Great Warren that stretched from the southern to the northern boundary and demonstrate that the entire study area of this forest was a more open heathland during the 17th century. Constructing pillow mounds on the really steep slopes show even the most marginal land was being taken into some form of cultivation, albeit for rabbit economy. Some of the extensive boundary banks may represent the divisions of these warrens for management purposes, possibly retaining some woodland areas although contemporary records show that it was thought of as 'a bare heath with scrubby birch'.

St Leonard's Forest has also retained some evidence of the 19th century land improvements in the drainage improvements and in the few surviving ornamental specimen trees as attempts were made to turn back the heathland into forest. This changed the contemporary perceptions of St Leonard's Forest as being an unattractive place to a pleasant wooded landscape.

The main threats to the archaeological remains of St Leonard's Forest are now vehicle damage and brash deposition during forestry operations, and damage from vegetation (tree roots and bracken). This report describes how the most significant heritage assets can be conserved and protected through following a management plan.

Cover photograph: a pillow mound (MWS8842) forming part of a boundary bank

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Separate folder of A3 management maps Maps of St Leonard's Forest north, central and south showing sites by West Sussex HER reference (MWS) number and name, lidar transcription, and red amber and green management areas

1. Introduction

- 1.1 Chris Butler Archaeological Services Ltd (CBAS) was commissioned by Forest Enterprise to carry out an archaeological survey and review of the historic environment resource of St Leonard's Forest. The objective was to provide recommendations for the conservation and management of its historic environment resource. East Sussex County Council (ESCC) Archaeology Section, working with their counterparts in West Sussex, identified the need for the work and set out the brief, and the project was funded by Forest Enterprise and the Weald Forest Ridge Historic Environment Awareness project.
- 1.2 This report outlines the methodology used in the archaeological survey, then looks at the results of the field survey, summarising the sites identified by period and type. A full listing of all the sites is contained in Appendix 1 to this report. Finally the report covers the recommendations for the conservation and management of the historic environment resource in St Leonard's Forest and options for further action, interpretation and research.

St Leonard's Forest – definition

- 1.3 St Leonard's Forest (Fig. 1) is owned and managed by Forest Enterprise on behalf of the Forestry Commission. The area of land owned by the Forestry Commission was once part of a much larger area of ancient forest and heathland known as St Leonard's Forest. It lies within the High Weald Area of Outstanding Natural Beauty, and forms the most westerly extension of the Weald Forest Ridge. It lies to the east of Horsham and to the south-west of Crawley, between two prominent ridges of pre-historic east-west routeways. The northern route, Ashdown Forest to Horsham, passes through Colgate, a forest entrance or gate, and the southern road, Slaugham to Horsham, crosses over the causeways to the dams of the hammer ponds known as Hawkins and Hammer¹.

Geology

- 1.4 The geology of St Leonard's Forest (Fig. 2) is beds of Tunbridge Wells Sand (British Geological Survey sheet 302) which consists of sandstone beds 4-5 m thick separated by relatively thick sequences, 12-15m thick of clays, mudstones and silts². Some ironstone in the Upper Tunbridge Wells Sand occurs as thick layer within the sandstone beds³.

¹ <http://www.british-history.ac.uk/report.aspx?compid=18379>

² <http://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=TWS>

³ Cleere, H. & Crossley, D. 1995 'The Iron Industry of the Weald'. Merton Priory Press, Cardiff

Topography

- 1.5** St Leonard's Forest is located at the western end the High Weald Forest Ridge AONB and is drained by tributaries of the Adur, Ouse and Mole. Forming this western extension of the High Weald of East Sussex is an area of older sandstones and clays, rising to 152 metres, most of which historically lay within St Leonard's Forest. St Leonard's Forest is the watershed between the Arun flowing west and the Mole, flowing north-east towards the Thames.
- 1.6** St Leonard's Forest's wider landscape is described in the West Sussex Landscape Character assessment as 'a heavily afforested dissected landscape plateau enclosing a post-medieval rural landscape cut from the forest'⁴. The northern section of the study area is generally flatter and more plateau-like, with steep slopes to the south-east and south-west of where tributaries of the Ouse and Adur rise in steep wooded gills of Sheepwash and Frenchbridge Gill. These streams were dammed to form the hammer ponds for the furnaces and forges of the St Leonard's iron industry. The ponds are still in water today.

Vegetation

- 1.7** The study area in St Leonard's Forest today is much smaller than the original Forest area area but still forms a large area of heathland, broadleaf woodland and coniferous forest of 289 hectares.

Administration

- 1.8** St Leonard's Forest was part of the Rape of Bramber which stretched from the coast to the Sussex/Surrey border to the north. Formerly in the parish of Lower Beeding, St Leonard's Forest now falls within the modern parish of Colgate.

Previous surveys

- 1.9** Prior to this survey the level of knowledge on the extent and significance of archaeological features on St Leonard's Forest was not sufficient to allow recommendations for a program of conservation and management works to be developed. Fifteen sites were already recorded on the West Sussex Historic Environment Record (HER) mapping and database, but with only very approximate grid references. The sources of these sites were all bibliographical and related mainly to the Forest's numerous mine pits (for the extraction of iron ore) and to find spots of prehistoric flintwork.

⁴ <http://www.midsussex.gov.uk/Nimoi/sites/msdcpublic/resources/LCA22pt4HighWealdForests.pdf>

Lidar surveys – definition

- 1.10** This survey used lidar data to review the historic environment resource and provide conservation and management recommendations. Airborne lidar (light detection and ranging), also known as airborne laser scanning (ALS), measures the height of the ground surface and other features in large areas of landscape to provide highly detailed and accurate models of the land surface. Originally developed for submarine detection in the 1960s and 70s, it was adopted by the UK's Environment Agency and others such as highways and utility authorities for producing cost-effective terrain maps. Since around 2000, archaeologists have been exploring its potential to recognise and record otherwise hard-to-detect features over large areas.
- 1.11** Lidar operates by using a pulsed laser beam which is scanned from side to side as the aircraft flies over the survey area, measuring between 20,000 to 100,000 points per second to build an accurate, high resolution model of the ground and the features upon it. Because lidar uses light beams it has the potential to penetrate gaps in the woodland canopy and so record the ground surface under the trees. This can reveal features that would not otherwise be seen, although very dense cover such as rhododendron may prove impenetrable to lidar survey.
- 1.12** The CBAS survey team's experience with using lidar for a much larger survey⁵ assessing some 700 sites on Ashdown Forest, which was one of the first in the country to use lidar on this scale, led to the conclusions that:
- Lidar is capable of identifying a substantial number of new archaeological sites – at least a third more than traditional desktop and walkover methods.
 - An experienced lidar interpreter can make reliable identifications of known site types in around 75% of cases using desktop methods.
 - Around half of known sites identified by traditional desktop and field survey methods are capable of being enhanced by lidar survey, notably in identifying their full extent and precise location.
 - Using lidar images as an additional survey tool before going out into the field enables the ground work to be done faster. The extent and precise geographical location of identified archaeological features can be targeted accurately without the need to carry out a full ground survey.
 - However, some archaeological features do not show up on current lidar images: lidar should always be used in conjunction with field work, and 'ground-truthing' through field visits is an essential part of this type of survey.

⁵ *Ashdown Forest historic environment resource: a revised lidar-enhanced archaeological survey*. Butler, C, Blandford, V and Locke, A, April 2011.

2. Historical and Archaeological background

Table 1: The archaeological periods referred to in this report are as follows

Palaeolithic	900,000 – 10,000 BC	End of the ice ages
Mesolithic	10,000 – 4,000 BC	Hunter-gatherer societies
Neolithic	4,000 – 2,500 BC	Early agriculture
Bronze Age	2,500 – 800 BC	The first metal working in bronze
Iron Age	800 BC – 43 AD	Start of iron industry in the Weald
Romano-British	43 – 410 AD	Iron industry in Weald
Saxon	410 – 1066 AD	Iron industry in Weald
Medieval	1066 – 1500 AD	Iron industry in Weald
Post Medieval	1500 AD to present day	End of iron industry in Weald

Prehistoric

- 2.1** The two east-west roads which define the northern and southern limits of the study area partly follow prominent ridges that seem to be ancient routes. The more northerly, through Colgate, was part of a route from Horsham to Ashdown Forest and passes the sites of two prehistoric barrows in Lower Beeding parish. The other road, from Horsham to Slaugham, passes close to Money mound, a Neolithic and Iron Age site which retained a religious function in Roman times.⁶
- 2.2** The area around Horsham has produced a high density of Mesolithic sites⁷, many of them connected to the Horsham Point 'culture'⁸. Many of the sites are only known from surface collections of flintwork, often found eroding from worn paths and tracks, or from unrecorded excavations. Most of these sites are found on low lying valley sides or plateaux, close to streams or springs, and with their broad range of tools and debitage probably represent something more than simple hunting camps and perhaps signify a reduction in human group mobility in the later Mesolithic. As well as Mesolithic flintwork⁹, a perforated stone macehead (MWS5379) of probable Mesolithic date has also been found in St Leonard's Forest.

⁶ <http://www.british-history.ac.uk/report.aspx?compid=18379>

⁷ Holgate, R. 1987 'Excavations at Halt Mesolithic site, near Horsham, West Sussex, 1985', *Sussex Archaeological Collections* **125**, 33-9.

⁸ Butler, C. 2008 'A Collection of Mesolithic flintwork from the Horsham area: The Standing Collection', *Sussex Archaeological Collections* **146**, 7-18

⁹ Wymer, J.J. 1977 *Gazetteer of Mesolithic sites in England and Wales*, CBA Research Report **22**

- 2.3** Mesolithic flintwork from St Leonard's Forest includes the somewhat tenuous evidence for the finding of the pre-historic implements which partly comes from an article written by Honeywood who spent his time digging holes varying from two to seven feet in depth. In the course of his investigations he found numerous flakes, arrow heads, spears, saws, cores and other 'interesting relics, scattered over a wide area'. He also found numerous fossils. He also thought that the mine pits were dwelling place for our ancestors of the Flint Age¹⁰.
- 2.4** Later prehistoric finds include Neolithic flintwork, including an axe (MWS689) and flint arrowheads (MWS688), and Bronze Age flint arrowheads (MWS687). Curwen states that of the flint arrowheads found in Sussex, both Neolithic and Bronze Age, 43 percent are from St Leonard's Forest. A large number of Neolithic and Bronze Age arrowheads are at the Barbican House Museum, Lewes.

Roman

- 2.5** From the Iron Age until the end of the medieval period iron was manufactured in the Weald in small furnaces called bloomeries. A bloomery was a small sandy-clay structure, which could have either been cylindrical, or dome shaped, or a combination of both. Charcoal and ore were placed in the furnace through a hole in the top and air introduced, by bellows through a hole or holes in the side. Eventually the iron collected in a mass, called a bloom, hence the name 'bloomery', and the waste products were run off in a semi-liquid form known as slag¹¹.
- 2.6** Roman activity in the area almost certainly centred on the iron industry, although there are no known Roman ironworking sites within the immediate vicinity of St Leonard's Forest. A domestic and industrial area covering some 12 hectares was revealed by rescue excavations in advance of building development at Broadfield and Southgate West to the north-east of St Leonard's Forest. Many of the stages in manufacturing iron by the bloomery process are represented by features which included ore-roasting areas, three slag dumps, 40 plus smelting furnaces, puddling pits, a water reservoir and a blacksmith's workshop¹².
- 2.7** No major Roman roads or settlements are known in the area, but a ridgeway track (Margary Track VI) runs west from Ashdown Forest through Turners Hill, and then follows Parish Lane along the southern edge of Tilgate Forest before continuing on to Horsham and then possibly southwards, skirting around the north and west sides of St Leonard's Forest¹³.

¹⁰ Honeywood, T. 1877 'The Discovery of Flint Implements near Horsham, in St Leonard's Forest' *Sussex Archaeological Collections* 27

¹¹ Hodgkinson, J. *The Wealden Iron Industry* 2008, Tempus, Stroud.

¹² Cartwright, C. (1992) 'The excavation of a Romano-British iron working site at Broadfield, Crawley, West Sussex', *Sussex Archaeological Collections* 130

¹³ Margary, I.D. 1948 *Roman Ways in the Weald*, Phoenix House.

Early Medieval to Medieval

- 2.8** The Forests of St Leonard's and Worth on the highest ridges of the Weald were never brought under the standard manorial system. These lands were used as outliers (for swine pastures) for the parent manor on the coast, as they were probably valued as hunting grounds for the Saxon kings¹⁴.
- 2.9** It seems likely that the Forest took its name from a French saint, a forest hermit called St Leonard, and that a chapel had been built in the historic area of St Leonard's Forest dedicated to this saint. The word 'forest', denoting a hunting ground, is derived etymologically not from the Latin *foresta* but from *foris*, meaning land outside the common law. Areas of land, not necessarily always wooded, had their own defined boundaries within which Forest Law prevailed¹⁵.
- 2.10** St Leonard's Forest, despite modern connotations of this name, seems in the medieval period to have been equally divided between forest and heath. One chief use in the forest at this time was to provide pannage for swine: the forest pannage belonged to the successive lords of the forest, not to commoners. In the early period the forest contained feral horses and wild deer. By the mid 13th century, cattle were being pastured in the forest and in 1295 the forest contained deer, rabbits, hare, pheasant and heron. The Forest resources also produced timber and underwood. There are records of timber being provided, in 1214, for the new hall at Dover Castle, and in 1234 oak timber was used in the construction of Chichester Cathedral. The right to take underwood provided income in the 15th Century.

Post Medieval – ironworking

- 2.11** During the 16th century both timber and underwood were over-exploited for building materials and charcoal production to provide fuel for St Leonard's Iron working sites. Large trees were cut down to feed the six furnaces in the location and the forest was rapidly reduced to a 'vast unfrequented place, heathie, vaultie, of unwholesome shades and overgrown hollows', where locals reported large serpents roaming freely.¹⁶ During early 1598 large-scale felling of pollards and other trees occurred.¹⁷ The old routeway at the southern limits was utilised in the late 16th century, since its present course runs along the dams of Hawkins and Hammer ponds and therefore provided the chief means of access to the ironworks there.
- 2.12** The northern entrance of the Forest today is called Colgate, the first element of the place name Colgate (coal=charcoal) may indicate the practice of charcoal burning in the forest¹⁸.

¹⁴ Brandon, P. 2003, *The Kent and Sussex Weald*, Phillimore, Chichester.

¹⁵ Brandon, P. 1974 *The Sussex Landscape*, Hodder and Stoughton, London

¹⁶ Brandon, P. 2003, *The Kent and Sussex Weald*, Phillimore, Chichester.

¹⁷ <http://www.british-history.ac.uk/report.aspx?compid=18380>

¹⁸ <http://www.british-history.ac.uk/report.aspx?compid=18380>

- 2.13** In 1546 an inventory of the vast estates of Thomas, 3rd Duke was taken when he was arrested and executed for high treason and the estates briefly reverted to the Crown. His estates included five deer parks, of which three were Sheffield, Worth/Tilgate and St Leonards¹⁹.
- 2.14** Between circa 1550 and circa 1660 the chief non-agricultural economic activity of the area was ironworking. The ironworks existed by 1562 when they were described as 'the iron mills in St. Leonard's Forest'. The twin St. Leonard's ironworks at Hawkins and Hammer ponds on the Horsham-Slaugham road were the largest in western Sussex; the eastern pond, called Hammer pond, had a forge, known as the upper forge, and the western pond, called Hawkins pond by 1585, had both a forge, known as the lower forge, and, later, a furnace.
- 2.15** In the 1580s, the owner of the nearby ironworks was a Roger Gratwicke whose sole right to mine ore in the forest was challenged by Walter Covert of Slaugham whose workmen began digging ore in the forest, their workmen clashing several times with those of Gratwicke. In reply to Gratwicke's suit against them, the two men alleged that his mine pits were wastefully operated and were producing more ore than he could use, while they themselves were merely taking the lower deposits which his men left behind.
- 2.16** In 1588 they claimed to process 1,000 loads of ore annually, the ore being obtained south-west of Colgate, where many deep mine pit craters can still be seen. These are large craters up to 9m across at the ground surface and up to 2.5 m deep. The pitted ground is on the flat top of a ridge between two deep valleys, where, since the beds are nearly horizontal, the iron seam could have been followed underground by workings that maintained a near-constant level. The furnaces stopped production around 1615 but the forges continued in use until 1664²⁰. During the later part of the ironworking period the forest would have had to be actively managed to produce the wood needed to make charcoal and large areas of the forest, near the furnaces would have been actively coppiced on regular cycles. Higher standards of management were increasingly adopted, making it possible to operate the ironworks over a longer period of time. This sustained form of management was an important source of income to landowners²¹.
- 2.17** In the westernmost part of the Weald the principle method of obtaining ore was a method of mining which left mine pits in the landscape. These were generally vertical shafts of about 1.8 to 2.4 metres in diameter, although the ones in St Leonard's Forest are considerably larger. They were sunk to the seam, or layer of ore, and then widened to take out as much ore as was safely possible, or before the pits filled with water. The pits would be filled in with material dug from a new pit²² a short distance away²³. Today this results in a pock-marked landscape with pits which are often filled with water, but the mine pits in St Leonard's Forest are nearly all free draining and do not hold water.

¹⁹ *Sussex Archaeological Collections* 13 p119

²⁰ <http://www.british-history.ac.uk/report.aspx?compid=18382>

²¹ CKS, U1475 E20(2)

²² <http://www.bgs.ac.uk/lexicon/lexicon.cfm>

²³ Cleere, H. & Crossley, D. 1995 *The Iron Industry of the Weald*. Merton Priory Press, Cardiff

Post-Medieval – decline of woodland and rise of rabbit farming

- 2.18** Woodland clearance was achieved by assarting and enclosure in medieval times in a very piecemeal fashion. The destruction of the forest continued through the Civil War and beyond and with the decline of the iron industry the woodland was no longer coppiced and not enclosed so that its regeneration was hindered by grazing animals. Heathland came to pre-dominate in the 17th to 18th century.
- 2.19** On Ashdown Forest there were several areas of rabbit warrens, some said to date from the 14th century, and there are records in the parliamentary surveys of the mid 17th century of some rabbit warrens being dismantled. In contrast to this decline of rabbit warrens in Ashdown Forest, warrens were increasing in St Leonard's Forest in the mid 17th century; although rabbits had been introduced earlier their populations remained low because of the overall tree cover. As the heathland became more dominant much of Lower Beeding parish was used for rabbit warrens: the first warren in St Leonard's Forest existed by 1614.²⁴
- 2.20** Rabbits were introduced during the 17th and 18th centuries and were bred commercially and housed in specially constructed homes called pillow mounds. Pillow mounds vary greatly in length from 6 metres up to 150 metres, most are no higher than a metre and vary between 4 to 8 metres wide, often flanked by a ditch. Sometimes these pillow mounds would have been enclosed by boundary banks or walls, to prevent the rabbits escaping, forming part of a large warren²⁵. Pillow mounds are generally rectangular in shape and are aligned parallel to the contours. However the lidar survey of the Weald Forest Ridge has found that pillow mounds in Sussex vary greatly in their form and not all conform to this conventional, so called, 'cigar shape' pillow mound. The heathland was burnt to provide new growth of the vegetation on which the rabbits fed and the rabbits stripped off any regenerating vegetation and thus helped to turn any woodland into a heathland landscape on the poor sandy soils of St Leonard's Forest. The Great Warren extended from Hammerpond road, northwards to Colgate. A good selection of those pillow mounds survive in the study area today.

Post-Medieval – land improvements

- 2.21** Some attempts at improving the poor, silty, and sandy soils were made during the 17th century but were not successful. Proposals were made to reclaim the land but such suggestions met with little response for in 1794 the Forest was described as 'an extensive tract of waste land producing nothing but rabbits'. By circa 1800, therefore, the centre of the former forest was largely heathland, varied by the presence of isolated pollarded beeches and oaks, some of which still survived in 1982, for instance south-west and south-east of Colgate or near the south end of Mick Mills Race east of St. Leonard's house. Turnpiking of the roads in the parish after 1771 made the area more easily accessible and, for the first time, reclamation of the heathland was possible.

²⁴ A Tittensor & R Tittensor, 1985 'The West Dean Rabbit Warrens', *Sussex Archaeological Collections* **123** 151-185

²⁵ Williamson, T. 2006 *The Archaeology of Pillow Mounds*, Shire Princes Risborough

- 2.22** In the early 19th century it was still said that St Leonard's Forest only yielded rabbits, but after that some attempt was made to improve and enclose the warrens and turn land previously used for rabbit farming into arable land. A similar event happened at nearby Tilgate Forest, once also described as 'no other than a rabbit warren', which was enclosed and converted into arable land. Afforestation occurred after 1801 and between 1841-1851 which included the planting of larch, oak and sweet chestnut²⁶.
- 2.23** William Cobbett's verdict in 1823 was no better; 'I have seldom travelled over 8 miles so well calculated to fill the mind with painful reflections. The soil is poor, miserable, clayey-looking sand, with a sort of sandstone underneath. It was a bare heath, with here and there, in the better parts, some scrubby birch. It has been, in part, planted with fir trees, which are as ugly as the heath was, and in short, it is a most villainous tract. After quitting it, you enter a forest, but a most miserable one.'²⁷ The early draft 1st Edition Ordnance Survey map, circa 1813 (Fig. 12), of the area shows St Leonard's Forest to be a mixture of open heathland and woodland.
- 2.24** By the later 19th century, partly because of the landscaping and planting described, Cobbett's practical viewpoint had been generally succeeded by the idea of the forest as a romantic place of wild natural beauty, rich in legends and supernatural happenings. The first recorded legend is that of the serpent nine feet long which was said to have been seen there in 1614. Though rationalized in various ways since the early 19th century, the story has remained potent. Other legends concern St. Leonard's slaying of a dragon, nightingales' failure to sing in the forest, a headless horseman, and the origin of Mick Mills Race, a long avenue of trees south-west of Colgate which was laid out perhaps by Michael Mills, named in 1720, was blown down in 1836, and replanted. Such legends were still widely believed in the earlier 19th century²⁸.
- 2.25** After 1950 much land in the historic area of St Leonard's Forest had been bought by the Forestry Commission and by 1981 they owned 289 hectares growing chiefly scots pine, larch, beech, oak and western hemlock. By that date the amount of planting had made the parish more wooded than it had been for several centuries.²⁹

²⁶ <http://www.british-history.ac.uk/report.aspx?compid=18380>

²⁷ Cobbett, W, 1823-1826, 'Rural Rides'

²⁸ <http://www.british-history.ac.uk/report.aspx?compid=18380>

²⁹ <http://193.39.212.226/report.aspx?compid=18380>

3. Survey Methodology

- 3.1 The survey undertaken at St Leonard's Forest equates to a Level 2 survey as defined by English Heritage³⁰. This level of survey provides a basic descriptive and interpretive record of the archaeological remains within St Leonard's Forest, and includes core monument data and the level and form of records that satisfies the requirements of the current standards and approaches to Woodland Archaeology in the south-east of England³¹.

