NAA

RUSLAND HORIZONS
WOODLAND
ARCHAEOLOGICAL SURVEY

A COMMUNITY BASED
LANDSCAPE SURVEY

2017 AND 2018 SEASON
FINAL REPORT

VOLUME I

RUSLAND VALLEY,
CUMBRIA

prepared for
Lake District National Park Authority

on behalf of
Rusland Horizons Landscape Partnership

Report No: **NAA 19/003**

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FINAL REPORT

Summary

Northern Archaeological Associates Ltd (NAA) was commissioned by the Lake District National Park Authority (LDNPA) to undertake a community-based archaeological survey of a series of historic woodlands within the Rusland Valley, near Coniston, Cumbria. The work was commissioned as part of the Rusland Horizons Landscape Partnership, funded by the Heritage Lottery Fund (HLF), a three-year project that aimed to 'enable people to experience, learn about and become involved in a broad and varied range of heritage skills' (Rusland Horizons 2018b).

The Rusland Valley is an area packed with dense, interconnected woodland, including large areas of Ancient Semi-Natural Woodlands and Ancient Replanted Woodlands (ARW), as well as blocks of managed conifer plantations and parkland. Throughout history, this has been an important natural resource, carefully managed to provide firewood to keep warm, timber for building and coppiced shoots to feed animals in winter. In addition, the woodland has provided the raw material for the manufacture of bobbins, hurdles, brooms, brushes, barrels, hedging stakes, furniture, fence posts, clog soles and walking sticks, as well as tree bark for use in the tanning process and potash as a mordant for dyes. However, from the late 18th until the early 20th century, the primary focus of industrial activity within the area was the widescale production of charcoal to support the Furness iron trade.

Traces of many of these woodland industries and management activities appear today in the archaeological record. These can be quite ephemeral and difficult to spot, like coppice stools in amongst the understorey or pollarded trees marking an old boundary, but in other cases are more visible in the woodland landscape, including charcoal burning platforms (known locally as pitsteads), woodsman's and bark peeler's huts, saw pits and quarries. The aim of the woodland archaeology survey was two-fold. First, to conduct a systematic survey of the project area to identify surviving archaeological remains and build a greater understanding of the use and management of the woodland over time. Second, and of equal importance, was to work with local volunteers to provide them with the core skills necessary to conduct woodland survey in the future or, in many cases, to hone their existing skills.

A total of 369 hectares were surveyed across 27 woodlands over the course of two seasons of fieldwork during 2017 and 2018. Four hundred and eighty-five new features were identified and

recorded across the project area, demonstrating the extensive use and management of the area over hundreds of years. Almost all the sites identified were post-medieval in date, but a small number of features might be medieval. These were primarily relic walls, tracks and boundary features. No prehistoric features were observed, but this was unsurprising given the often-dense nature of the understorey coupled with the deposition of leaf mulch.

The results show that the overwhelming majority of sites (71%) were related to industrial activity, primarily connected charcoal burning. An impressive 302 pitsteads were recorded, which made up 62% of the 485 new sites found. These could be classified into two broad types of pitstead: Type A were level, usually circular, cleared areas, and Type B were oval or ellipse-shaped platforms cut into a slope. Associated with these were charcoal burner's huts (small temporary dwellings used to monitor a charcoal burn) and borrow or 'sammel' pits, which are shallow depressions generally assumed to result from the extraction (or 'borrowing') of soil to cover the charcoal stack prior to firing.

Evidence of quarrying and tree bark harvesting for tanning were also observed, the latter in the form of bark peeler's huts, which were more substantial in form than those associated with the charcoal burners. There was also evidence related to the division and management of the woodland, including boundary walls, smoots, early trackways and water management systems, many of which may have also related to industry. However, there was surprising little evidence of tree management practises, such as coppicing and pollarding, outside of the charcoal production area. This may have more to do with the level and focus of the survey rather than any true absence of evidence.

The results of the survey have proven that there was intensive activity within the woodlands of the Rusland Valley for several hundred years. The minimal number of recorded sites prior to this survey, when compared with the number of sites now known, has clearly demonstrated the value of the project. Beyond this, it has given us valuable insight into the everyday lives of those working in or near the woodlands. Such a result could not have been achieved without the help of the 47 volunteers who took part over the two seasons of fieldwork. This group now have the requisite skills and recording framework to hopefully continue survey and research beyond the end of the Rusland Horizons Project, adding to our knowledge of this often poorly investigated field of study and providing a greater understanding of woodland archaeology both across Cumbria and the country as a whole.