The airborne lidar survey

- 3.2 The Historic Environment Awareness project, funded by English Heritage and the Heritage Lottery Fund, included a lidar survey of the Weald Forest Ridge which produced a detailed digital map of the ground surface allowing the definition of features to within 100mm vertical and 250mm horizontal accuracy. The lidar survey was flown in two tranches, in early 2009 and spring 2010, since it needed to be undertaken at times when the trees were not in leaf. As it covered the entire Weald Forest Ridge, of which St Leonard's Forest forms a part, initial analysis began in 2009 for other areas. The methodology established then has been adopted for the present survey.

- 3.3 In the first year of the Historic Environment Awareness project, lidar images were viewed on screen in ArcMap software, mainly using the composite hill-shaded images lit from the NW (Figs. 3a and 3b). Sometimes a single hill-shaded image, lit from the SW, was used to ascertain whether a different detail could be seen from this direction. This was applied to an area of high interest or where linear features run in a roughly N/S direction. The images were viewed at a scale of 1:4000 as this gives an efficient working scale and good resolution. It is sometimes worth investigating areas of specific interest at a scale of 1:2500. It must be noted, however, these extra options are time-consuming and it is not advised to cover large areas using these additional methods of querying the data, but if a small area is to be studied in detail a scale of 1:2500 can be used.

The desk-top survey

- 3.4 The desk-top study comprised the investigation of the Historic Environment Record (HER) held by West Sussex County Council (WSCC) for this area. A study of the available aerial photographs and historic mapping for the area was also undertaken. A full search of historical records and documentary sources was not undertaken as part of this survey. The lidar survey data was studied alongside the photographic and map evidence to identify and transcribe potential features (Figs. 4a and 4b), the results of which were overlaid onto OS mapping as the basis for undertaking the field survey.

³⁰ English Heritage (2007) *Understanding the Archaeology of Landscapes*, Swindon, English Heritage.

³¹ Bannister, N. & Johnson, C. (2008) *Woodland Archaeology – Setting Standards and Approaches*, Discussion Paper (draft 2).

Historic Landscape Characterisation

- 3.5** The Historic Landscape Characterisation (HLC) which was undertaken for Sussex (2003-2008) maps the historical attributes of the present landscape to reflect both historic character and historic time depth³² (Fig. 5 and 6). The HLC shows a large area of woodland, slightly bigger than the forest of today surrounded by mainly fieldscapes with some designed landscapes and recreational areas dating from the period 1800-1913. However, from the number of boundaries, pillow mounds and numerous mine pits found within this woodland it is obvious that this is not a straightforward wooded landscape.

The Field Survey

- 3.6** The detailed field survey was undertaken on three visits, on 3, 9 and 17 March 2011, by Vivienne Blandford, Chris Butler and Anne Locke. The vegetation was low and whilst there was good access to a large proportion of the site a significant amount of ground was inaccessible owing to large amounts of brash covering the ground and large vehicle ruts. The areas not surveyed are roughly outlined on 'areas not surveyed map' (Fig. 7).
- 3.7** The survey methodology comprised a systematic walkover of the area, using the lidar as a back up to the visual inspection of the ground surface. The transcribed lidar overlay (see Figs. 4a and 4b) was used in conjunction with the current OS mapping to identify features and determine their extent. Features previously identified on the lidar were targeted to confirm their presence, identity, and current state. Other features, not on the lidar, were identified during the walkover survey: these were mostly small or negative (sunken) features or in dense cover and would not have showed up on the lidar.
- 3.8** A written record was made for each earthwork or other site encountered, including information on its dimensions, shape and extent, together with any relationships with other earthworks and sites. Where necessary this information was backed up with sketches and digital photographs. For features not visible on the lidar, measurements were estimated by pacing, and a hand-held GPS (Garmin 60CSx or Magellan Triton) was used to provide an exact location to an accuracy of ± 3 to 5m.
- 3.9** Each site was entered onto an Excel database, which has been retained in the site archive. A summary extract of the database is included in Appendix 1 of this report detailing all the sites found during the survey. The site information has been added to the West Sussex Historic Environment Record (HER) GIS system, using the HBSMR package, with lines and polygons showing the exact position and extent of the sites transcribed from the lidar overlay where available. Electronic and paper base-maps were also created showing all of the sites found during the survey and are included in this report (Figs. 13 and 14).

³²N.R. Bannister, *Sussex Historic Landscape Characterisation* Final Report. WSCC, ESCC, EH; English Heritage 2004-5, in press. Characterisation. Conservation Bulletin Issue 47; J. Clark, J. Darlington, G. Fairclough, *Using Historic Landscape Characterisation*. English Heritage 2004.

- 3.10** During the survey, the ground surface was also inspected for archaeological artefacts, especially areas of recent clearance or path disturbance. However, only one clay pipe fragment and an early 20th century dump of pottery and bottles were recorded during the survey (Appendix 2).
- 3.11** This survey has only considered the above-ground archaeology, and no attempt has been made to investigate the below-ground archaeology. It is likely that there will be many sites, especially those of prehistoric date, within St Leonard's Forest that are currently below-ground, and therefore any future groundworks should be closely monitored to ensure that any sites disturbed are fully recorded.
- 3.12** The archive will be retained by Forest Enterprise, with a copy held in the West Sussex HER at WSCC. A copy of the report will also be deposited in the Library of the Sussex Archaeological Society at Barbican House, Lewes.

4. Results of the Survey

The Desktop Survey

- 4.1** The HER records were provided by WSCC and amounted to 15 sites in total. These sites are listed within Appendix 1. The source of these sites was all bibliographical and related mainly to the numerous mine pits (for the extraction of iron ore) and find spots of prehistoric flintwork. Documents held at West Sussex Record Office, the National Archives on line, British History and the British Library online and materials held by the Sussex Archaeological Society were also consulted.
- 4.2** In Speed's 1610, Johannes Blaeu's 1650 and Morden's 1695 maps (Figs 8-9), St Leonard's, Tilgate and Worth Forest are clearly emparked and surrounded by smaller deer parks. They also show the predominance of the large wooded areas along the Weald Forest ridge. Yeakell and Gardner's map of 1778-1783 (Fig. 10) maps the forests of Worth, Tilgate and St Leonard's, no longer emparked, but as part of a continuous wooded landscape surrounded by numerous small fields and separate small blocks of woodland, with concise boundaries and evidence of the past iron industry hammer ponds and pen ponds
- 4.3** An early draft of the 1st Edition OS map, c. 1813 (Fig. 11) shows the study area to be a mainly heathland landscape with some residual woodland in the northwest and surrounded by surviving woodland, mainly to the east. Some of the boundaries marked on this map were found surviving in the study area today, for example the boundary that runs from Colgate in the north to join the beginning of the long straight ride called Mick's Mill race, which runs in a north-south direction. Other, more sinuous rides, divide up the area. Little information can be gained from studying the Tithe Maps as woodland was generally not mapped in any detail; the Tithe Map for this area proved no exception.
- 4.4** The 1st Edition OS map (Fig. 12) shows a marked change to a mixed deciduous and conifer woodland with the long straight north-south road of Mick's Mill Race marked and some of the woodland has individual names such as, Race Hill, Whitevane Hill, Greenboom Hill, Scragged Oak Hill and Greenslade Wood, all of which are retained today. At TQ21803174 a small dwelling, Race Hill cottage, is mapped (MWS8969). The only traces of this dwelling found during the survey were some possible boundary banks and a water management feature in the form of a small dam across a now dry stream. The later OS maps show a densely wooded area with little detail in the wood apart from woodland tracks which change little over time.
- 4.5** Aerial photographs, taken in 1947, show no obvious signs of any military activity. The mixed woodland cover is dense in places with some substantial areas of more open ground.³³

³³ <http://www.geog.sussex.ac.uk/grc/info/sussexairphotos/1940/3-3204.jpg>

The Lidar and Field Surveys

- 4.6** The lidar and desktop survey identified 121 potential sites, of which 95, or 79%, were 'ground truthed' during the field surveys undertaken on 3, 9 and 17 March 2011. The field visits recorded a total of 190 sites including a further 84 which had not been pre-identified on lidar. Sites which had not been pre-identified on lidar were mostly small or negative (sunken) features e.g. platforms and saw pits, or in dense cover. Sites identified on lidar but not ground truthed were mostly substantial linear features like banks and trackways which can be reliably identified from the lidar.
- 4.7** All the sites found are listed in Appendix 1. The sites are predominantly Post Medieval in date, with most probably dating from the 16th century through to the 20th century. There were no sites that were found during the field survey that can be dated to the Medieval period or earlier with any certainty. However, many of the earthworks, especially banks, are undiagnostic in character, and thus it is possible that some could date from the Medieval period³⁴, as could some of the sites related to charcoal production.
- 4.8** During the winter of 2010-2011 in St Leonard's Forest there had been forestry operations taking place with the removal of large areas of conifers by heavy vehicles. This had the result of leaving large vehicle rut tracks in places and much of the brash had not been removed but laid over the ground, probably to aid vehicular movement. This made surveying on the ground much more difficult than would be otherwise and in some places impossible to survey. This was because any subtle archaeological features were covered up by the brash and it was both difficult and dangerous to walk over the debris on the ground. These operations post-date the lidar survey but are likely to have left changes to the landscape which will be visible on future surveys.
- 4.9** Intense forestry operations had taken place in the area surveyed in the southern section of the forest, west of the main forest track, below Mick's Cross and between the southern gills. Forestry operations had also taken place due north of Mick's Cross and between the road turning east. Some of the main forest tracks and areas adjoining them were extremely rutted and much brash had been left on the forest floor. This covering to the forest floor makes it extremely difficult to spot the more subtle features such as charcoal platforms and saw pits. Some damage had taken place where vehicles had driven over the boundary bank at TQ20993014 (MWS8856) and nearby the mine pits had been covered by brash.
- 4.10** In the north east surveying was made difficult as a result of the brash-covered forest floor and areas of dense conifer which were difficult to penetrate. Considerable damage to a long linear bank (MWS8888) had occurred when a tracked vehicle had repeatedly crossed over to take trees up to the main forest road. North from TQ21743129 the bank had been driven over at 17 places at approximately 15m intervals and brash had been piled up on it for access for forestry operations. At TQ21793146 the bank had been breached in two places very close to each other, two breaches seeming unnecessary for the purpose.

³⁴ Rackham, O. 1990 *The History of the Countryside*, J.M. Dent & Sons Ltd, London.

Archaeological site types

4.11 The main types of site found in the survey are listed and defined in Table 2 below. Common types are shown on the distribution maps, Figs. 15 to 20. These have in some cases been cropped to fit the features concerned, in order to show a greater level of detail.

Table 2: Main types of site found

Type of site	Definition	Number
Boundary	Boundary shown on map; may survive as bank	} 43
Bank	Linear earthwork often with associated ditch	
Mine pits	Areas of pits associated with iron ore extraction (not including those previously recorded on the HER with imprecise locations)	28
Hollow way	Sunken trackway, worn through use	26
Pillow mound	Long low mound for rabbit husbandry	15
Charcoal burning platform	Usually circular depression with darker soil	14
Trackway	Road or trackway, some of which may still be in use	10
Mound	Miscellaneous mound of indeterminate function and age.	7
Quarries	Quarry probably associated with industrial activity	4
Saw pit	Rectangular cut	3
Enclosure	Earthwork bank (and ditch) enclosing an area	1
Earthwork	Miscellaneous earthwork of indeterminate age and function	3
Pond, pond bay	Man made pond, some of which may be decoy ponds	2
Ditch, drain	Feature associated with water management	2

Banks and boundaries

4.12 There were 43 banks, field boundaries and boundary banks (Photo 1) found during the survey (distribution map, Fig. 15). Some were identified from the maps and earlier survey or lidar, whilst others were found during the field visits. A number of the banks found during the survey were similar to field boundaries and some are likely to date from the periods of agricultural improvement. However some of the boundaries may relate to the pillow mounds and represent warren boundaries, especially the long north-south boundary and those to the east side of the study area (Fig, 15). These boundaries tended to be larger than expected for simple field boundaries and more substantial. If they are warren boundaries they are an unusual record of survival in Sussex.



Photo 1: Boundary bank
(MWS8823)

Mine pits and quarries

- 4.13** Evidence was found of mine pits in at least 28 different locations, 13 of which had already been recorded in the HER, evidence for which was taken from bibliographic references in Cleere and Crossley's 'The Wealden Iron Industry' (distribution map Fig. 16). The deepest and largest spread of mine pits is found in the northern section of the study area (near to Colgate) around TQ22053205 (MWS5125). These are quite spectacularly depicted on the lidar images (Fig. 17), and it is the first time such a set of mine pits are so well depicted as they are difficult to photograph from ground level (Photo 2) and aerial photographs cannot penetrate the woodland canopy.
- 4.14** This group of numerous mine pits are deep holes with large rounded piles of spoil spread around their circumference, not of even size. Classically the spoil spreads round the circumference of pits in a horseshoe shape, leaving a clear exit point, the spoil banks are a couple of metres high. The pits are slightly conical shaped pit, up 8-10 metres deep, but of varying size. Some pits are shallower than others, all closely spaced together with a 1-3 metres baulk between pits. This set of mine pits continue on other side of the Forest track and have been cut and filled in by the track at this location. The mine pits on the eastern side of the track are generally smaller. The majority of mine pits found during the survey were not water filled as obviously the soil here is free draining. In the south-east of the study area at TQ21293000 (MWS5069) there was a scatter of mine pits, one water filled, and they varied in size from 2-3m across and deep to 7m across and 7m deep. Some of the mine pits were very shallow and more like surface quarrying. Many of the mine pits had an obvious exit and access route out from the mine pit which was reflected in the horseshoe shaped spoil around the edges of the crater.

Photo 2: Minepits
(MWS8948)



- 4.15** Some of these mine pits will be the ones referred to in para. 2.13 and therefore can be dated to the 16th century. The depth and size of the mine pits are directly related to both the geology and the topography: it was noted that some of the mine pits were deeper on the higher ground or plateau and shallower further down slope and to the southern part of the study area. However, some variation in size could be due to inconsistent mining practices in the 16th century. One mine pit (MWS8893) had been used as a rubbish dump to dispose of bottles and broken pottery, probably at some date around 1920-30 (see Appendix 2).

- 4.16** Most of the mine pits were in good condition but in a few instances these had been filled with brash from forestry operations. At TQ20983010 (MWS8841) a set of shallow mine pits, some water filled, had been covered with brash to enable a tracked vehicle to drive over them and some damage by vehicle rutting had occurred. Obviously the large mine pits are not subject to such damage.
- 4.17** Four quarries, distinct from the mine pits, were recorded. One (MWS8889) was close to the main forest road, and a large quarry (MWS8906) was situated close to the north-west corner of the Forest (Photo 3). Both may have been used for roadstone extraction.



Photo 3:
Quarry MWS8906.

Trackways and hollow ways

- 4.18** The survey recorded 36 trackways and hollow ways. There are a number of different types of trackways surviving across St Leonard's Forest (distribution map, Fig. 19), and although they are probably all Post Medieval in date, it is likely that some may have had earlier Medieval origins, and in some cases may be perpetuating Roman and even prehistoric routeways. Some of the trackways may have been associated with the early iron industry. Trackways in the southern section of the site could be associated with the St Leonard's Furnace site and quarrying activities in this area, and with the cottage marked on the earlier estate maps. The trackways and field boundaries are visible on the lidar images and some were found on the ground during the survey.
- 4.19** In the southern section of the site there are a number of good examples of braided trackways which may be associated with access to the iron workings to the south of the study area (e.g. Photo 4). A braided trackway forms where the path deviates from the main access route, usually on sloping ground, to avoid muddy and impassable areas. They are often found at 'pinch points' where there is a lot of traffic at one point, i.e. a stream crossing or near to it. This is the case at St Leonard's Forest at MWS8840 between the Roost Hole car park and the stream to its west. A good example of braided trackways exiting the Forest at Sheepwash Wood in the south-west reveals that the routeway out of the wood no longer exists and demonstrates that this reflects an older, possibly historical route that fell out of use with land use changes (Fig 20).

Photo 4: Braided trackway, incorporating extant trackway (MWS8918)



- 4.20** A number of the trackways were initially identified from the early estate and OS maps, and relate to the courses of earlier roads and tracks that have now either moved or disappeared completely. Some tracks may have been short term tracks associated with woodland management.
- 4.21** Another group of older tracks are represented by the 26 hollow ways and worn trackways, often on slightly different alignments to the current tracks, and which probably represent the migration of tracks to an easier route when the hollow way became impassable.
- 4.22** In several places the construction of modern forest roads has obscured traces of older tracks as well as encroaching on adjacent archaeological sites, for example at the eastern ends of the pillow mounds MWS8863, 8865 and 8867.

Pillow mounds

- 4.23** During the course of the survey substantial evidence of the 'Great Warren' that stretched between the two east-west route ways was found (distribution map, Fig. 15). The lidar images (Fig. 18) greatly aided the ability both to recognize and locate these pillow mounds, some of which were in terrain that was difficult to survey, either as a result of topography or dense plantation cover. This 'Great Warren' is likely to have been divided into different areas of warrens for management purposes. Some of the substantial, long linear banks found during the survey may be the surviving remains of these divisions. The remains of these warrens took the form of now isolated examples of pillow mounds (e.g. Photo 5) surviving in the south-west and south-east extremities of the forest, in the east on very steeply sloping land, in the middle on an east-west boundary and in the north-western section of the forest.
- 4.24** The pillow mound at TQ21363009 (MWS8815) in the south-east of the study area was very unusual as it was either circular or sub-circular, 148 metres in circumference with a pronounced bank on the uphill side at about 1.5 metres high with a ditch at about 1 metre wide. The ground inside sloped down hill where the southern end had been somewhat eroded. This pillow mound was in reasonable condition on open ground, although covered in bracken. There is no evidence left of other pillow mounds in this vicinity.



Photo 5 (left): Pillow mound
(MWS8935).

Photo 6 (below): Pillow
mound (MWS8842)



4.25 A pillow mound at TQ20943012 (MWS8842), approximately 26m long, formed part of boundary bank, with ditches 1m wide (Photo 6). The pillow mound is 1m high with rounded profile and 3-4m wide. The east end of mound has been driven through in the past and the bank has also been damaged by forestry operations. It was not unusual to take advantage of earthworks already present, into which pillow mounds were built. This boundary forms a long east-west boundary which passes west beyond the Forestry Commission land, into open fields. To the east it can be found in the woodland called Greenslade wood where it terminates.

4.26 Four pillow mounds (MWS8863, 8865, 8867 and 8870) were found at TQ21933119, TQ21953114, TQ21943108 and TQ21923100 on very steeply sloping land which dropped down to the eastern border of the survey area at a slope between 30-45 degrees. These pillow mounds, grouped closely together were between 34-45 metres long, up to about 1.5 metres high and between 3-4 metres wide with flat tops. All of them had been truncated by the Forestry track which had been cut into the slope, and built up along this eastern boundary. Other than this damage these pillow mounds survive in good condition as the land is hardly fit for any other purpose, either in the past or present, but it would have been extremely difficult to both find and interpret their function without the use of lidar. A nearby boundary bank, in varying condition along its length, which at one point turns at right angles to form part of an enclosure, is likely to be part of the enclosing boundary walls of one of the warren areas. In places it survives up to 1m high with a rounded, asymmetrical bank and a ditch up to 1m deep and wide. It is unusual in the South East of England to find evidence of the warren enclosures.

- 4.27** Pillow mounds at TQ21903208 (MWS8819) and TQ21813216 (MWS8820) have sustained some damage by forestry operations in the pasts and both are perilously close to current forestry operations with some considerable rutting by large vehicles in their close vicinity. Some piles of brash have been piled near to, or on the pillow mounds themselves.

Charcoal burning platforms

- 4.28** Only some 14 possible charcoal burning platforms (Fig. 20) were positively identified during this survey. In an area as large as St Leonard's Forest with its history of the iron industry it would have been expected to find considerably more charcoal platforms. However it was not possible to cover all the ground where charcoal platforms may be located because of the forestry operations that had recently taken place. This had left a great deal of brash which not only obscured a clear view of the ground surface but was potentially hazardous to walk over. In some instances it was not possible to cover this ground to survey it. For example east of the long linear bank (MWS8888) the bank had been driven over at 17 places at approximately 15m intervals and brash-covered tracks, impossible to walk over, had been created to give access into the conifer plantation for forestry operations.
- 4.29** There was evidence, seen on the slope analysis of the lidar images, of more charcoal platforms but these were in areas that were not possible to survey for the reasons already stated. However many charcoal platforms may have been destroyed by earlier attempts at agricultural improvements or by later forestry activities.
- 4.30** A large charcoal burning platform was found at TQ21923079 (MWS8876) which was 10m across with a sloping back slope cut into the slope at 2m high. Animal excavation showed very black soil and charcoal to depth of 26cm. Just to SE at TQ21933079 was a slightly saucer shaped platform 4m across with no evidence of darkened soil, a possible stacking area or living area, as the prevailing SW wind would have blown smoke away from it. This type of evidence is becoming seen more regularly in woodland where charcoal platforms are found. Other charcoal platforms were found in the vicinity and the extent of charcoal working in this area, near to gill streams, suggests potential for bloomery sites located alongside the nearby stream due east where iron ore has been revealed exposed in the gill edges but is outside the study area.

Saw pits

- 4.31** Relatively few saw pits were found during the survey which is unusual for a wooded area of this size. Possibly the workers were unusually conscientious and effectively filled them in when they were no longer being used. Saw pits adjacent to the extant forest roads may have been destroyed when the roads were improved for heavy forestry vehicle traffic (Photo 7). An exception to this rule was a saw-pit at TQ21893076 (MWS8879), whose internal dimension measured 5m by 2m and was 1.75 metres deep with an especially large amount of spoil surrounding it, giving exterior dimensions of 6m by 4m. This larger size may reflect that the saw pit has suffered little erosion and was not filled in when it fell out of use. It is located near to an access track.



Photo 7: Saw pit adjacent extant track (MWS8896). Note heavy rutting on track from recent forestry work

House site

- 4.32** Only one building, a small cottage, was marked on the early OS map, Race Hill cottage (MWS8969). No trace any building was found during the survey but a possible small low garden bank, 1m wide and 0.5m high at TQ21813173 was found and the area within the bank had been levelled. Nearby is a small dam or pond bay 1.5m high and 1.5m wide, breached, across now-dry stream valley. This may have provided a water supply for the cottage by effectively damming up the stream and forming a small pond.

Other sites

- 4.33** A small series of land drains was seen at TQ20862996 (MWS8861) where the flatter land above the drains was very wet. In this area were the remains of ornamental planting in the form of old, large evergreen specimen trees. At TQ21283035 is an example of an ornamental tree which has been planted on small mound, evidence of 'clump' planting and there is another example of similar planting at TQ21573028.
- 4.34** In the north-west part of the Forest is a man-made pond (MWS8951), embanked on the west side with sluice gates and a culvert. This pond is overlooked from the south by a tree planted platform (MWS8952) which may have been intended as a viewing platform (Photo 8).

Photo 8: Pond (MWS8951) overlooked from viewing platform (MWS8952)



4.35 There was evidence of a platform (MWS8816) adjacent to a track at TQ21503027 in the southern section of the study area. This was about 3m by 2m and 0.5 metres high but had been badly damaged by a heavy vehicle driving over it. This may have been some kind of viewing platform or small shelter. Close to this platform there is evidence of ornamental planting, including some substantial beeches and a specimen evergreen tree, all situated on the higher ground. At TQ21583043 there are a number of managed beech trees which could have been coppiced in the past and may have formed part of a planting scheme along a path which is still in use today (Photos 9-11).



Photos 9 & 10:
Examples of a
coppiced
chestnut tree
(left) and
pollarded
beech (right)



4.36 The evidence of the ornamental trees planting and land drains could be part of the 19th century replanting and land improvement schemes that took place in S. Leonard's Forest at this time.



Photo 11:
Pollarded tree on
boundary bank
(MWS8823)

Military archaeology

- 4.37** A small group of slit trenches was found on the high ground at TQ21743087 (MWS8884). These were in excellent condition and little attempt had been made to fill them in (Photo 12). This was the only evidence of military activity within the study area, although a Canadian division was stationed nearby during the Second World War. The lack of further activity may have been due to the fact the ground here was very stony, making digging difficult, and the spoil heaps consisted of large amounts of what is probably Tilgate stone. There is evidence of surface quarrying in this area, probably sourcing the Tilgate Stone for road making.



Photo 12:
Second World
War slit trench
(MWS8884)

- 4.38** At this site one unusually long slit trench at TQ21773089 (4 x 1m and 0.45m deep) which may correspond to a command post was aligned N-S. There were four smaller trenches 2 x 1m and 0.75m deep at TQ21733087, TQ21753086, TQ21773086 and TQ21743087, two aligned N-S and two E-W. The layout indicates a general defensive position. Where an attack was expected from one direction spoil would have been piled on that side. A nearby mound, of loosely compacted material, 5m across with depression in centre appears to be unconnected, and its function unknown.

5. Recommendations for conservation and management

Management mapping

- 5.1.** Recommendations for the conservation and management of the archaeological resource of St Leonard's Forest have been summarized in the management mapping using red, amber and green areas (see Table 3 and Fig. 21). More detailed mapping is provided in the separate folder of A3 maps where St Leonard's Forest was divided into three sections, north, central and south, to provide working maps at a reasonable working scale of 1:7000. Customised map extracts of the area at any scale can also be obtained on request from the West Sussex HER. The full GIS layer could be provided to Forest Enterprise, to enable them to print out their own customised maps as required.

- 5.2.** Sites were assessed for their significance, condition and vulnerability and mapped on a GIS layer, using hatched polygons with red, amber and green colour-coding for management purposes (see Table 3). These maps give a quick overview of not only the type of archaeological features found but in many cases the extent of the archaeological feature and also the possible value of the given area. Key features are visible and labelled within the areas.

- 5.3.** Some of the above sites which fall into different categories may be of such proximity to each other that they will be form part of one category, which will be of the highest designation according to the above criteria.

- 5.4.** Groups of similar features such as braided trackways/holloways, areas of quarrying, trench systems are polygonised in one area. This method will aid the mapping of the data entry into the HER and lessen the number of polygons needed, and thus simplify the mapping.

- 5.5.** 'Cab cards', booklets as developed for the Weald Forest Ridge project, will be available for use by Forest Enterprise staff and contractors alongside the specific management mapping. When the final version has been completed these will be distributed to all interested parties. A cab card is a small spiral-bound booklet suitable for use in the cab of a working vehicle. It contains drawings and photographs of commonly encountered archaeological features that may be found by contractors when working in wooded landscapes. Using simple procedures it contains ideas for mitigating damage by forestry vehicles. There is a pocket in the back which can be used to hold a map of the working area.

Table 3: Management Mapping Summary

The management mapping uses the specifications A (red), B (amber) and C (green) where:

- A: may be equivalent to nationally designated or sites of equivalent significance
- B: regionally or locally designated sites or sites of equivalent significance
- C: all other sites of a recognisable archaeological type which do not fall into the above categories.

'A' (red) category sites include:

- Enclosures, barrows and possible associated field systems.
- Existing bloomery sites where there may be additional activity noted from lidar evidence, such as quarries (which ordinarily would fall into the 'C' category) and possible platforms, enclosures etc.
- Pond pays and other water management features (holding ponds).
- Pillow mounds and associated possible boundary banks to warrens.
- Good examples of military trench systems and rifle ranges.
- Settlement sites and enclosures (with possible hollow ways associated with them).
- A good example of hollow ways, braided trackway features and roads no longer in use. Ridge and furrow where positively identified by ground truthing.
- A good example of charcoal platforms where positively identified.
- Significant boundaries sometimes identified by map regression.
- Data already recorded on the Historic Environment Record taken from bibliographic sources, excavations or find spots etc.

Some, hitherto unknown, sites which fall into category A may be suitable for scheduling in due course. Any new features identified from interrogating the lidar images would have to be verified on the ground before proceeding.

'B' (amber) category sites include:

- Other charcoal platforms.
- Other military trench systems
- Other boundary banks where the confidence level of recognition is high.
- Other hollow ways, braided trackways and older trackways.

'C' (green) category sites include:

- All other boundary banks which do not fall into the above categories.
- Areas of quarrying and mine pits unless they are associated with other features as already stated.
- Field boundaries which are no longer extant but may be able to be dated from map regression.
- Trackways/access tracks which are not always currently mapped on modern maps but may be able to be dated from map regression but may still be in use

Some of the above sites which fall into different categories may be of such proximity to each other that they will be form part of one category, which will be of the highest designation according to the above criteria

Condition of the St Leonard's Forest historic environment resource

- 5.6.** One of the objectives of the field survey was to record the current state of the archaeology in St Leonard's Forest, assess the damage that has been caused in the past, and potential for future damage to the surviving archaeology.
- 5.7.** The greatest detrimental factors in St Leonard's Forest today are forestry operations and vegetation. There is evidence of recent significant damage to archaeological features from forestry operations in some areas. Much of this damage post-dated the lidar survey but some of the major rutting (Photo 13) is likely to be visible on any future lidar surveys. A further detrimental factor is vegetation – tree roots and bracken, along with some rhododendron – which can cause significant damage to earthworks and below ground archaeology (Photo 14). However, established trees can also provide stability to archaeological earthworks, and as such can assist in the preservation of earthworks such as banks. Other common detrimental factors include water erosion and path wear. Animal damage is not that common, and apart from the areas damaged by recent forest operations generally the sites surveyed are in fair to good condition.



Photos 13 & 14 Recent vehicle rutting (left), and uprooted tree on field bank MWS8908 (below)



- 5.8.** The future conservation and management of the archaeological resource in St Leonard's Forest is vitally important, not only to preserve the surviving remains for the future, but also to enable the visiting public to be able to see and understand the important archaeological remains today. It is clear from the results of this survey that there is a significant range of preserved archaeological sites surviving in the forest, which provide an insight to the past land use of this landscape. It is also important to understand that many changes have taken place over time, and the archaeology that can be seen today often represents only the more recent use of the landscape.

- 5.9.** It should also be noted that this survey has only assessed the visible above-ground archaeology, and it is likely that there are numerous archaeological sites preserved below-ground, for which little evidence survives to be seen today. These sites are more likely to date from the earlier periods; prehistory through to the Medieval period. Any future work on the Forest involving scraping, drainage or stump removal should take into account the potential impact on the below-ground archaeology.
- 5.10.** A set of guidelines has been put forward for preserving cultural features in woodlands³⁵, and it is proposed that these should form the basis for the future conservation and management of the archaeological resource in St Leonard's Forest. Prior to any clearance of scrub, bracken etc or mowing of new areas, the archaeological map should be consulted to ensure that no known archaeological site would be affected by the work.

Specific management recommendations by site type

Trackways and hollow ways

- 5.11.** A number of trackways and hollow ways are still in use as paths and tracks today, and are therefore subject to wear and damage from people, horses and forestry vehicles.
- 5.12.** Others are no longer used, and are frequently overgrown with bracken and small trees and scrub. Apart from groups of associated hollow ways or where hollow ways are associated with other features within management areas, it is not proposed to recommend any remedial or special action that needs to be undertaken for their conservation. However, consideration must be given to any work carried out on or around these sites, which may result in damage.

Banks

- 5.13.** Consideration should be given to clearance of all vegetation from the bank and ditch, except for any established trees, which now form an integral part of its structure, so should be left in-situ. No new fences should be constructed on a boundary bank, and consideration given to moving any current fences from the top of the bank. Any intervention on a bank should be carried out under archaeological supervision, as work may produce crucial dating evidence, especially for those banks which may be associated with the pillow mounds.
- 5.14.** Being linear features, many of the other banks cover considerable distances, although the full extent of many found during the survey could not be established. Often a bank will have a ditch on one or both sides, although it will frequently have been silted up and difficult to determine. Most banks are covered with bracken, gorse and scrub, whilst many have been cut

³⁵ Bannister, N. 2007 *The Cultural heritage of woodlands in the South East*, South East AONBs Woodland Programme.

through or disturbed by tracks in more recent times. Action should be taken to stop future damage by vehicles to any bank, and they should be treated with caution in mown areas. Each bank and an area of up to 2m on each side should be considered as if it were a defined management area. If crossing a long linear bank for forestry operations is unavoidable, it should be minimised by the crossing being in a predefined place, with brash temporarily placed on either side, and with any damage reinstated afterwards.

Mine pits

- 5.15.** The St Leonard's Forest mine pits form a significant group of sites and inform us about the past industrial use of the Forest. The depth of many of them makes them relatively robust with the main threat being flytipping, now controlled because of the restricted vehicle access to the Forest. During forestry operations filling smaller mine pits with brash or other waste material in order to drive over them, as has recently occurred at MWS8841, should be avoided.

Earthworks and mounds

- 5.16.** This group of sites are varied in their nature and mostly unidentified and undated. Some of the larger earthworks should be treated in the same way as the banks above. The remaining sites may not be within management areas, but should be managed with care to ensure that there is no damage to the earthwork or its immediate surroundings. Any work undertaken on or around these features should be carried out under archaeological supervision to enable any artefactual or dating evidence to be recorded, as this will then assist in the identification of the earthwork and enable a more appropriate management strategy to be put in place.

Pillow mounds

- 5.17.** Pillow mounds are an important type of site and comparatively rare in the Weald, only surviving in areas of heathland and wood such as Ashdown Forest, with previously known sites recognised as being of sufficient significance for them to be designated as Scheduled Ancient Monuments. The newly discovered pillow mounds of St Leonard's Forest should also be designated as protected sites, and should be in an archaeological management area that covers the mound and its immediate surroundings. Consideration must be given as to the long-term survival of these important sites, with the clearance of trees and bracken from the mounds and ditches being undertaken. During forestry operations driving close to them and deposition of brash should be avoided.

Woodland industrial sites – saw pits and charcoal burning platforms

- 5.18.** Relatively few woodland industrial sites were discovered, but there are some large and very well preserved examples in the southeast corner of St Leonards Forest (for example charcoal platform MWS8876 and saw pit MWS8879) which should be considered as relatively rare in the local area. These and any other sites discovered should be treated with care during any clearing of vegetation or mowing. It is likely that during the clearance of trees, especially in areas of plantation, further evidence for woodland industrial activity may be encountered.

5.19. Activity involving tracked vehicles within the areas of charcoal platforms should be avoided and brush should not be deposited on them. It is highly likely that there may be further evidence of the early iron working industry in the area along the two gill streams.

Management principles

5.20. Management recommendations in this report are derived from the management options set out for the HLS scheme in the Natural England scheme handbooks³⁶, from the principles set out in Dr Nicola Bannister's work on the cultural heritage of woodland in the South-East³⁷, and from English Heritage guidance.

5.21. In summary, the main principle is to minimise any disturbance to archaeological sites. Different features may require different approaches to their management and long-term preservation. The following is a summary of the main management principles, which it is suggested are including in any future overall management plan for St Leonard's Forest and in management plans for forest areas and archaeological features:

- For any proposed works, produce a cultural heritage management plan and include an annotated map showing all the archaeologically sensitive areas and features. This can be derived from the management maps included in this report or provided by the East Sussex HER.
- Inform all workers and contractors of the cultural heritage of St Leonard's Forest and the location of individual features. Cab cards (see para 5.5) may be useful for this. Consider marking out particularly sensitive sites prior to operations using posts, tape and/or flags.
- Prior to undertaking activities within St Leonard's Forest, plan access and extraction routes, and other facilities to avoid archaeological features and sites.
- Maximum damage occurs during scraping or tree root removal: take advice before undertaking work of this kind in archaeologically sensitive areas.
- Trailed swipes mowing at right angles to ground features will cause incremental damage.
- Avoid taking machinery over earthworks or buried sites. If this is unavoidable, select one point and cover with brash or other protective material. Remove after use. Avoid using such an area when the ground conditions are wet or after periods of heavy rainfall.
- Avoid ground preparation and drainage works over archaeological sites and in archaeological sensitive areas.

³⁶ HD options in Natural England, 2010 *Higher Level Stewardship – Third Edition*, February 2010 and ED options in Natural England, 2010 *Entry Level Stewardship – Third Edition*, February 2010

³⁷ Bannister, N, 2007 *The cultural heritage of woodlands in the South East*

- In woodland, manage sites as open glades.
- Avoid scrubbing up on sensitive sites by cutting the vegetation or using an approved selective herbicide. Discourage burrowing animals without disturbing the ground surface.
- Site facilities such as car parks away from archaeological sites. Maintain existing routeways, restore any drainage channels and reinstate any old paths with a suitable covering.
- Maintain, and if possible restore, any water features, having due regard for any archaeological potential of any accumulated silts and deposits. Do not drain any wet, mirey areas that are not on public rights of way.
- Do not use, or allow the use, of metal detectors on archaeological sites, or in areas where there may be archaeological sites.
- If archaeological remains and finds are discovered while working, leave them undisturbed and make a report to the County Archaeologist or appointed archaeologist (finds have a greater significance when left in place, and if removed from context they can become meaningless). Archaeological sites discovered by Forest staff or visitors should be recorded and periodically added to the East Sussex HER.
- Features currently under woodland are generally stable until the trees fall; the current high deer population will prevent under-storey development.
- Invasive tree scrub removal should not cause damage but avoid non-essential tractor/forwarder use over archaeology.
- The piling up or burning of brash and other debris should be avoided in archaeologically sensitive areas as this can obscure, change or damage the historic environment. Mounds created by brash or spoil from scraping should be recorded and mapped to avoid future confusion with archaeological remains.
- Extensive forest fires should be reported to the County Archaeologist to allow investigation of any potential archaeology that has been exposed.

6. Discussion and options for additional action, interpretation and further research

- 6.1** Prior to the survey, there were 15 archaeological sites formally recorded on the West Sussex Historic Environment Record (HER) for St Leonard's Forest and all sites recorded had been through bibliographic references and not as a result as any field work. A combination of lidar, desk-top study and field survey has identified or enhanced knowledge for a total of 205 sites. Around 64% of the sites were pre-identified through the lidar survey, enabling faster and more accurate field recording, particularly in areas which were difficult to access.
- 6.2** There is further potential for identifying further, as yet undiscovered, archaeological sites across the Forest, especially sites that have no above ground features, such as the prehistoric sites which produced flint arrowheads of Neolithic and Bronze Age date. This survey demonstrates that what we see today as woodland was not always the case and provides evidence of some of the alternative activities that took place in what has been widely regarded as a wooded landscape. Although the early historic record, late medieval, records that St Leonard's Forest was a wooded landscape with attendant flora, fauna and large scale timber production, it is the later iron industry, rabbit farming and late landscape improvement schemes that have left their evidence behind.
- 6.3** The St Leonards Forest mine pits are an unusual example of their kind, being much bigger than the average mine pit found in the Western Weald, and were the source of ore for the nearby 16th century iron-works. They are found over a large part of the Forest and vary in size depending where they are located. The locations of 13 sets of mine pits had been previously recorded but not in detail, and the survey added 28 more locations and added a good more detail as to their shape and form. Later land improvements and 20th century forestry planting has removed most of the evidence for the charcoal burning platforms which could have been associated with the iron industry.
- 6.4** The scattered remains of pillow mounds throughout the study area are the surviving remnants of the Great Warren that stretched from the southern to the northern boundary and demonstrate that the entire study area of this forest was a more open heathland during the 17th century. Constructing pillow mounds on the really steep slopes show even the most marginal land was being taken into some form of cultivation, albeit for rabbit economy. All these areas would have been largely devoid of trees as, not only would the rabbits have eaten any regenerating vegetation but also the land was regularly burnt to provide new, lush growth on which the rabbits could feed. It is interesting to note that in nearby Tilgate Forest, which was also once a rabbit warren, all evidence of this has been completely obliterated, probably through the 19th century land improvement schemes. Some of the extensive boundary banks in St Leonard's may represent the divisions of these warrens for management purposes, possibly using some of the divisions to retain some woodland areas although contemporary records show that it was thought of as 'a bare heath with scrubby birch'. The surviving evidence of these rabbit warrens is archaeologically important as a physical reminder of the economic history of this area, and they should be preserved.

- 6.5** St Leonard's Forest has also retained some evidence of the 19th century land improvements in the drainage improvements and in the few surviving ornamental specimen trees, as attempts were made to turn back the heathland into forest. This changed the contemporary perceptions of St Leonard's Forest from being an unattractive place to a pleasant wooded landscape.
- 6.6** In summary, St Leonard's Forest retains some interesting archaeological features in both the mine pits and pillow mounds which can be positively dated through the historic record and provides the proof of the changing role of this Forest through time. Having identified the archaeological resource in St Leonard's Forest, it is essential that this valuable and unique resource is protected from future damage, and preserved for future generations.
- 6.7** The significance of the archaeological resource should be recognised by fully incorporating the archaeology, and measures for its management and conservation, into the management plan for the ongoing management of St Leonard's Forest. A realistic and manageable plan should be developed to ensure that those working in St Leonard's Forest are aware of the location and significance of the archaeological sites. Furthermore, they should be aware of appropriate and suitable management options that can be used on these sites, to ensure that they are not damaged in the future.

Additional action

- 6.8** There are a number of additional actions which would help ensure that the importance of the archaeological resource in St Leonard's Forest is recognised, enhanced and protected:
- St Leonard's Forest staff should receive training to enable them to recognise and manage the archaeological resource. This could be through a combination of attending a presentation on this survey and accompanied site visits.
 - For areas of impenetrable cover where there is not good lidar imagery, opportunities should be taken to survey whenever significant amounts of vegetation are cleared either through management works or through forest fires.
 - Lidar can also be used to map the vegetation cover, in order to prioritise management for example identifying where areas impenetrable to lidar indicate extent of rhododendron cover.

Interpretation

- 6.9** There are opportunities to feature lidar-enhanced discoveries in engaging the public and creating greater public awareness of the archaeology in St Leonard's Forest, through publications, leaflets, sign boards, talks, guided and un-guided walks and exhibitions.

Further research

- 6.10** There are further opportunities for community involvement work with local archaeological organisations and institutions to initiate further survey and other archaeological investigations so that there is a better understanding of the archaeological resource in St Leonard's Forest. These might include
- Targetted excavation of a feature such as a pillow mound or saw pit as part of a programme to better understand some types of woodland features.
 - More detailed measured surveys of some types of feature, for example the pillow mounds.
- 6.11** This can be carried out in conjunction with CBAS Ltd, who have a proven track record in co-ordinating and organising this type of work.

7. Acknowledgements

- 7.1** We would like to thank Katie Harris of Forest Enterprise, Mark Taylor, Rachel Salter and John Mills of the West Sussex county archaeology section, Casper Johnson and Greg Chuter of the East Sussex county archaeology section and Lyn Palmer, Historic Environment Awareness Project Officer for the Weald Forest Ridge for their assistance with and enthusiasm for this project. Luke Barber identified the pottery (Appendix 2).

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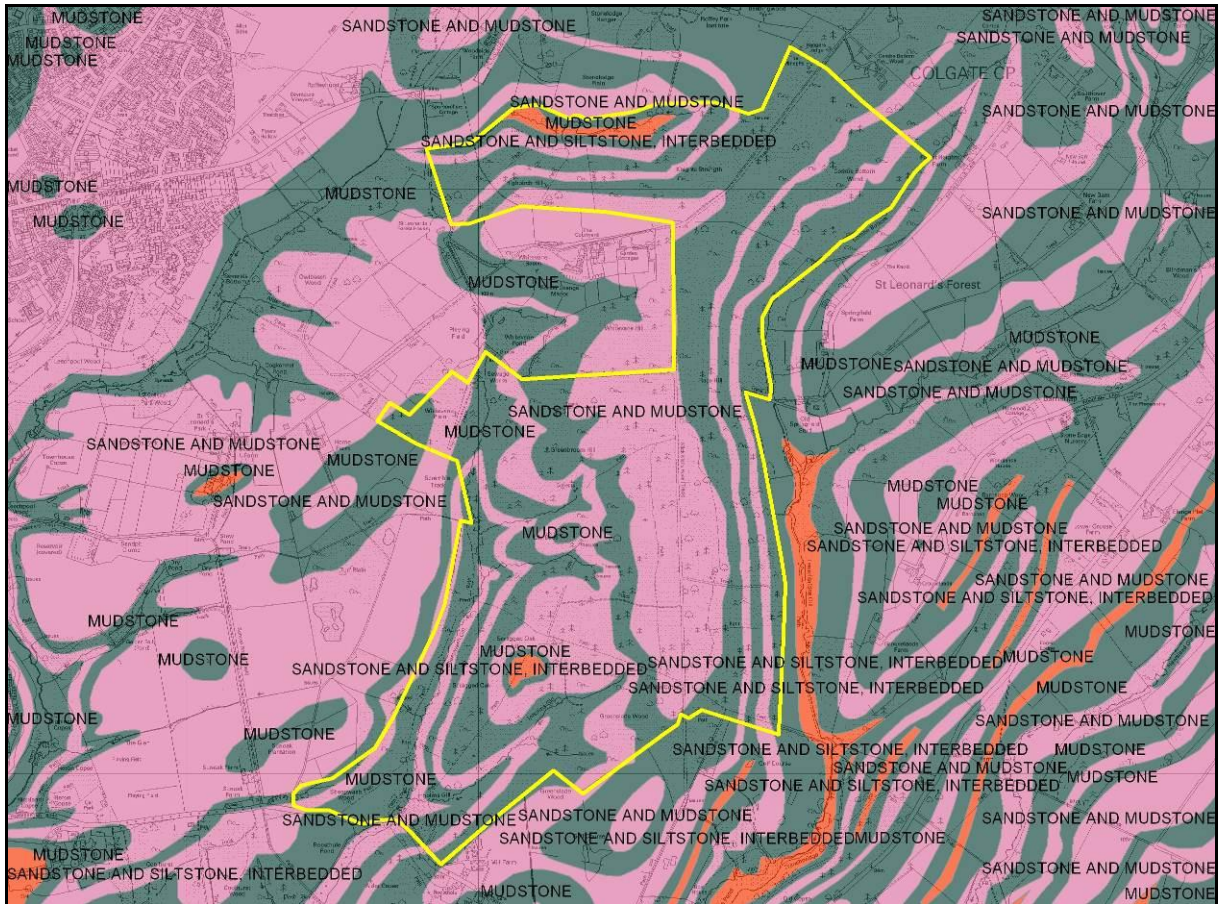


Fig. 2: St Leonard's Forest: Geology
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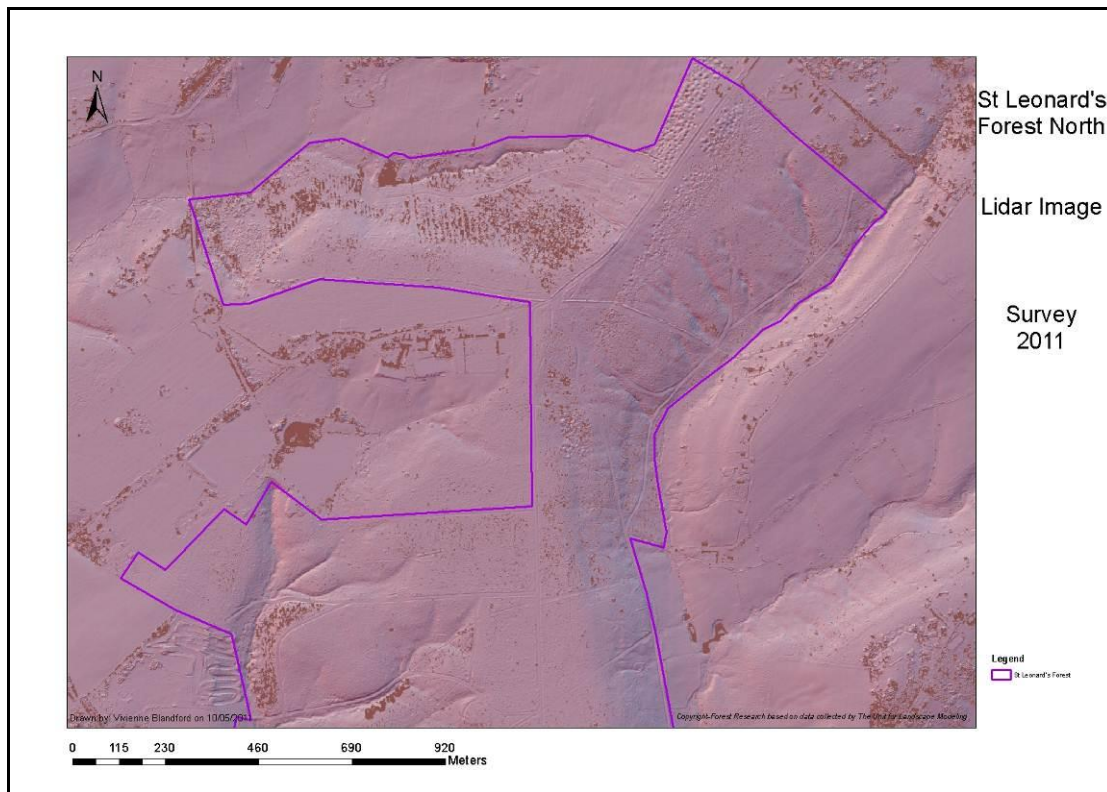


Fig. 3a: St Leonard's Forest north: hill shaded lidar image
Copyright-Forest Research based on data collected by The Unit for Landscape Modelling

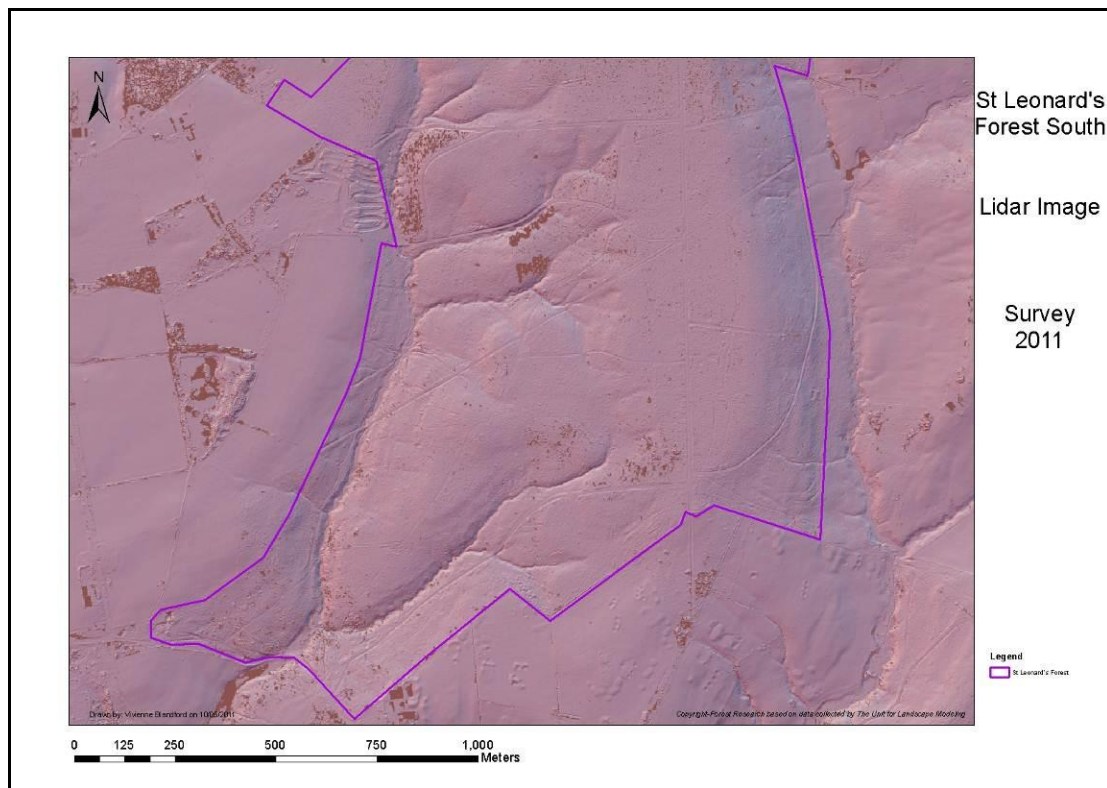


Fig. 3b: St Leonard's Forest south: hill shaded lidar image
Copyright-Forest Research based on data collected by The Unit for Landscape Modelling

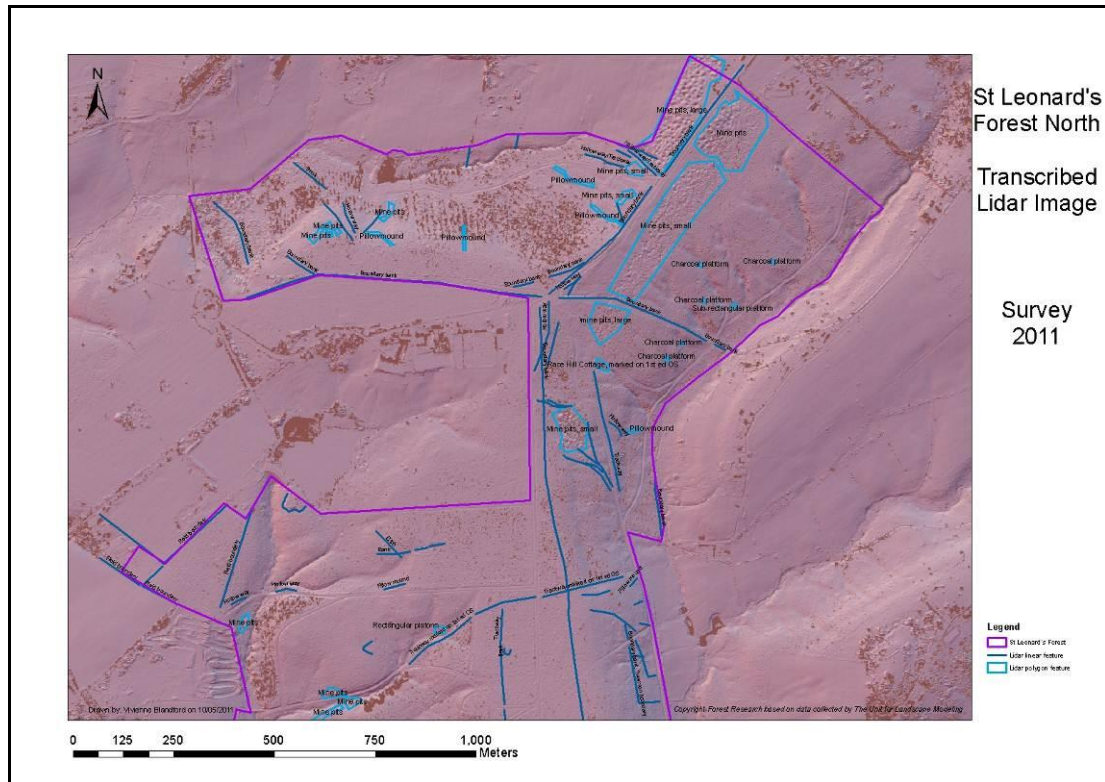


Fig. 4a: St Leonard's Forest: transcribed layer derived from lidar
Copyright-Forest Research based on data collected by The Unit for Landscape Modelling

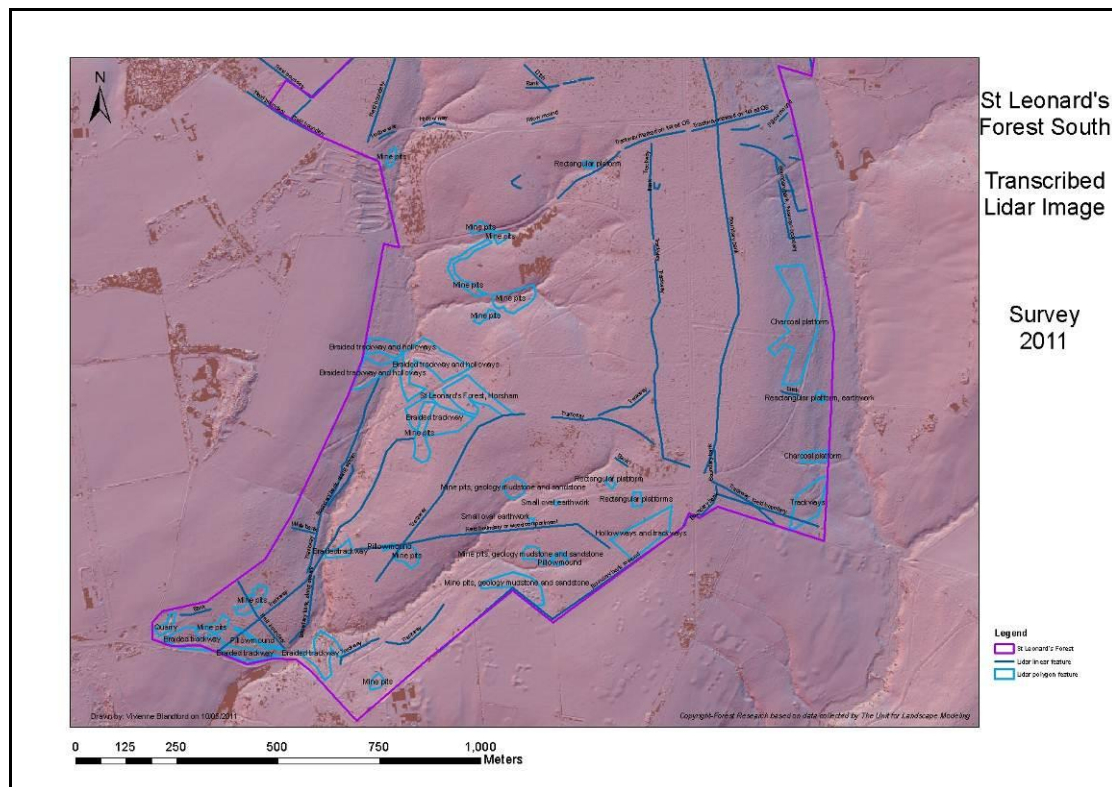


Fig. 4b: St Leonard's Forest south: transcribed layer derived from lidar
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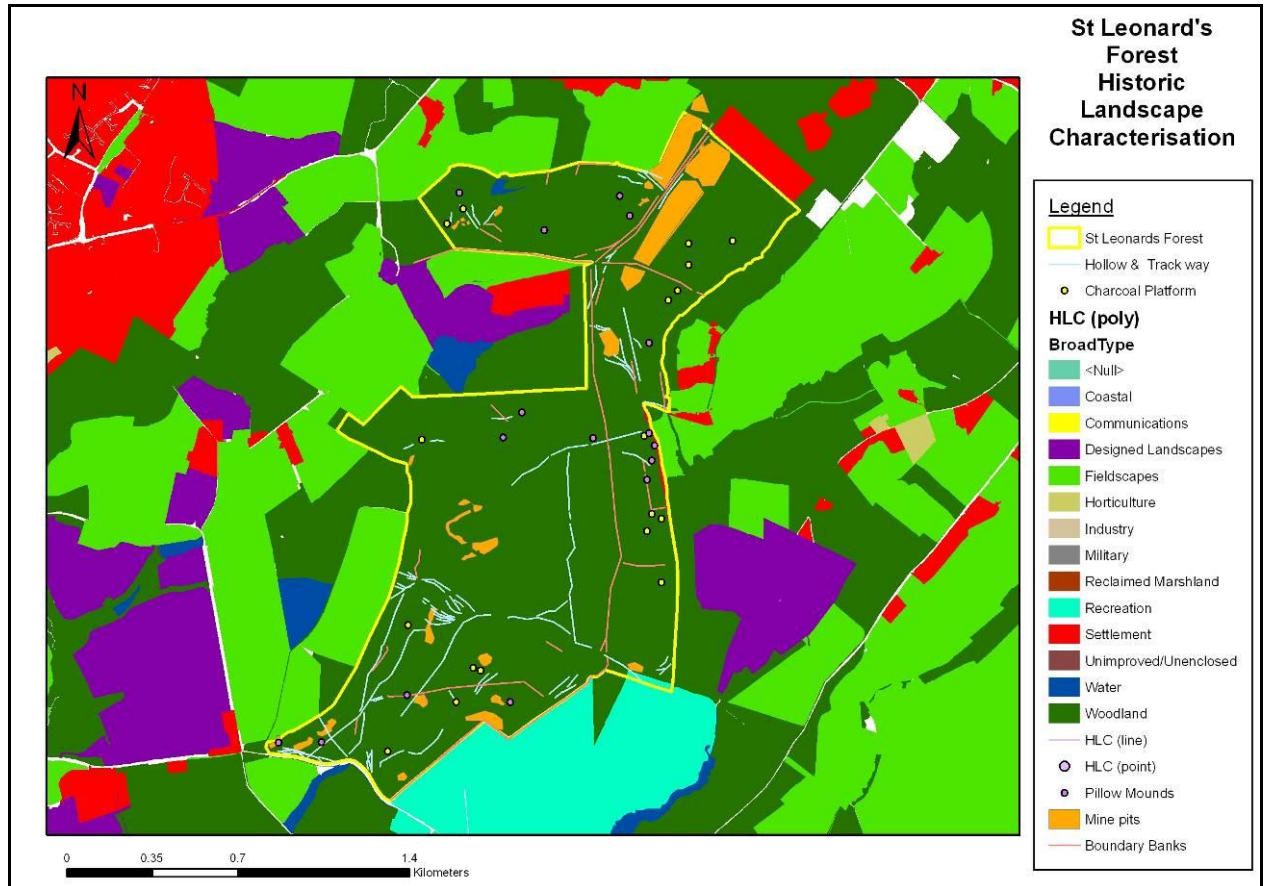


Fig. 5: St Leonard's Forest: Historic Landscape Characterisation (HLC) with sites overlaid

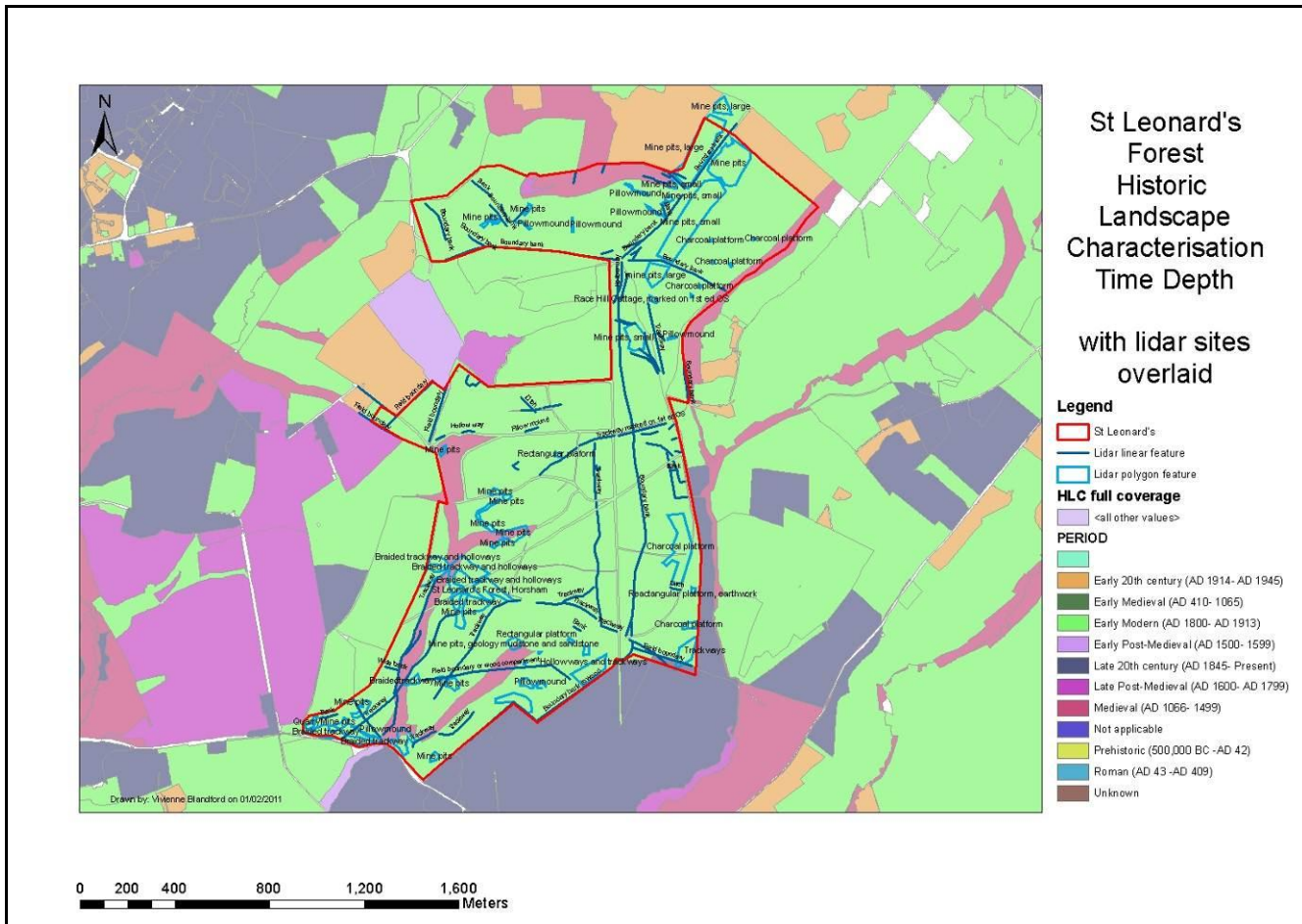


Fig. 6: St Leonard's Forest: Historic Landscape Characterisation (HLC) time depth with sites overlaid

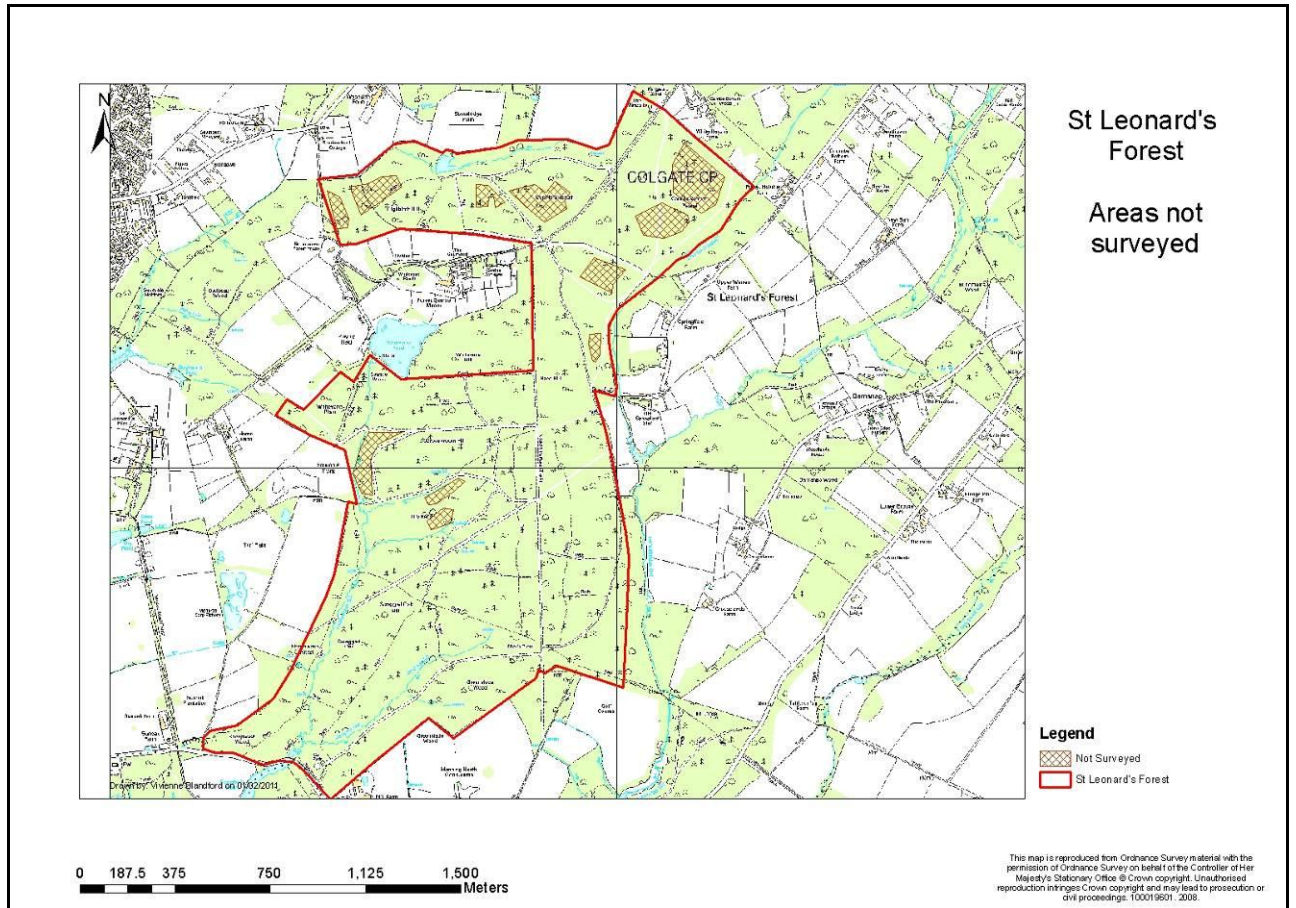


Fig. 7: St Leonard's Forest: areas which were not surveyed



Fig. 8: St Leonard's Forest: Speed's 1610 map of Sussex



Fig. 9: St Leonard's Forest: Morden's 1695 map of Sussex



Fig. 10: St Leonard's Forest: Yeakell and Gardner map of Sussex, 1778-1783

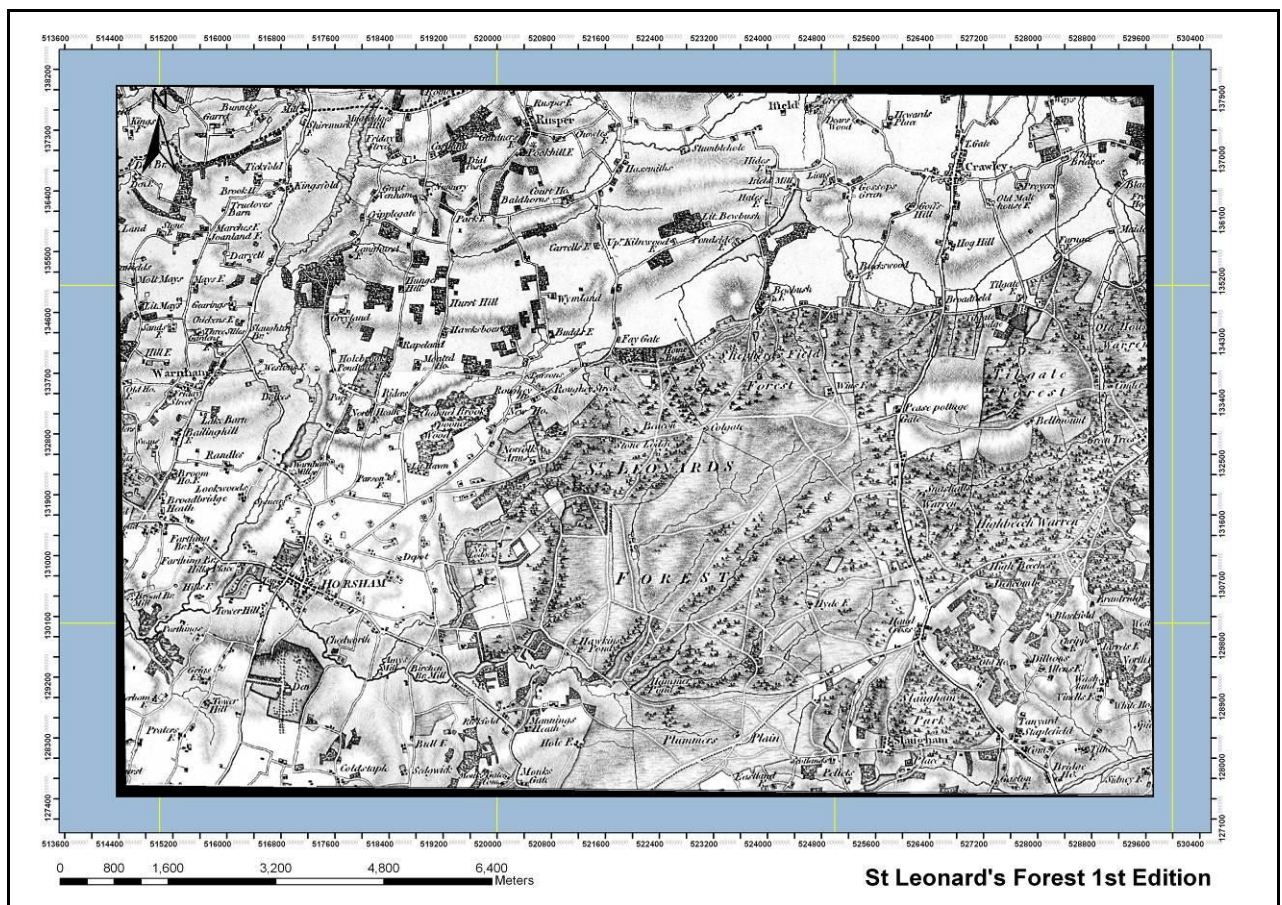


Fig. 11: St Leonard's Forest: Early draft 1st Edition OS map, c. 1813

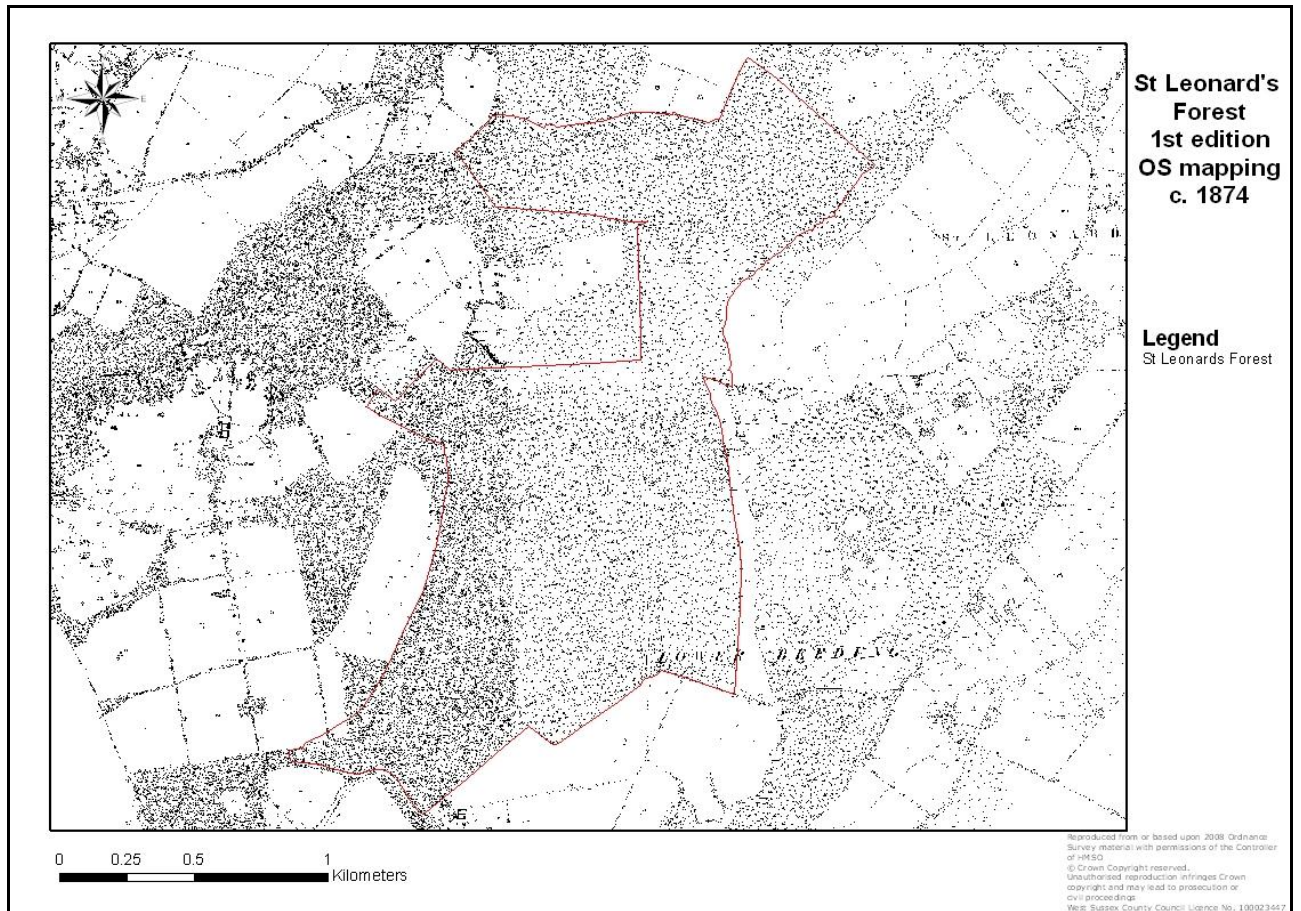


Fig. 12: St Leonard's Forest: 1st Edition OS map, c. 1874

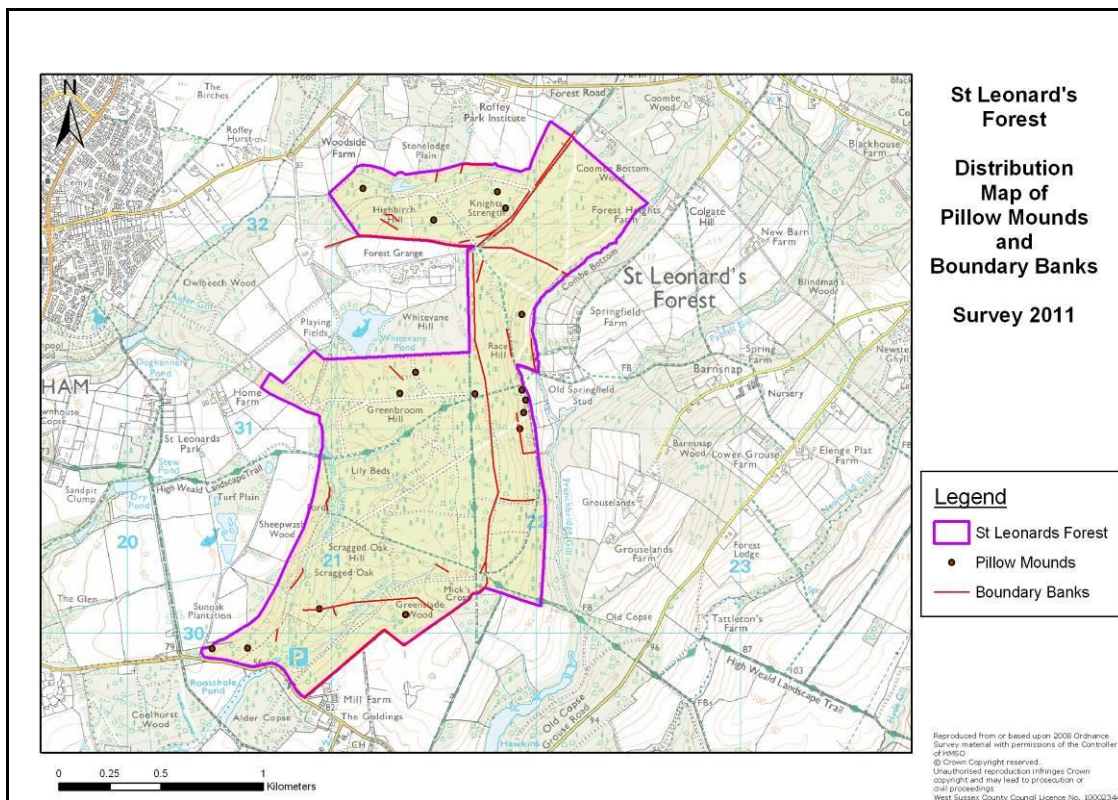


Fig. 15: St Leonard's Forest: distribution map of pillow mounds and boundaries
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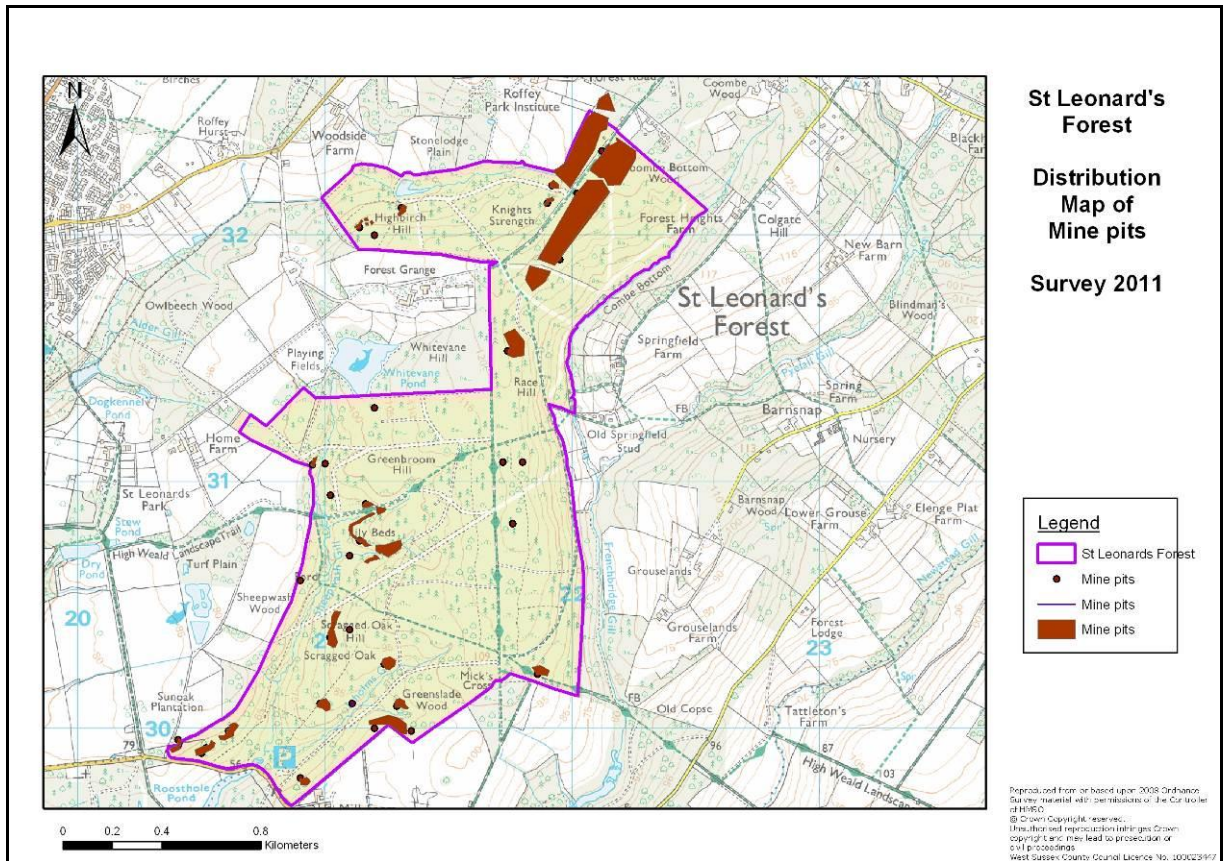


Fig. 16: St Leonard's Forest: distribution map of Mine pits
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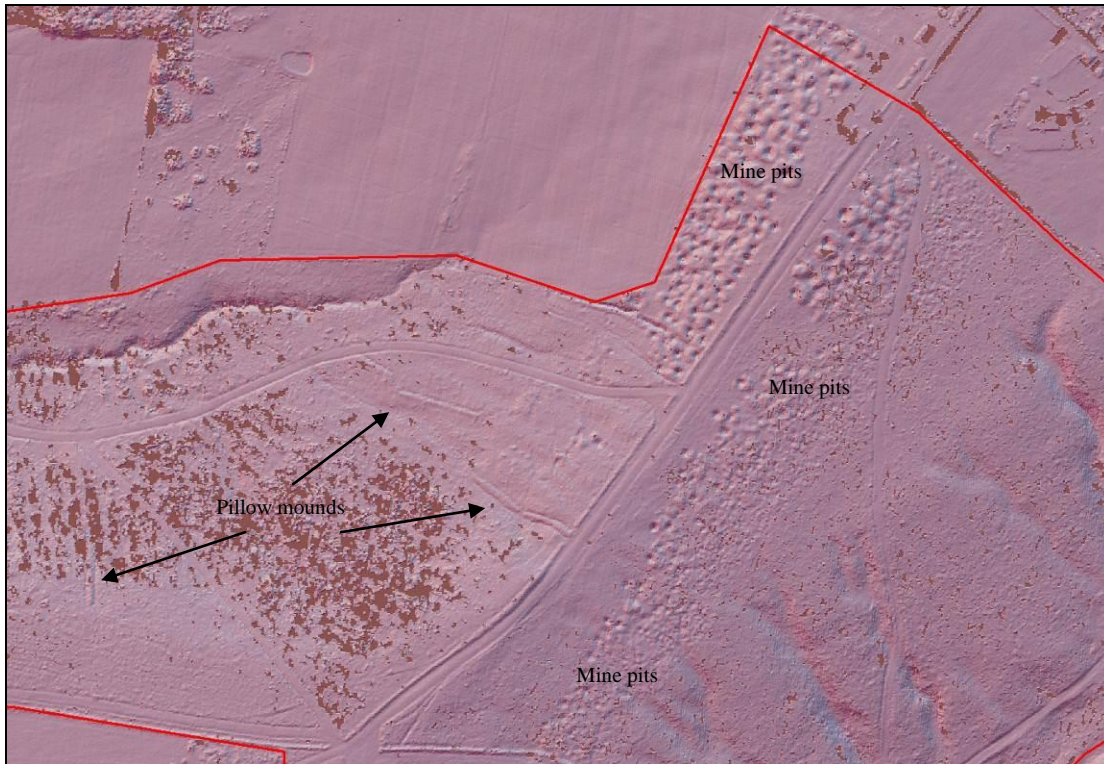


Fig. 17: Mine pits and Pillow Mounds

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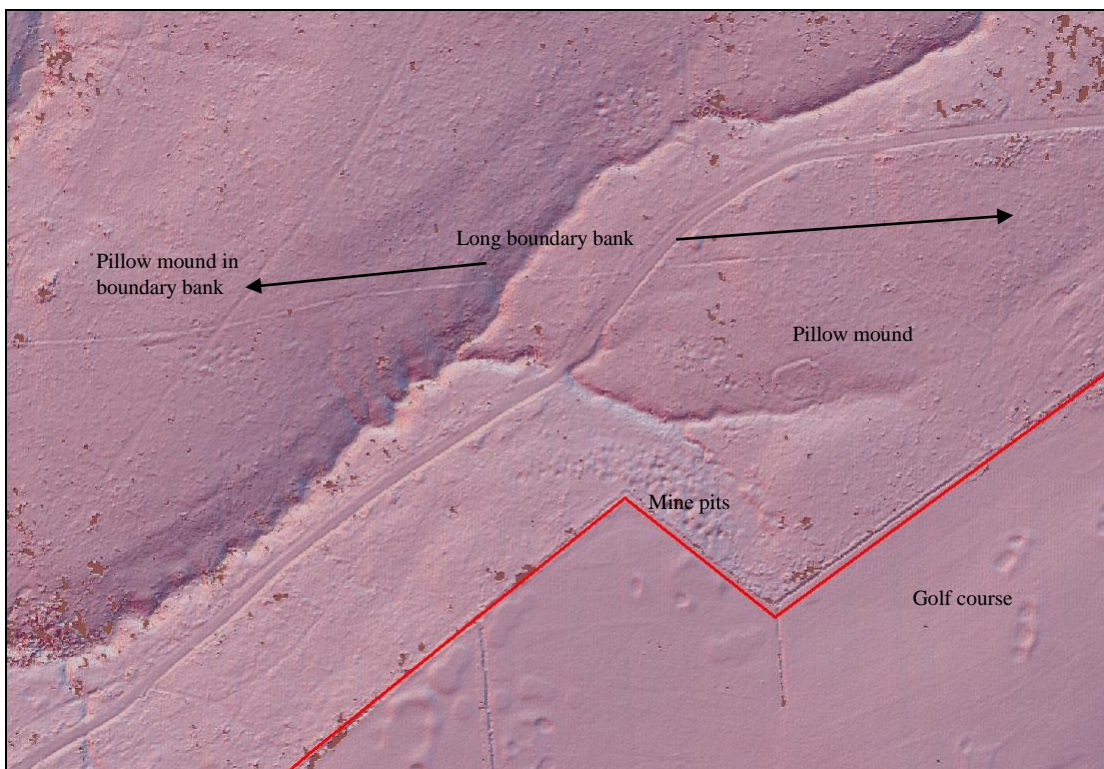


Fig. 18: Pillow Mounds and Boundary bank

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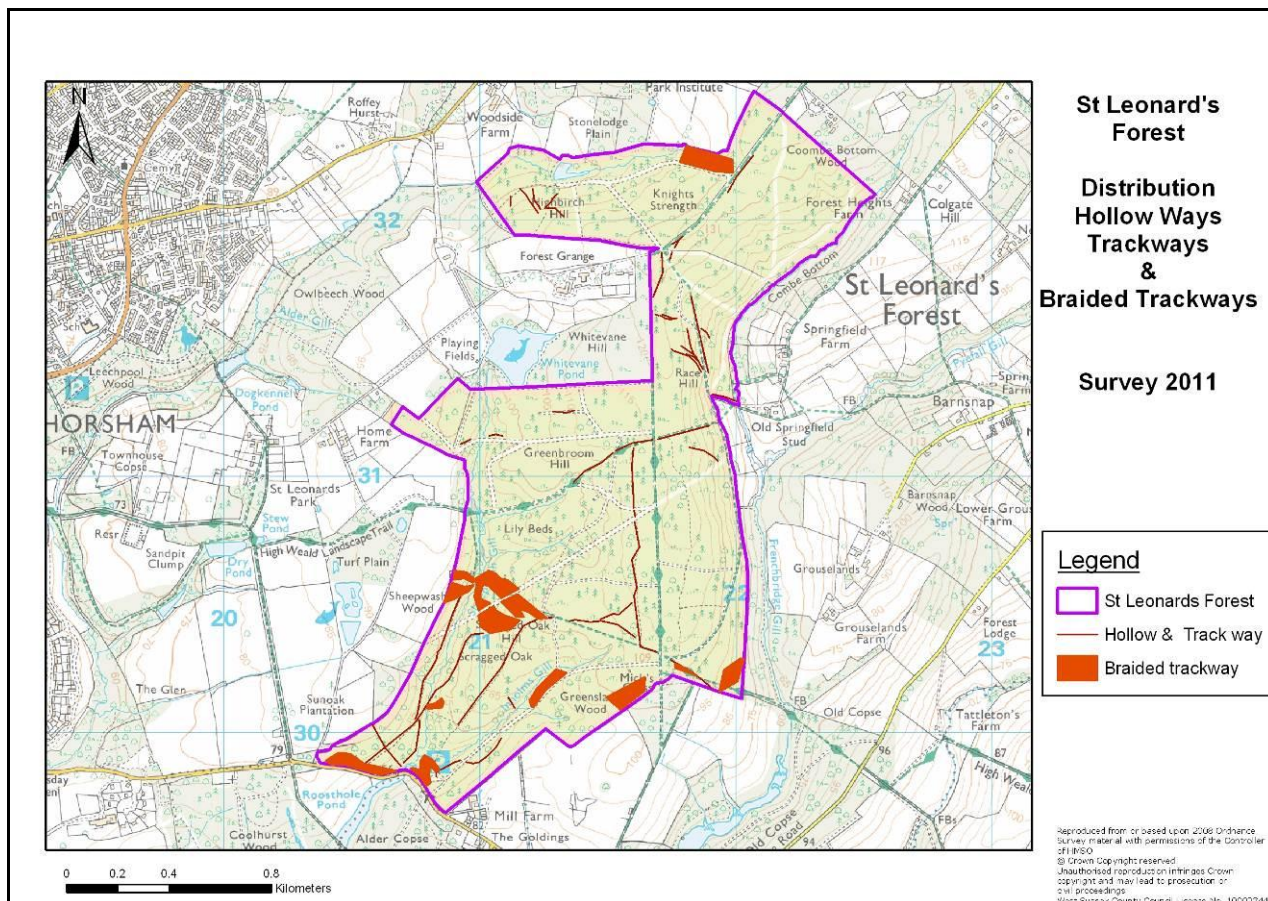


Fig. 19: St Leonard's Forest: distribution map of Routeways
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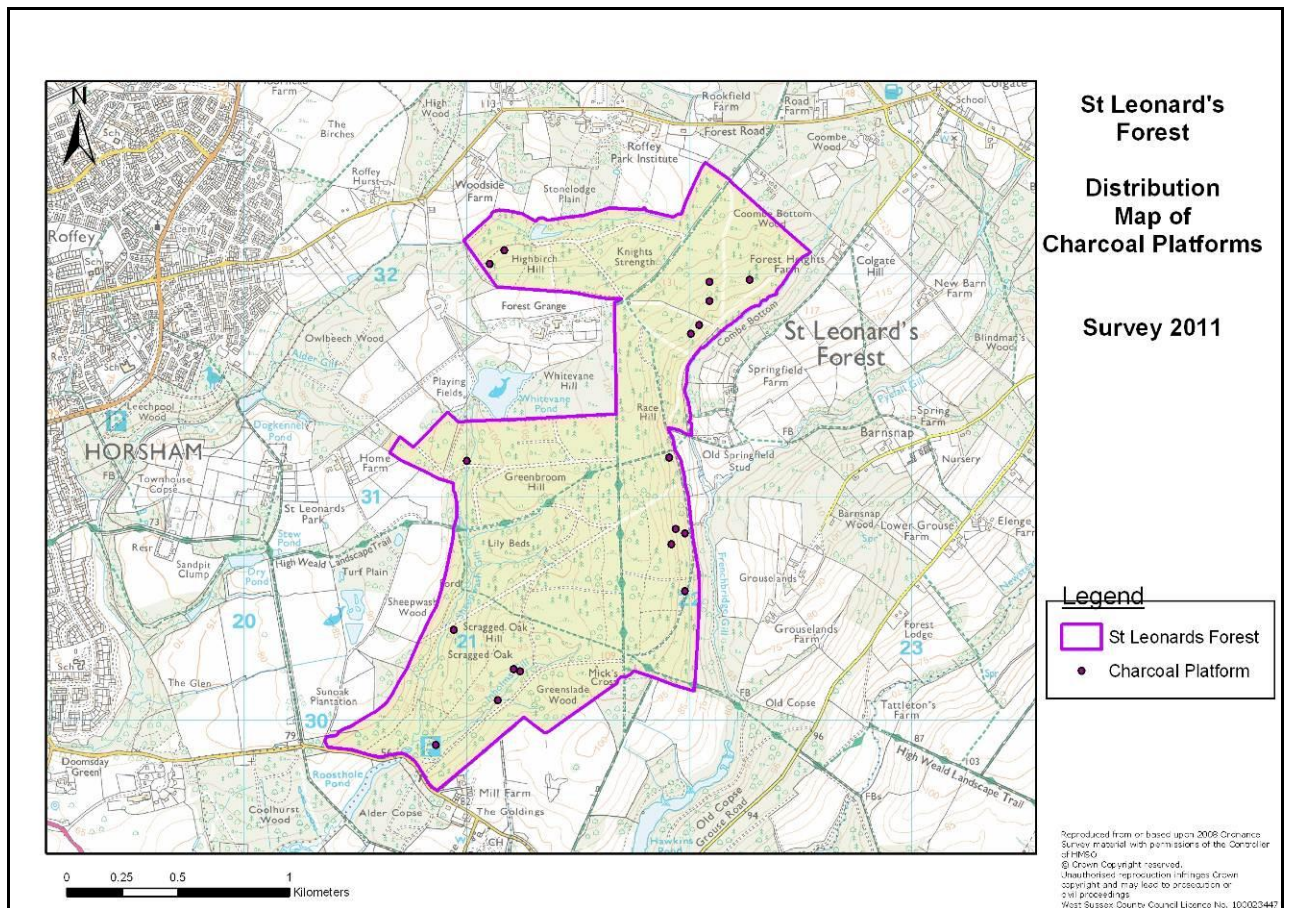


Fig. 20: St Leonard's Forest: distribution map of Charcoal Burning Platforms
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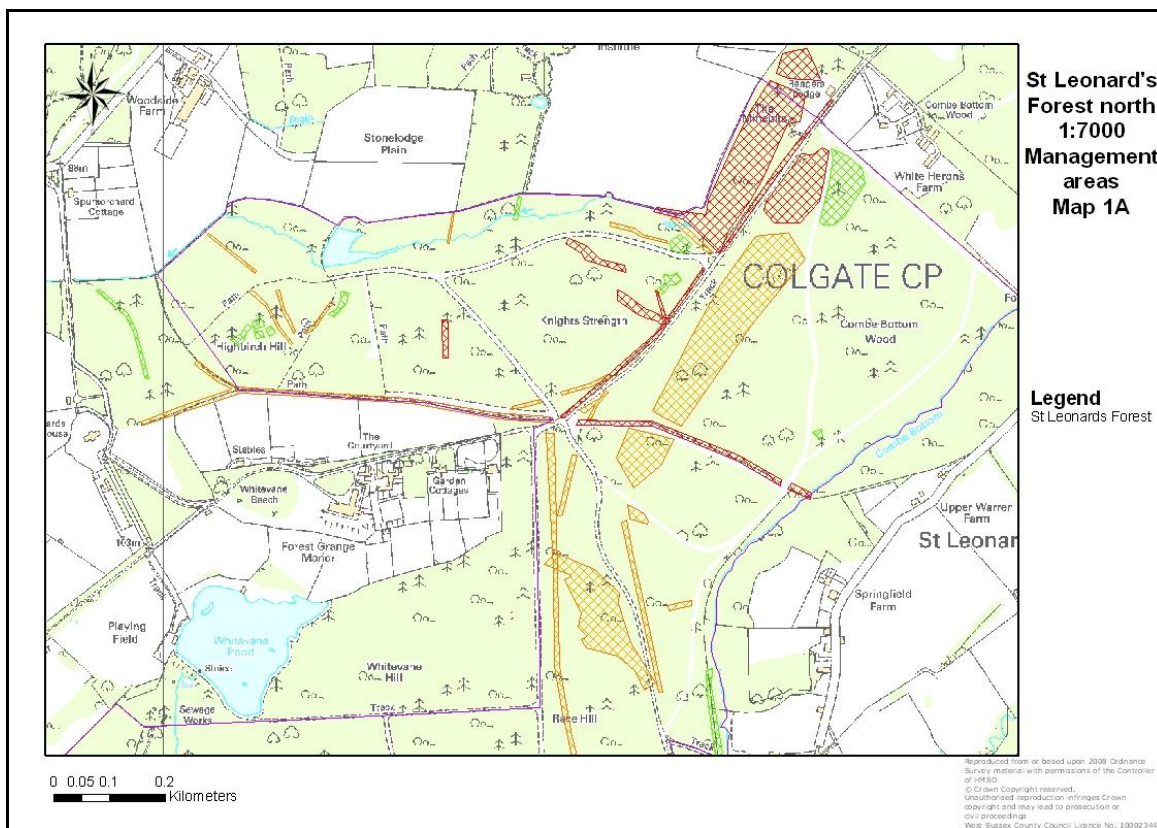


Fig. 21a: St Leonard's Forest: Archaeological Management Areas in the northern part of the Forest
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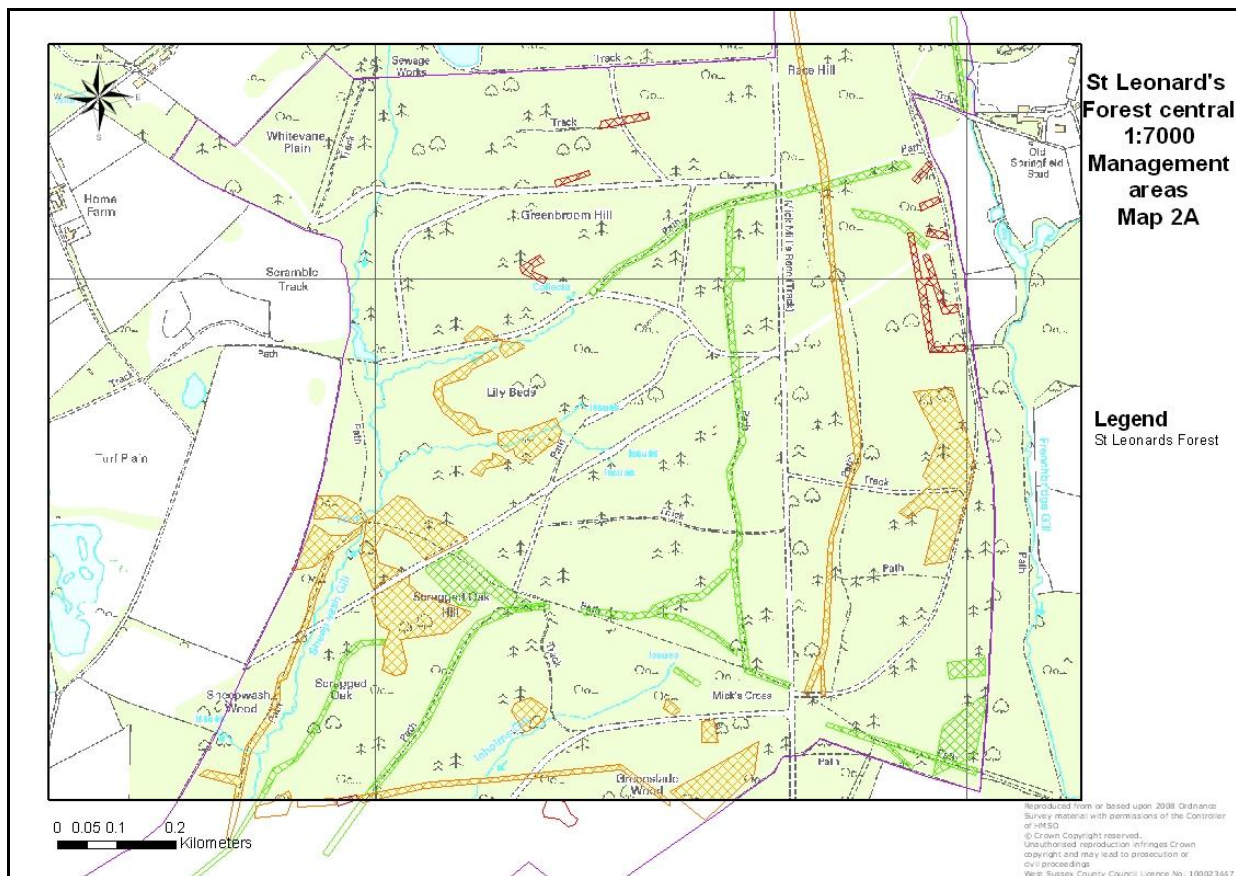


Fig. 21b: St Leonard's Forest: Archaeological Management Areas in the central part of the Forest
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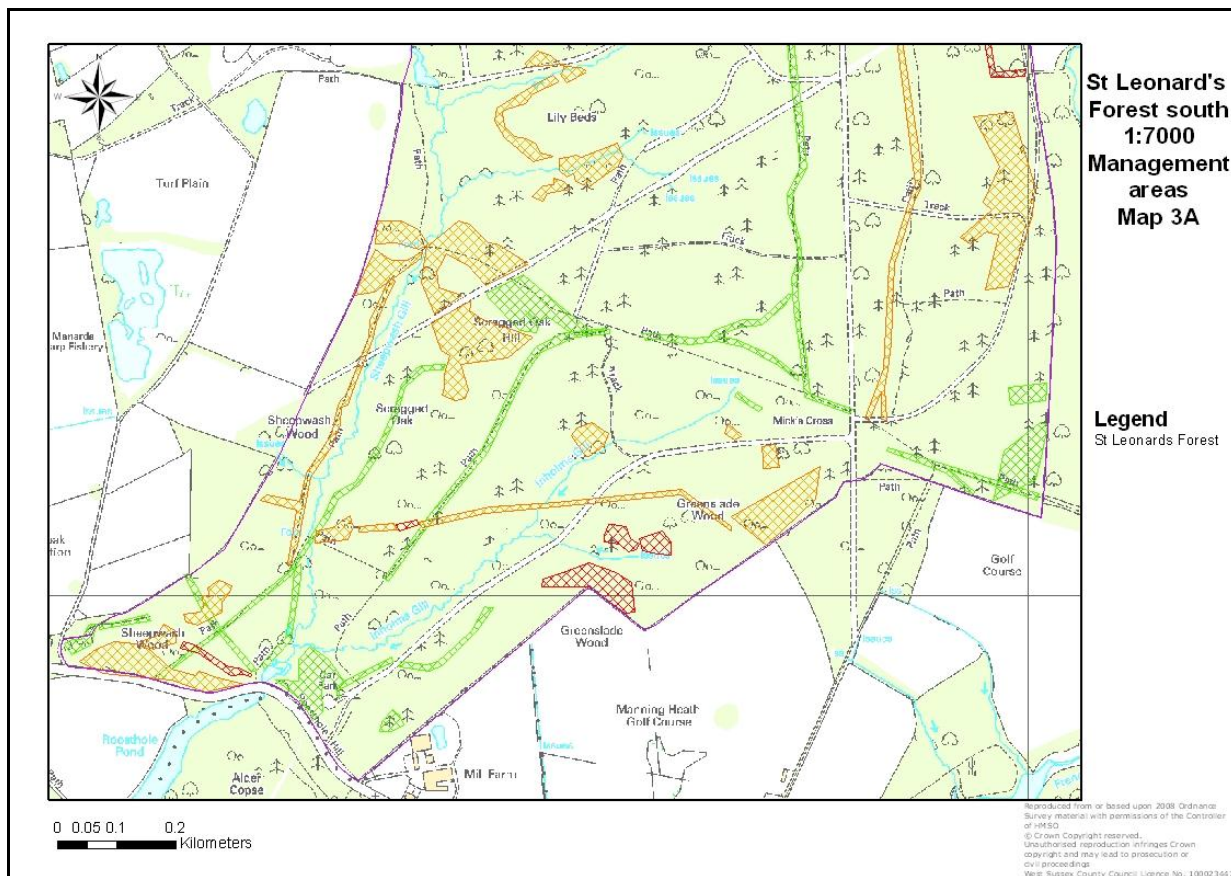


Fig. 21c: St Leonard's Forest: Archaeological Management Areas in the southern part of the Forest
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Chris Butler Archaeological Services Ltd

Established in 2002, Chris Butler Archaeological Services Ltd is available for lidar interpretation, woodland archaeological surveys, flintwork analysis, project management, military archaeology, desktop assessments, field evaluations, excavation work, watching briefs, field surveys and field walking, post-excavation services and report writing.

During 2010/2011 Chris Butler, Vivienne Blandford and Anne Locke carried out a series of lidar-enhanced surveys of woodland and heathland areas across East and West Sussex, at Old Lodge (part of the historic area of Ashdown Forest) for the Sussex Wildlife Trust, and in St Leonard's Forest, St Leonards Forest and Tilgate Forest for Forest Enterprises.

Chris Butler, MIFA, Cert. Ed. has been an archaeologist since 1985, and formed the Mid Sussex Field Archaeological Team in 1987, since when it has carried out numerous fieldwork projects, and was runner up in the Pitt-Rivers Award at the British Archaeological Awards in 1996. Having previously worked as a Pensions Technical Manager and Administration Director in the Financial Services Industry, Chris formed Chris Butler Archaeological Services at the beginning of 2002.

Chris is a Member of the Institute for Archaeologists, a committee member of the Lithic Studies Society, and is a part-time lecturer in Archaeology at the University of Sussex. He continues to run the Mid Sussex Field Archaeological Team in his spare time.

Chris has particular expertise in prehistoric archaeology, flintwork, and military remains of all eras. As well as the Phase 1 survey of Ashdown Forest he has also carried out surveys of Broadwater Warren and Tudely Woods for the RSPB together with other woodland surveys for private individuals.

He specialises in prehistoric flintwork analysis, but has directed excavations, landscape surveys and watching briefs, including the excavation of a Beaker bowl barrow, a Saxon cemetery and settlement, Roman pottery kilns and a Mesolithic hunting camp.

Vivienne Blandford, MA, is a landscape archaeologist responsible for assessing and interpreting the Weald Forest Ridge lidar images which will be used in this project. This includes transcribing (creating lines and polygons) on the lidar images and creating a separate GIS layer and database of the archaeological features found. In the Ashdown Forest and Old Lodge projects, and as a volunteer working in other areas of the Weald Forest Ridge, she has pioneered methods for 'ground truthing' a selection of the lidar features in the field to assess whether the judgement made by looking at the images on screen is correct. She has also worked with community groups testing and teaching surveying methods in woodland landscapes.

Vivienne is local to Ashdown and St Leonard's Forest and has a good understanding of the historic and cultural landscape and the type of archaeology likely to be found there. She has experience in desk-based research and fieldwork for the preparation of cultural and historic landscape context assessments for specific areas and in the preparation of Conservation Management Plans. She is an Affiliate member of the IFA.

Anne Locke, MA, has been working on the East Sussex HER since 2008, including evaluating it for an English Heritage-funding audit and benchmarking review. She has extensive experience of creating HER records through inputting several thousand new sites onto the East Sussex HER, including those contributed by Chris Butler in Phase 1 of the Ashdown Forest survey, and in using the lidar transcriptions produced by Vivienne Blandford to enhance existing HER records and to record new features.

Anne has an MA in Managing Archaeological Sites (UCL 2005) and good all-round knowledge and understanding of the historic environment of Sussex, acquired through over ten years participation in volunteer field archaeology as part of Chris Butler's Mid Sussex Field Archaeological Team, and study at Sussex University. She is an Affiliate member of the IFA and worked in the English Heritage policy team on a temporary contract during 2010.

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Appendix 1 Summary of archaeological sites in St Leonard's Forest

Site	St Leonards Forest		
Parish	Colgate		
Survey	3, 9 and 17 Mar 2011	by Chris Butler Archaeological Services Ltd for Forest Enterprise	by Chris Butler, Vivienne Blandford and Anne Locke
Total sites			205
Sites previously identified on West Sussex HER			15 NB grid references only approximate
Total new sites			190
Total sites identified on lidar			121
No. sites identified on lidar and ground truthed			95
% of sites identified on lidar ground truthed			79%
Sites found through walkover survey not pre-identified on lidar			84
Sites not pre-identified on lidar are mostly small or negative features e.g. platforms and saw pits, or in dense cover.			
Sites seen on lidar but not ground truthed (FID refs) are mostly linear features like banks and trackways where the identification is medium-high confidence			
Sites previously identified on West Sussex HER have only approximate grid references.			

Other notes

- 1) Evidence of features caused by past forestry work, e.g. moss-covered rutting close to track at TQ21303035 (pic)
- 2) Very severe rutting caused by recent forestry operations alongside track between mine pits LE041 and junction to NE (pics) and N of LE044

Survey ref	W Sussex HER ref (MWS no.)	NGR	Type of site	Description	Visible on lidar 1=Y	Related sites	Vegetation	Condition	Risks
findspot	MWS3828	TQ21703040	Palaeolithic Tools	Tebbutt, already on W Sussex HER					
findspot	MWS4887	TQ210031300	Brick Kiln at Horton	Beswick, already on W Sussex HER					
approx. grid ref.	MWS5047	TQ209029800	Mine pit in Cold Copse Mine pit	Cleere & Crossley, already on W Sussex HER					
approx. grid ref.	MWS5048	TQ20502990	Mine pit	Cleere & Crossley, already on W Sussex HER					
approx. grid ref.	MWS5064	TQ21203200	Mine pit	Cleere & Crossley, already on W Sussex HER					
approx. grid ref.	MWS5065	TQ21203230	Mine pit	Cleere & Crossley, already on W Sussex HER					
approx. grid ref.	MWS5066	TQ21103230	Mine pit	Cleere & Crossley, already on W Sussex HER					
approx. grid ref.	MWS5068	TQ21953190	Mine pit	Cleere & Crossley, already on W Sussex HER					
LE006	MWS5069	TQ21293000	Mine pits	Scatter of pits, largest 7m across, 7 m deep, not water filled except for one. Varying in size form about 2m to 3m wide and 2 m deep, Very undulating landscape. Geology mudstone and sandstone. Referred to in Cleere and Crossley, already on W Sussex HER.	1	other mine pits	open ground	good	photo

approx. grid ref.	MWS5070	TQ21903010	Mine pit	Cleere & Crossley,already on W Sussex HER					
approx. grid ref.	MWS5071	TQ21103040	Mine pit	Cleere & Crossley,already on W Sussex HER					
approx. grid ref.	MWS5092	TQ20903060	Mine pit	Cleere & Crossley,already on W Sussex HER					
approx. grid ref.	MWS5093	TQ20903100	Mine pit	Cleere & Crossley,already on W Sussex HER					
approx. grid ref.	MWS5094	TQ21203130	Mine pit	Cleere & Crossley,already on W Sussex HER					
approx. grid ref.	MWS5095	TQ21103070	Mine pit (Lily Beds)	Cleere & Crossley,already on W Sussex HER					
LE009	MWS5125	TQ22053240	Mine pits	many mine pits, deep holes with large rounded piles of spoil spread around circumference, not of even size.	1	other mine pits	beech hornbeam pine, little understorey	good	photo
findspot	MWS5479	TQ22003100	Stone Macehead	SAC 27:181 &11l p.177, already on W Sussex HER					
findspot	MWS687	TQ22003100	Bronze Age Flint Arrowheads	Curwen, already on W Sussex HER					
findspot	MWS688	TQ22003100	Neolithic Flint Arrowheads	Curwen, already on W Sussex HER					
findspot	MWS689	TQ22003200	Neolithic Axe	SAC 73:201 ill, already on W Sussex HER					

LE001	MWS8810	TQ21663016	Boundary Bank	Boundary to wood bank 1 to 1.5 metres high 1 metre wide with evidence of ditch to east, outside the wood. Coppiced beech with girth 4.7 metres	1		old beech	eroded	photo
LE002	MWS8811	TQ21603015- TQ21553012	Braided Trackway	Hollow ways, trackways spread over large area coming up slope	1		woodland	damaged by tracked vehicles	
LE003	MWS8812	TQ21533014	Hollow	Water filled depression 1.5 metres in diameter, possibly geological			woodland		
LE004	MWS8813	TQ21493013	Bank	Single, low bank 0.25 m high, 1m wide, no obvious ditch at this point, turns at 45 degrees at TQ21433017 and continues in an E-W direction, crossing stream gill	1		woodland	fair but eroded	photo
LE005	MWS8814	TQ21352999	Quarry	Single hollow masked by fallen tree in quarried landscape		other quarries	woodland		
LE007	MWS8815	TQ21363009	Pillow mound	Sub-circular earthwork, 148 metres in circumference, 50 x 40 metres diameter, on sloping site.	1		open ground	good	photo
LE008	MWS8816	TQ21503027	Platform	Rectangular platform, possibly building platform about 0.5 metres high but obscured by brash	1		near forest track	trashed by vehicle tracks	photo
LE010	MWS8817	TQ21993218	Hollow way	Churned up by forestry operations	1	braided	vehicle access	poor	photo

LE011	MWS8818	TQ2193211	Bank	Substantial bank parallel with forest track at about 1.5-1.75 metres high, bank 1.5 meters wide asymmetrical sloping profile. Some young larch planted along top of bank. Possible ditch to track side at NE					
LE012	MWS8819	TQ21853208	Pillow mound	PM running downslope, NNE-SSW direction, curved, pronounced ditches to either sde, 1.5-1.75 m high curved profile, not very flat on top, about 2.5 metres wide.	1		Perilously close to Forestry clearance, brash in vicinity, young trees planted on top of mound. driven across pillow mound		
LE013	MWS8820	TQ21813216	Pillow Mound	PM with obvious ditch to N side, 1m wide and 1.5 m deep. PM 2m across and slightly rounded profile and sloping to west with not much obvious sign of ditch to this side.	1		Deep rutted forestry vehicle track. Brash piled up on PM		

LE014, LE149	MWS8821	TQ21303210	Hollow way	Rising uphill in an E-W direction, 4 metres wide, shallow for a hollowway as ground rises up to west	1		Vehicle tracks and brash in hollow way		
LE015, LE162	MWS8822	around above	Mine pits	Quarried landscape with uneven ground, small shallow holes to about 2 metres wide 1.5-2 metres deep, spoil surrounding them, entrances facing downhill to near nearest track	1		Conifer and bracken		
LE015a, LE143, LE144	MWS8823	TQ21413193	Boundary bank	BB to St Leonards Forest, NNW-SSE, field side to NE Ditch to SW about 2.5 wide, slightly flattened on top, rounded profile. Bank 1-1.25 m high, ditch 1 m wide, silted up.	1		Fairly young trees planted on top		
LE015b	MWS8824	TQ21503202	Pillow Mound	PM runs WNW-ESE downslope, ditch to both sides, blunt end, rounded profile, slightly flattened top about 3 m wide, 1.5 m high from bottom of ditch to top of bank.	1		End poking out of cleared area, otherwise dense covering of tall pine.		

LE016	MWS8825	TQ21863202	Boundary Bank	Running parallel with on its north side and on south edge of track is bank 2.5m wide & 0.6m high. Gap between the two banks may have been used as track. Slight ditch between track and bank. Runs west from junction at TQ2169631902 for c250m					
LE017	MWS8826	TQ22023217	Mine pits	Pits about 7 metres deep, conical shaped with evidence of spoil either side and track through or horseshoe-shaped spoil with gap for exit. Sometimes no evidence of an exit.	1		Beech, birch		
LE018	MWS8827	TQ22033222	Trackway	Parallel banks about 2 m apart, bank about 1 m wide and 0.25 high, forming trackway running parallel to forest road.	1				
LE019	MWS8828	TQ22123234	Mine pits	Near entrance to forest. Large conical shaped pit, 60 meters circumference, 10-12 m deep					
LE028	MWS8829	TQ21563038	Hollow way	Hollow way descending to footpath junction.					
LE029	MWS8830	TQ21253030	Boundary marker	Pollarded beech 2.74m in girth.					
LE030	MWS8831	TQ21243022	Charcoal platform?	Possible charcoal burning platform 7m x 6m, close to stream, darkened soil, no lip. Faint path leading to stream.			Hard fern and moss		

LE031	MWS8832	TQ21253019	Braided trackway?	Possible braided trackway parallel to and north of forest road. May relate to former forestry activity.	1		Young trees growing in trackways.		
LE032	MWS8833	TQ21213016	Bank?	Bank 0.5m and 1.5m wide, irregular flattened profile, runs NNW from old rutting near forest road about 35m towards stream (TQ2119 3015). Berm of old brash?			Mature coppice growing in bank.		
LE033	MWS8834	TQ21203013	Boundary marker	Large maiden beech c. 4m in girth, near track and stream confluence.			Moss-covered stumps of similar trees nearby spaced at about 5m		
LE034	MWS8835	TQ21143009	Charcoal platform	Charcoal platform 8m in diameter with darkened soil, near steep drop to stream. Possible further platform/working area to SE but obscured by brash and bracken (pic)			New planting of young holly, birch and larch. Heather growing nearby but not on platform.	Poor	Tree growth, obscuring by brash

LE035	MWS8836	TQ20862989	Charcoal platform or working area	Oval charcoal platform 8 x 7m with slightly darkened soil.			In felled area, some silver birch left standing. New planting of birch saplings and larch on platform.	Fair	Tree growth
LE036	MWS8837	TQ20832984	Hollow way	Hollow way leading NE from present car part towards felled area around LE034 and 035.	1				Forestry vehicles
LE037	MWS8838	TQ20892976	Mounds	Pair of mounds c 4m across and 1m high on hillside, separated by 1.5m gap. Possibly a single feature cut by a track. Firm soil.			Young oak and birch woodland, bluebells growing on mounds.		

LE038	MWS8839	TQ20892971	Bank	Boundary bank with Mill Farm, symmetrical profile about 1m wide and high. Evidence of past tipping of refuse probably from farm on and near bank.			In young oak and birch woodland, mature holly planted on bank. Daffodil planting in wood near road - previous occupation here?	Poor, breached in places	Tipping, further breaches
LE039, LE040, LE107, LE062	MWS8840	TQ20782984	Hollow way	Series of hollow ways (approx 5 in total) leading from car park to stream. Largest is 3m deep and 7m wide, narrowing to 2m wide at base. Trackway/hollow way 4m across and with banks up to 1.5m high, parallel to present road and veering north of it north of the car park. Track forks with right fork becoming a path, both forks drop to the stream. A parallel hollow way closer to the road at TQ20742985 joins the other at the stream.	1		Young oak and silver birch growing in track, some rhododendron.		Tree roots, rhododendron

LE041, LE102	MWS8841	TQ20983010	Mine pits	Large group of Mine pits 2-4m diameter & 0.7m deep, some water filled. Recent rutting.	1		Brash has been felled across pits to enable driving over, very severe rutting all along track from here to junction to NE caused by recent forestry operations.		Vehicle damage, fly tipping to east.
LE042, LE104	MWS8842	TQ20943012	Pillow mound	Pillow mound c 26m long, part of boundary bank (LE101), with ditches 1-2m wide and 0.2m deep. Mound is 1 to 2m high with rounded profile and 3-4m wide. E end of mound has been driven through in the past and bank is also damaged by forestry operations.	1	LE101	Large old trees growing on mound have been felled. In trees and bracken.	Poor	Vehicle damage.

LE043	MWS8843	TQ21713021	Boundary marker	Very old pollarded/coppiced beech on corner of forest boundary by MWS8844		MWS8844			
LE044	MWS8844	TQ21753022	Boundary bank	Short stretch of boundary bank 1.5m wide and 0.75m high, ditch to SE, asymmetrical profile, low flat and wide. At TQ21763025 becomes double boundary bank to edge of wood with rounded profile and ditch in middle.			Mature oaks and beeches growing on bank.		
LE045	MWS8845	TQ21803024	Field boundary	Bank 0.25m high and 1m wide, ditched to N. At E end ditch deepens into a squarish pit 1.5m deep, possibly a mine pit or a saw pit truncated by forestry operations. Continuation to E visible on lidar.	1			Fair	Vehicle damage.
LE046	MWS8846	TQ21853022	Hollow ways	Hollow ways N of path and forestry rutting.	1				Vehicle damage.
LE047	MWS8847	TQ21863022	Mine pits	Small Mine pits 2m across, water filled	?				
LE048	MWS8848	TQ22003024	Hollow way	Hollow way 2m wide and 1m deep, cutting corner at SE corner of forest.	1				
LE049	MWS8849	TQ21993028	Charcoal platform?	Possible charcoal burning platform 7m x 8m in conifer plantation near top of slope. Very dark soil.					
LE050	MWS8850	TQ21973035	Platform	Circular working area/platform 8m across cut 1m into slope.	1			Poor	

LE051	MWS8851	TQ21983058	Charcoal platform	Area of charcoal platforms identified on lidar. At NGR are remains of charcoal burning platform at least 8m across, cut by recently constructed forest track, darkened soil. Steep drop to E, track built up across it to W.	1			Poor	
LE052	MWS8852	TQ21623029	Cut	3m square hole c 1m deep, evidence of spoil to one side.			Young silver birch growing in pit.		
LE053	MWS8853	TQ21563030	Boundary bank	Boundary bank 0.25m high, slight ditch to N, possibly boundary to woodland compartment.	1		Mature specimen trees planted on clumps nearby.		
LE054	MWS8854	TQ21243026	Mine pits	Series of small mine pits close to gill edge	1		Forestry operations around and in Mine pits, some filled with brash	poor	Forestry operations (photo)

LE054a	MWS8855	TQ21213023	Charcoal Platform	CP close to gill edge, approx 8 m diameter, darkened soil, no charcoal			Difficult to see CP in this area due to the amount of recent brash on ground	poor	Forestry operations
LE056, LE101	MWS8856	TQ21153015- TQ20993014	Boundary Bank	Sloping down to stream approx E-W, ditch to S, 0.75 m wide, bank height varies from 0.25 to 0.75 high, 0.75 wide, asymmetrical profile to western end, near mine pits, forestry vehicle has driven over it. At TQ20993014 bank is 2.3m wide & 0.5m high with possible trace of ditch on north side. Cut by N/S track at NGR. Continues west to stream where the ditch becomes more substantial. Is continuation of MWS8813.	1	LE104, LE105	Mixed woodland	fair	Brash dumped in ditch, vehicle track marks (photo)
LE057	MWS8857	TQ21123012	Hollow way	Hollow way, possibly in course of old tributary 1m wide, 0.5 m deep, leads vertically down to stream but does not cross it	1		Gill edge woodland	fair	erosion

LE058	MWS8858	TQ21113010	Quarry	Small quarry area back from stream, ore prospecting, horseshoe shaped quarry with small track leading out and uphill	1		stream	fair	erosion (photo)
LE059	MWS8859	TQ20983001	Platform	Raised platform edge of gill running parallel with contours, working area			mixed woodland, noticeably different ground vegetation of mosses and lichens and wetter	fair	none
LE060	MWS8860	TQ20922998	Planting Features	Coppiced/Pollard beech and yew					photo
LE061	MWS8861	TQ20862996	Land drains	Series of 4 drainage ditches and parallel banks. 0.25 wide banks, 0.25 deep drains and 0.25 deep ditches between, very uniform in appearance.			area of noticeably different woodland of ornamental planting of tall pines	good	none (photo)

LE065	MWS8862	TQ21833118	Boundary bank	Low wide bank 0.5m high and 2m wide, flat on top, running E-W downhill, large vehicle has been driven across and brash piled up on it. At TQ21873119 the bank changes to much smaller rounded profile 0.5m wide and 0.25m high.	1		Mixed woodland	Poor	Vehicle damage, obscured by brash
LE066	MWS8863	TQ21933119	Pillow mound	Pillow mound 36m long and 4m wide, up to 1.5m high, on steeping sloping ground up to 45' angle. Forest road cuts into its east end.	1	068, 070, 073	Conifer plantation	Fair apart from road damage.	Tree roots, felling
LE067	MWS8864	TQ21913118	Charcoal platform	Charcoal burning platform at W end of pillow mound, 6m across and cut into slope at back, darkened soil.			Conifer plantation		
LE068	MWS8865	TQ21953114	Pillow mound	Pillow mound 45m long and 4m wide, up to 1.5m high, on steeping sloping ground up to 45' angle. Forest road cuts into its east end.	1	066, 070, 073	Conifer planting and brash piled up on mound.		Tree roots, felling
LE069	MWS8866	TQ21903112	Platform	Oval platform 6 x 4m, cut 0.5m into back slope, no evidence of darkened soil.			Clear ground in conifer plantation		

LE070	MWS8867	TQ21943108	Pillow mound	Pillow mound 45m long and 4m wide, up to 1.5m high, on steeping sloping ground up to 45' angle. Forest road cuts into its east end. Ditch to S side 1m wide and 1.5m deep (unusually deep for pillow mound). Very similar to parallel mounds and likely to have been constructed at same time.	1	066, 068, 073	Conifer plantation		Tree roots, felling
LE071	MWS8868	TQ21903106	Boundary bank	Boundary bank 1m wide and 0.5 to 1m high, ditch to W. Very rounded even profile. Possible boundary of warren as unlikely to be a woodland or field boundary on such a slope. Runs NNW-SSE to track and cut by track at S end. Continues S of track very degraded and difficult to see to TQ21923097 and beyond to TQ21923095.	1			Variable - poor to good	
LE072	MWS8869	TQ21903109	Hollow way	At N end of MWS8868, hollow way 0.5m deep and 2m wide	1		Conifer plantation	Poor	
LE073	MWS8870	TQ21923100	Pillow mound	Pillow mound 34m long, 1.5-1.75m high, 3-4m wide, flat on top (as others)	1	066, 068, 070	Bracken and conifer planting on.	Fair	Tree roots, felling

LE074	MWS8871	TQ21913098	Boundary bank	Bank 0.75m high and 0.5m wide, rounded profile, running S of and parallel to tributary downhill.	1	075	Bracken and conifer plantation. Large tree felled across.		Tree roots, felling
LE075	MWS8872	TQ21963097	Boundary bank	Bank 0.25m high with rounded symmetrical profile joins 074 at right angles, running parallel to track. Ditch to W 0.5m wide. At TQ21963096 bank turns towards track, by which it is cut. 074 and 075 appear to be part of enclosure system associated with warren, but hard to see with large trees down.	1	074	Bracken and conifer plantation. Trees planted on bank.		Tree roots, felling
LE076	MWS8873	TQ21973087	Platforms	Rectangular platform 3 x 2m cut into slope - wood stacking platform? Also oval platform 4 x 3m and D shaped platform 5 x 7m cut c 2m into slope at TQ21973080. No evidence of darkened soil. Working/living area?			Bracken, mixed silver birch and conifer		
LE077	MWS8874	TQ21983084	Charcoal platform	Small charcoal burning platform 4m across, some evidence of darkened soil			Bracken, mixed silver birch and conifer		

LE078	MWS8875	TQ21943086	Platforms, charcoal platforms	Saucer shaped circular depression 3m across. Charcoal burning platforms 5-6m across and cut 1.5m into slope at TQ21943085 and TQ2194 3084 with darkened soil. Similar platform at TQ21953082 but no evidence of darkened soil. Working area along contour near brow of slope.			Silver birch and conifer		
LE079	MWS8876	TQ21923079	Charcoal platform	Large charcoal burning platform 10m across with sloping back slope cut in 2m. Badger digging shows very black soil and charcoal to depth of 26cm. Just to SE at TQ21933079 is a slightly saucer shaped platform 4m across - possible stacking area or living area as prevailing SW wind would have blown smoke away from it. Extent of charcoal working suggests potential for bloomery sites near stream to E here.			Silver birch and conifer	Good	
LE080	MWS8877	TQ21913079	Platform	Concave platform 4 x 3m, uphill from MWS8876, possibly log stacking area for it.		79			

LE081	MWS8878	TQ21953076	Platform	D-shaped platform 5 x 3m cut 1.5m into back slope, alongside faint path running along contour parallel to forest boundary. Wood stacking area?			Silver birch and conifer		
LE082	MWS8879	TQ21893076	Saw pit	Rectangular pit 5 x 2m, 1.75m deep, on break of slope near path. Slight rounded banks all round give oval plan with exterior dimensions c 4m across and 6m long. Downslope bank is now lower than upslope bank. Large for a saw pit, but is uphill from a busy working area.		LE076-81	Silver birch and conifer		
LE083	MWS8880	TQ21963065	Boundary bank	Low rounded bank running N of and parallel to track. 0.5m wide and 0.3m high, symmetrical profile.			Obscured by bracken and holly		
LE084	MWS8881	TQ21993072	Platform	Circular platform 6m across cut into slope near track, no evidence of darkened soil.					
LE086	MWS8882	TQ21863087 (estimated)	Boundary marker	Very large coppiced sweet chestnut c 10m in girth, 20m E of path and in line with MWS8868 (pic)		071?	New woodland planting		
LE085	MWS8883	TQ21973069	Platform	Circular platform 4m across cut into slope, no evidence of darkened soil.					

LE087	MWS8884	TQ21743087	Mound - military? Slit trenches	Mound 5m across with depression in centre on flat high ground near forest road. Soft soil. Surrounded by slit trenches (see sketch) at TQ21773089 (4 x 1m and 0.45m deep), and three 2 x 1m and 0.75m deep at TQ21733087, TQ21753086 and TQ21743087.			Young plantation - probably open during WW2		
LE088	MWS8885	TQ21763083	Mine pits	Very shallow mine pits in dense young conifer planting on ridge and furrow.					
LE089	MWS8886	TQ21723095	Mound, slit trench?	Possible slit trench 3 x 1m cut close to one side of irregular mound of stony material. Mound has old tree stump predating WW2 so if slit trench must have been cut into it.		092?			
LE090	MWS8887	TQ21833080	Saw pit	Saw pit next to track, external dimensions 6 x 3m, internal 5 x 2m.				Good	
LE091	MWS8888	TQ21803080	Boundary bank	Boundary bank 1m wide, ditch to E, symmetrical rounded profile, old breach at this point. At TQ21783089 same bank is asymmetrical. At 21743126 bank is 0.75m high and 1m wide with rounded profile.	1		Conifer plantation	Fair to poor	Vehicle damage, obscured by brash

LE092	MWS8889	TQ21723108	Quarry area	Area of very shallow quarrying with small heaps of spoil containing angular stone fragments up to 10cm. Iron staining on stone. Close to main track, probable use for roadstone. May be related to larger heap of similar stone at MWS8886		089?			
LE093	MWS8890	TQ21803108, TQ21813114	Mine pits	Area of shallow mine pits around top of hill.					
LE094	MWS8891	TQ21703117	Pillow mound?	Short section of bank running N-S, or short pillow mound, on lidar but covered in scrub, difficult to see or access. Rounded profile 1-2m wide and 1.25m high, ditch to E. On high, level flat ground so unusual for pillow mound, but too large to be bank?	1				
LE095	MWS8892	TQ21743153	Mine pits	Very large mine pits [V to add earlier description; MWS5068?]. Path between used as cycle trail.	1		Young birch, conifer, ornamental firs	Good	Fly tipping, erosion from cycling
LE096	MWS8893	TQ21733160	Bottle dump	Dump of early to mid-20th century bottles and other refuse in deep mine pit. I					

LE097	MWS8894	TQ21743163	Hollow ways	Hollow ways 1.5m wide and deep giving access to Mine pits, extending up to top of slope and forest track	1				
LE098	MWS8895	TQ21863156	Trackway, hollow way	Track/hollow way downslope of modern track, 3m wide, possibly former road before present track was constructed.	1				
LE099	MWS8896	TQ21873141	Hollow ways	Hollow ways 3m wide and 1.75m deep, giving access to Mine pits above.	1				
LE100	MWS8897	TQ2129030459	Saw pit	Adjacent track junction. 4.5m x 1.2m & 1m deep. Spoil embanked on south side to form mound			Trees & bracken	Ok but deep rutting on adj track	Roots
LE101	MWS8898	TQ20983012	Bank	Bank E/W orientated 2.3m wide & 0.5m high with possible trace of ditch on north side. Cut by N/S track at NGR. Continues west to stream where the ditch becomes more substantial. Continuation of MWS8813.	1	LE104, LE105	Trees & bracken		Roots
FID691	MWS8898	TQ21363022	Earthwork, small oval	Identified on lidar, not ground truthed	1				
LE103	MWS8899	TQ21013010	Bank	Bank runs south through Mine pits MWS8841 from MWS8898 2m wide & 0.5m high	1	LE056, LE102	Trees & bracken		

LE105	MWS8900	TQ20823010	Braided trackways	Trackway runs down to stream embanked on both sides and parallel to LE101. Track is 3 to 4m wide & banks are 1m wide & 0.4m high. At the stream there are five hollow ways (one of which is MWS8091) which converge on the ford (TQ20843 30106), whilst on the west side of the stream there is a single hollow way (MWS809)	1	LE056, LE106	Trees & bracken		Path wear, roots
LE106	MWS8901	TQ20783009	Trackway, hollow way	Hollow way (not currently in use) from NE 5m wide and 2m deep (see MWS8900), crosses ford and heads SW as hollow way 4m wide & less than 1m deep as extant track	1	LE105	Trees & bracken		Path wear, roots
LE108	MWS8902	TQ20752994	Hollow ways	Y junction with one hollow way joining MWS8840, the other bends round to NW and crosses stream. 7m wide & 2.5m deep. There are another two hollow ways on the south west side (one on road edge) which converge with this one at stream.	1	LE107, LE109	Trees		Roots

LE109	MWS8903	TQ20412989- TQ20642984	Hollow ways	Similar hollow ways to MWS8902 converge on the west side of the stream. 3 to 4 hollow ways, largest is 6m wide & 2m deep. They continue along west edge of woodland as per Lidar	1	LE108	Trees		Roots
LE110	MWS8904	TQ2058929927	Pillow mound	Pillow mound 7m wide, 1.2m high, 130m long. Ditch along each side 2m wide & 0.25m deep. Cut by path at NGR	1		Trees & bracken		Roots
LE111	MWS8905	TQ20522992	Mine pits	Group of Mine pits c.5m diameter & up to 1m deep	1		Trees & bracken		Roots
LE112	MWS8906	TQ2040729954	Quarry	Quarry 30m diameter & >5m deep, roughly circular with an entrance at the south end where it narrows to 8m. A further rectangular cut 10m x 6m outside the entrance, with ditch (3m wide & 0.5m deep) heading east through MWS8907 Both water filled. NGR taken at entrance. Upcast mounds around exterior.	1	LE113	Trees		Roots, water
LE113	MWS8907	TQ2041529925	Pillow mound?	Possible pillow mound orientated NE/SW, adj to quarry. 10m wide & 2m high. No ditch seen. It is possible that this is an upcast mound from the quarry. Note ditch cuts through it.	1	LE112	Trees & bracken		Roots

LE114	MWS8908	TQ2044829954 to TQ2051829966	Bank	Short section of bank with established trees. 1.5m wide & 0.4m high. Could turn to north at east end as line of three established trees on alignment to north edge of wood but no visible bank - old field boundary?	1		Trees	Fallen tree damage	Roots
LE115	MWS8909	TQ20612999	Mine pits	Mine pits c 5m diameter & up to 0.75m deep	1		Trees & bracken		Roots
LE116	MWS8910	TQ2063229943	Hollow way	Track /hollow way crossed by extant track at NGR. 4m wide & 0.4m deep, continues down to stream	1		Trees & bracken		Roots
LE117	MWS8911	TQ2073329982	Bank	Bank orientated N/S 2m wide & 0.4m high in woodland to west of extant track	1		Trees & bracken		Roots
LE118	MWS8912	TQ2062230081	Track/field boundary	Possible track or field boundary running NE/SW 2m wide terraced into gentle slope. 0.2m drop onto feature on NW side then 0.2m drop off on SE side. On line of present forest boundary.			Trees & bracken		Roots
LE119	MWS8913	TQ2094330406	Charcoal platform	Oval terrace 10m x 8m in slope with established tree on its edge. Dark soil			Trees		Roots
LE120	MWS8914	TQ21023037	Mine pits	Extensive workings, with pits c.5m diameter & up to 1m deep, with a lot of upcast mounds	1		Trees & bracken		Roots

LE121	MWS8915	TQ21073044	Braided trackways	Series of short lengths of trackway/hollow ways, typically 3-4m wide & 1m deep running downslope, most quite discrete. One (TQ2102930422) curves to follow line of gentle descent. Good examples at TQ2112630428 where two are 10m apart 2-3m wide & 0.7m deep	1		Trees & bracken		Roots
LE122	MWS8916	TQ2153530568	Cut	Circular cut 5m diameter, slightly embanked on its lower side >0.5m deep water filled. This area is very wet.			Trees on edge, wet		Roots & wet
LE123	MWS8917	TQ2144630574	Pond	Man made pond c. 20m x 15m.	1				
LE124	MWS8918	TQ21023060	Braided trackways	Trackways parallel to extant E/W footpath as discrete hollow ways, crossed by modern track and then descend to stream as 2 or 3 parallel hollow ways (largest is 5m wide & 3m deep). Others converge from NE & SE at ford (TQ2098530610). On the west side of the stream a similar series of hollow ways fan out from ford.	1		Trees & bracken		Roots and path wear

LE125	MWS8919	TQ2096330658	Bank	Small trackside bank 0.5m wide & 0.25m high runs along east side of track & then diverges from current track to join edge of hollow ways MWS8918	1	LE124	Trees		Roots
LE126	MWS8920	TQ2101930650	Earthwork	Bank or mound, crescent shaped on edge of flat area beside stream. 30m long & 5m wide & 0.75m high. 10m gap then similar one to south. Water management			Trees		Roots
LE127	MWS8921	TQ2154431159	Mound	Small mound at track junction 5m x 2m & 0.8m high. Similar mound 0.6m high on opposite side of the track			Trees & bracken		Roots
LE128	MWS8922	TQ2143431064	Platform	Rectangular platform 30m x 15m enclosed by a ditch on upslope and two sides. Ditch 3m wide & 0.75m deep. Drop of 0.5m on the downslope side. Not flat in interior.	1		Trees & bracken	Rutting	Vehicle damage & roots
LE129	MWS8923	TQ2126631027	Platform	Slightly raised platform above surrounding landscape with 'ditch' enclosing a triangle? Shaped platform 25m x 25m in size. Ditch is 2.5m wide & 0.5m deep. Note adjacent cuts/mound - possible cycle obstacles	1		Conifer, bracken	Rutting, rabbit holes	Vehicle damage & roots

LE130	MWS8924	TQ2116530910	Mine pits	Mine pits 5 to 7m diameter & c. 2m deep with upcast mounds, some water filled	1		Trees & bracken		Roots
LE131	MWS8925	TQ2102330945 to TQ2100530978	Mine pits	Group of Mine pits c.5m diameter & > 0.7m deep, some water filled			Cleared conifer		
LE132	MWS8926	TQ2100131074	Mine pits	Mine pits above stream 5m - 8m diameter plus adjacent spoil heaps extends over area c.50m north & south of NGR			Cleared conifer		
LE133	MWS8927	TQ2111831048	Mound	Small mound 6m x 3m north-south orientated & 0.4m high. Adjacent rutting may have removed part of what was originally a 6m diameter mound			Conifer & bracken	Rutting	Vehicle damage & roots
LE134	MWS8928	TQ2114231133	Mound	L-shaped low mound 0.7m high 15m x 10m near track junction. Ground around it appears very disturbed and it seems modern. In cleared ground/scrub - may be brash pile?			Cleared area/scrub		Vehicle damage & roots
LE135	MWS8929	TQ2100131164	Charcoal platform	Platform 10m x 8m at edge of track adj stream and coppice. Terraced 1m into slope. Might be storage area. Dark soil			Conifer & bracken		Roots
LE136	MWS8930	TQ20943113	Hollow way	Hollow way adjacent track to stream. 5m wide 0.8m deep	1		Conifer & bracken		Roots

LE137	MWS8931	TQ20943128	Field boundary	Bank 2m wide, 0.6m high ditch in places on west side 1.5m wide & 0.3m deep. Degraded and cut through	1		Trees, bracken & rhododendron	Vehicle damage	Vehicle damage & roots
LE138	MWS8932	TQ20753115	Field boundary	Bank 2m wide 0.5m high with trace of ditch on south side, along south edge of wood. Established trees on bank. Degraded and cut through	1		Trees	Vehicle damage and fallen trees	Vehicle damage & roots
LE139	MWS8933	TQ20733120	Field boundary	Bank 2m wide, 0.3m high slight trace of ditch on west side on field edge, but in wood at south end the ditch is on the east side	1		Trees & bracken		Roots
LE140	MWS8934	TQ21063116	Hollow way	Hollow way adjacent to track. Narrow at east end, broadens out towards stream at west end, up to 4m wide & 1m deep.	1		Trees & bracken		Roots
LE141	MWS8935	TQ2133231172	Pillow mound	Pillow mound 6m wide, 0.8m high. Ditch on each side 1.5m wide and 0.25m deep	1		Trees & bracken		Roots
LE142	MWS8936	TQ2141031275	Pillow mound	Pillow mound 7m wide, 1m high with ditch on each side 1.5m wide & 0.25m deep. Cut by track.	1		Trees & bracken		Roots
LE146	MWS8937	TQ2132531982 to TQ2126032021	Bank	Low bank 1.5m wide & 0.3m high aligned NW/SE traced to second NGR where it is cut by track. May be associated with MWS8942 on west of track	1	LE147	Small conifer & bracken	Old rutting	Vehicle damage & roots

LE145	MWS8938	TQ21653092	Bank	Low bank 3m wide and 0.5m high slight ditch on south side, crosses diagonally across corner of wood, narrows to 2m wide and 0.3m high at west end. Then returns along north side of track to junction.	1		Conifer & bracken		Roots
LE147	MWS8939	TQ2121132061	Hollow way	Hollow way 3m wide & up to 1m deep heads NNW downslope from NGR	1	LE146, LE148, LE149	Conifer & bracken		Roots
LE148	MWS8940	TQ2122532063	Hollow way	Hollow way 2m wide & 0.7m deep heads NNW downslope from NGR, slight trace of similar parallel hollow ways on east side	1	LE147, LE149	Conifer & bracken		Roots
LE150	MWS8941	TQ2131732024, via TQ2130732055 to TQ2127832054	Bank/hollow way	Appears to be a bank at its SE end, then has drop of c1m on its north side into a shallow cut 1.5m wide with low bank 0.25m high on north side. At west end it becomes hollow way 1.2m deep onto track 3m wide with slight bank then drop on its north side	1	LE149?	Conifer & bracken	Recent rutting, rabbits	Vehicle damage, animal burrowing & roots
LE151	MWS8942	TQ2116932108	Charcoal platform	Charcoal platform terraced into slope 8m x 6m oval, adjacent to the bottom of hollow way MWS8939. Dark soil		LE147	Conifer & bracken		Roots

LE152	MWS8943	TQ2112132071	Hollow way	North south orientated hollow way on lower slope, not visible further up slope. 1.5m wide & 0.4m deep. LE153 is 10m to west	?	LE153	Conifer & bracken		Roots
LE153	MWS8944	TQ2110932063	Hollow way	Hollow way runs SE/NW to NGR then turns to north to bottom of the slope. 1.5 to 2m wide & 0.5m deep		LE152, LE154	Trees		Roots
LE154	MWS8945	TQ2110332047	Charcoal platform	Possible charcoal platform 12m x 6m oval cut into slope. Dark soil. Adjoining MWS8944		LE153	Conifer & bracken		Roots
LE155, LE156	MWS8947	TQ2107731984	Boundary bank	Bank 1.5m wide 0.4m high with slight trace of ditch on SW side. Probable continuation to NW is 1.3m wide and 0.3m high.	1		Trees, rhododendron	Vehicle rutting & wet ground	Roots and wet ground
LE157	MWS8948	TQ2105232047 to TQ2112332127	Mine pits	Mine pits cover a large area, varying shapes and sizes, 4m diameter circular to linear 8m x 4m, incorporates one long linear trench (could be hollow way). Mine pits also extend to south of track in places			Trees, largely cleared, wet ground	Vehicle rutting & wet ground	Roots and wet ground
LE158	MWS8949	TQ2115332175	Pillow mound	Pillow mound 6m wide 1m high with trace of slight ditch along each side which become more distinct further north (1.5m wide & 0.3m deep). Surrounded by mine pits MWS8948	1	LE157	Trees, largely cleared, wet ground		Roots and wet ground

LE159	MWS8950	TQ21633225	Boundary bank	Bank along north edge of wood, intermittent, 1m wide, 0.4m high (max) ditch on north side. Marked as boundary bank to plantation on 1st edition OS	1		Trees, bracken, rhododendron		Roots
LE160	MWS8951	TQ2127832212	Pond	Man made pond/lake embanked on west side by 15m wide retaining earthen bank (NGR). On reverse of bank is square brick structure with adj brick and wood sluice gates. To south of this is circular brick structure also built into reverse of bank. Culvert on south side of lake to rejoin stream	1	LE161	Trees on bank		Roots
LE161	MWS8952	TQ2128232208	Platform	Viewing platform overlooking lake (MWS8951) oval/circular in shape slightly raised above surrounding ground. Has four in-situ oak trees although these do not seem to be very old		LE160	conifer		
LE163	MWS8953	TQ21143076	Mine pits	Not visited, but clearly seen on lidar	1		Trees & bracken		Roots
LE164	MWS8954	TQ21303129	Bank	Not visited due to thick conifer/undergrowth	1		Trees & bracken		Roots
LE165	MWS8955	TQ21313125	Track	Not visited thick conifer/undergrowth	1		Trees & bracken		Roots
LE166	MWS8956	TQ2121132061	Artefacts	Piece of 18th century clay tobacco pipe		LE147			

LE167	MWS8957	TQ20963197	Bank	Not visited due to thick rhododendron	1		Rhododendron	Wet ground	Roots and wet ground
LE200	MWS8958	TQ21873138	Bank	Bank to side of forest track, ditch to W, 0.75m high with rounded profile. Ground drops steeply away to E					
LE201	MWS8959	TQ21983133	Boundary bank	Small low rounded woodland boundary bank, ditch to E, running N-S	1				
LE202	MWS8960	TQ21963129	Hollow way	Hollow way running parallel to boundary at NE entrance to forest, 3m wide between large banks.					
LE203, LE211	MWS8961	TQ21743189	Boundary bank	Boundary bank running E-W, cut by forest road at NGR. High narrow bank up to 1.75m high and 1m wide on top, symmetrical profile. Boundary to warren? AT TQ22073180 bank has a hollow way to the N forming a double bank. SE of here it is cut for 20m by the forest road junction then continues a short way to end at the stream/forest boundary.	1	Continuation of LE143 on W side of forest road	Young birch, heather and holly saplings growing on bank.	Good except where cut by forest roads	

LE204	MWS8962	TQ21763190	Hollow ways	Hollow ways 1m wide and 0.75m deep on slightly sloping ground. Predate forest road and bank LE203, which is built over them. racken cover makes route difficult to discern to S but continues at TQ21713186 as hollow way 1.5m wide and 1m deep running N-S.	1		Bracken covered. Southern section young birch and corsican pine and obscured by brash to S	Fair	
LE205	MWS8963	TQ21913196	Mine pits	Start of visible area of Mine pits running north. At this point medium sized c 2m deep and 25m circumference. Shallower pits to S of this point are covered in brash and difficult to see except on lidar.	1		Clear, in young birch and pine plantation	Good	
LE206	MWS8964	TQ22173188	Mound	Sub-rectangular irregular mound, up to 1.75m high	1				
LE207	MWS8965	TQ22153235	Mine pits	Area of medium to large Mine pits SE of main forest road	1		Corsican pine plantation	Good	
LE208, 209	MWS8966	TQ22093234	Boundary bank	Boundary bank running SW-NE alongside forest road, ditch to E. Bank is 0.7m high with a 1.5m wide flattish top, assymetrical profile with land higher on W where there are large mine pits. Bank is cut by forest track at TQ22003218.	1			Fair	

LE210	MWS8967	TQ21863200	Boundary bank	Wide flat bank on E side of forest track 2m wide and 0.5m high. Ditch to W, 1m wide. Forest track has been built up to form additional bank to W. Breached by recent forest operations and brash piled on bank.	1		Young birch and beech growing on.	Fair	
LE212	MWS8968	TQ21743182	Boundary bank	Bank 1.5m wide 0.5m high with rounded profile, ditch to E 1.5m wide and 0.25m deep. Driven over for forestry access and damaged.	?			Poor	
LE213	MWS8969	TQ21823173	House, pond, bank	Site of Race Hill cottage marked on 1st edition OS map c 1874-5. No trace of structures but possible small low garden bank at TQ21813173 1m wide and 0.5m high. Area within approximately level. At NGR is small dam or pond bay across now-dry stream valley, breached, with bank 1.5m high and 1.5m wide and downstream slope about 3m high. Water supply for cottage? At TQ21803176 are very shallow Mine pits.			Young birch in previously felled area	Poor/destroyed	

LE214	MWS8970	TQ21693160	Boundary bank	Bank parallel to and E of forestry track, 1.5m high and 0.75m wide, symmetrical profile, ditch to E where ground is lower. Continuation of MWS8888	?				
FID1401	MWS8987	TQ21893209	Bank	Identified on lidar, not ground truthed	1				
FID1417	MWS8988	TQ21613100	Bank	Identified on lidar, not ground truthed	1				
FID1499	MWS8989	TQ21513223	Boundary bank	Identified on lidar, not ground truthed	1				
FID657 to 661	MWS8990	TQ22093188	Charcoal platforms, area of	Identified on lidar, not ground truthed	1				
FID1448	MWS8991	TQ21943049	Ditch	Identified on lidar, not ground truthed	1				
FID1352	MWS8992	TQ21703178	Hollow way	Identified on lidar, not ground truthed	1				
FID1405	MWS8993	TQ21873157	Hollow way	Identified on lidar, not ground truthed	1				
FID663-665	MWS8994	TQ21143203	Mine pits	Identified on lidar, not ground truthed	1				
FID668	MWS8995	TQ20953107	Mine pits	Identified on lidar, not ground truthed	1				
FID637	MWS8996	TQ21293009	Mine pits	Identified on lidar, not ground truthed	1				
FID690	MWS8997	TQ21303019	Earthwork, small oval	Identified on lidar, not ground truthed	1				
FID655	MWS8999	TQ21903213	Mine pits, small	Identified on lidar, not ground truthed	1				

FID654	MWS9000	TQ21923220	Mine pits, small	Identified on lidar, not ground truthed	1			
FID641	MWS9001	TQ21933156	Pillow mound	Identified on lidar, not ground truthed	1			
FID693	MWS9002	TQ22023048	Platform	Identified on lidar, not ground truthed	1			
FID696	MWS9003	TQ21563022	Platform, rectangular	Identified on lidar, not ground truthed	1			
FID1459	MWS9004	TQ21083136	Platform, site of brickworks?	Identified on lidar, not ground truthed	1			
FID1428	MWS9005	TQ21603075	Trackway	Identified on lidar, not ground truthed	1			
FID1436	MWS9006	TQ20833032	Trackway	Identified on lidar, not ground truthed	1			
FID1429	MWS9007	TQ21043020	Trackway	Identified on lidar, not ground truthed	1			
FID1444	MWS9008	TQ21873020	Trackway	Identified on lidar, not ground truthed	1			
FID1435	MWS9009	TQ20723016	Boundary bank along stream	Identified on lidar, not ground truthed	1			
FID1431	MWS9010	TQ20823026	Bank, wide	Identified on lidar, not ground truthed	1			
FID1440	MWS9011	TQ21543046	Trackway	Identified on lidar, not ground truthed	1			

Appendix 2: Artefacts found during the survey

A large group of pottery, bottles and other remains were found in a mine pit (MWS8893) during the survey. They appear to have been dumped here at some stage, although the exact date for this event is unclear. The artefacts suggest a date around the period 1920-1930, however if they had been dumped here that long ago we would have expected that they would have been covered over to some extent by soil erosion, leaf fall etc. However there was little surface covering, which suggests they may have either been dumped more recently or they have been discovered and the dump was being searched by bottle collectors.

The Pottery by Luke Barber

A hand-collected sample of pottery was recovered from the dump deposit. The material is in good condition – unabraded with a very large average sherd size. As such the material has clearly not been reworked after deposition. A number of wares are represented.

Nine sherds (1,570g) of English stoneware from at least seven different vessels are present. These include parts from a lid-seated oven dish and two probable ink bottles (one with iron wash, the other with clear light grey Bristol glaze). The other four vessels consist of preserve jars, at least three of which appear to be for Hartley's jams/marmalades. The jars are of slightly different forms/sizes and include examples with horizontal string groove and wide-set vertical grooves (eg 138mm tall with a 94mm diameter base); a plain white Bristol glazed example with horizontal string groove (114mm tall with a 75mm diameter base) and a simple rimmed type with no string groove (130mm tall by 103mm diameter).

Coarse earthenwares are quite rare and consist of an unglazed earthenware flower pot with simple rim (16g) and a large mixing bowl fragment in Sunderland-type slipware (262g).

The vast majority of the assemblage is composed of refined white earthenwares with different types of decoration. Seventeen sherds (798g) are from plain white vessels including dinner and side plates, bowls, cups and a small (71mm diameter) pot lid. There are also the remains of at least two preserve jars with string grooves, both manufactured by Maling of Newcastle. Two sherds (67g) of refined white earthenware with coloured glazes are also present: one from a green vented lid, the other from a blue dish.

A large proportion of the refined white earthenwares are transfer-printed: 14 sherds weighing 1,272g. With the exception of a chamber pot with red/green floral design the vessels consist of table wares. There are two blue transfer-printed cup sherds with Chinese and English landscape designs and a bowl sherd with green floral decoration. The remainder consist of polychrome transfer-printed wares including at least one teacup (floral design), a moulded bowl (floral design and remains of a registered stamp on the base) and a side plate with floral border and black transfer-print IVORY ENGLAND around a lamp motif on the base. Three other vessels carry maker's marks. These include a fluted tureen lid with polychrome floral decoration marked on its underside COPELAND CHINA, ENGLAND (maker) below a crowned T. GOODE LONDON (retailer).

The other two marked vessels are from dinner plates. The first (2/258g) has a polychrome border of flowers and birds with a brown maker's transfer on its base: BOOTH'S over a crown, below which is SILICON CHINA MADE IN ENGLAND 'Springtime' (pattern name). This mark appears to be one used by Booths after 1906 (Godden 1991, No 453). The other plate (3/129g) is decorated with polychrome central design of vase and flowers with the base stamped with a crowned COPELAND and also bearing a 20th- century brown transfer-printed maker's mark of Copeland Spode (Godden 1991, types Nos 1079-80³⁸) with design name 'PEPLOW'.

The assemblage also contains seven sherds (147g) of English porcelain. With the exception of a pink painted doll's head fragment all consist of table/tea wares. There is a side plate with polychrome floral border, remains of at least three teacups with polychrome floral patterns, a faceted jug with polychrome transfer-print and a dish.

Taken together the assemblage appears to be a typical domestic one containing a mixture of vessel types. Table and tea wares dominate but there are a number of commodity containers such as the ink bottles and preserve jars (though no ginger beer bottles) and lesser amounts of kitchen and sanitary wares. The assemblage is likely to have been deposited between c. 1910 and 1930 though the second half of this range is perhaps more likely.

The Glass by Chris Butler

A sample of 26 complete bottle and a few fragments of glass were recovered from the dump. A wide range of types was collected, including drinks bottles, food jars, sauce bottles, medicine bottles and milk bottles.

Most of the bottles are machine made, in a two-piece mould, with integral neck and lips, some having screw tops, all indicative of an early 20th century date, although one or two may date back to the end of the 19th century.

A number of bottles have embossed names and other details which assists in the dating of the bottles. These include a 2oz brown BOVRIL jar with a short neck and screw top, with 'BOTTLE MADE IN ENGLAND BY F G C' embossed on the base. Bovril was invented in 1886³⁹, and quickly became a popular drink, being sold in pubs and grocers. Forster Glass Co Ltd was established around the turn of the 19th/20th century, and continued until absorbed into Rockware Glass in 1968⁴⁰.

A 1oz Marmite jar with F.G.C. embossed on the base. The Marmite Food Company was originally set up in 1902 and came in earthenware jars, with the glass jars being introduced in the 1920's⁴¹. This jar must therefore post date 1920 and is unlikely to be later than 1960.

³⁸ Godden, G. 1964 (revised 1991). *Encyclopaedia of British Pottery and Porcelain Marks* Barrie & Jenkins Ltd. London.

³⁹ www.unilever.co.uk/ourbrands/foods/bovril.asp

⁴⁰ Forster, M.L. *The history of Forster's Glass Co. Ltd.* c. 1970

⁴¹ <http://www.marmite.com/love/history/origins-of-the-design.html>

Two hexagonal clear sauce bottles with a screw tops embossed with 'H.J. HEINZ CO PAT^D'. Heinz products first arrived in the UK in the last decades of the 19th century, with the first UK factory opening in 1905⁴². Two other similar sauce bottles have no embossing, but retain aluminium screw top lids. Another sauce bottle is embossed 'GARTONS HP SAUCE', and dates to the period 1903-1924.

There are three SHIPPAM'S paste jars. The two larger jars are embossed on the base 'FOUNDED 1750' with '44' in a circle. The smaller jar is embossed 'RC N^O 653358' on the base. Another paste jar, but with different surface decoration, has 'CWS' embossed within a diamond on the side of the jar, CWS is the C-operative Wholesale Society, founded in 1863.

A large green glass beer bottle embossed 'TAMPLINS BRIGHTON' has an applied lip, and may date to the late 19th or early 20th century. Tamplins was founded in 1921, incorporated 1889, and taken over by Watney Mann Ltd in 1953. A small machine made green beer bottle is embossed 'THE PORTSMOUTH AND BRIGHTON UNITED BREWERIES LIMITED'. This company was created in 1927 when the Portsmouth United Breweries took over the Rock Brewery in Brighton⁴³.

A large green bottle is embossed '+ BENEDICTINE +', and was one of a number of similar bottles noted in the dump. Benedictine is a herbal liquer drink developed in the 19th century, and still available today.

A brown screw top medicine bottle is embossed 'ALLEN & HANBURYS LTD' which was a pharmacy company incorporated in 1893, and taken over in 1953. The base of the bottle has a manufacturer's mark of CTG. Another aqua medicine bottle is embossed 'J. TAYLOR'.

The assemblage of glass vessels provides a range of different products that would have been found in a domestic setting, comprising drinks, pastes, sauces and medicines, together with aftershave/perfume. The glass is all machine made, and has a date range covering the first few decades of the 20th century. However the presence of the Portsmouth and Brighton United Breweries Ltd bottle which cannot be earlier than 1927, suggests a date around the late 1920's to early 1930's.

Clay tobacco pipe by Chris Butler

A single piece of 18th or early 19th century clay tobacco pipe stem was found on the ground surface at TQ2121132061, at the top end of a hollow way (MWS8939).

⁴² http://www.heinz.co.uk/content/our_company/history.aspx

⁴³ ESRO ACC8396/3