Acknowledgements

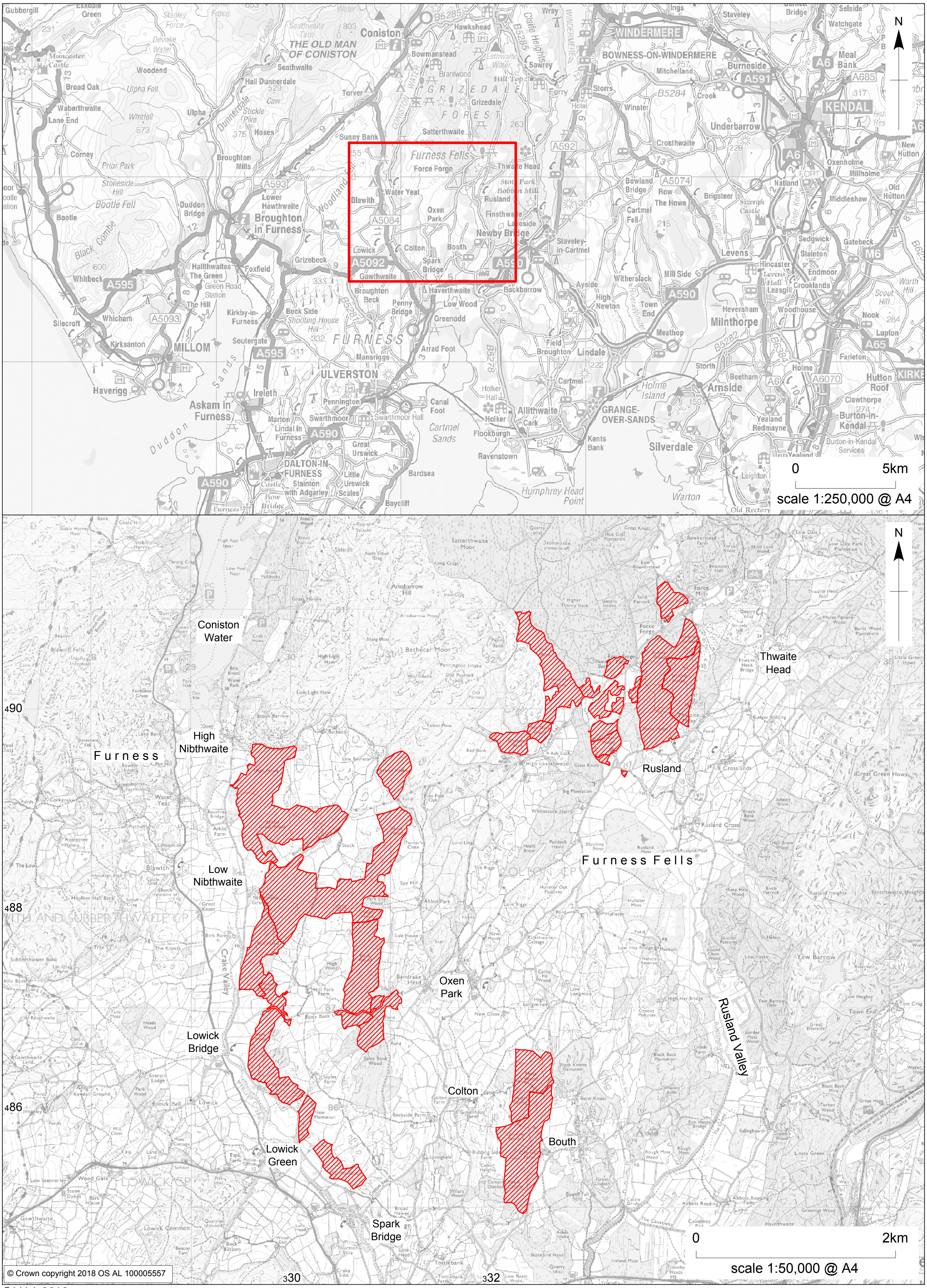
NAA would like to thank all the volunteers for their enthusiasm, knowledge and dedication across both seasons. Thanks are also due to the team at Rusland Horizons, and to Eleanor Kingston and her colleagues at the LDNPA for their continued support, assistance and advice throughout the duration of the project.

1.0 INTRODUCTION

1.1 Northern Archaeological Associates Ltd (NAA) was commissioned by the Lake District National Park Authority (LDNPA) to undertake a community-based woodland archaeological survey of a series of woodlands within the Rusland Valley (NGR SD 340 490). This work was completed as part of the Rusland Horizons Project; a three-year community-led Landscape Partnership Scheme, funded by the Heritage Lottery Fund (HLF), aimed at engaging the local community in the heritage, ecology and conservation of the Rusland Valley.

1.2 The survey work was conducted over two fieldwork seasons in 2017 and 2018. The first (Season 1) took place over a five-week period between April 10th and May 10th, 2017, and the second (Season 2) over four weeks between 7th March and 20th April 2018. In total, 47 volunteers took part in the project over both seasons (29 in 2017 and 42 in 2018) (Plate 1), surveying 369 hectares of woodland, in full or in part, and recording 485 previously unknown historic features (193 in 2017 and 292 in 2018). The following report covers both seasons of work and encompasses the material included in the earlier interim report, which was prepared after Season 1 (NAA 2017).

Plate 1: volunteers stand proudly on one of the first pitsteads recorded in the 2018 survey season.



Rusland Woodland Survey, Cumbria: site locations *Figure 1*

Project Aims

1.3 The aims of the project were twofold:

- to work with volunteers to broaden their level of knowledge and understanding of the Rusland Valley woodlands, including their social and economic history; and
- to provide the volunteers with core skills in archaeological wide area landscape surveying—woodland survey in particular—to enable them to continue such work beyond the life of the project.

Project Scope and Limitations

1.4 The total project area comprised 700 hectares of woodland, which was to be surveyed over two seasons (2017/2018). Approximately 216 hectares of woodland were surveyed during Season 1, with a further 153 hectares surveyed in Season 2 (Fig. 1), totalling 369 hectares over both seasons. The originally specified 700 hectares of woodland was an aspirational target. The abundance of features identified within Season 1 demonstrated that it would not be possible to complete the entire survey area within the allotted timeframe. Season 2, therefore, focussed on the priority areas according to the aims and objectives of the project. It is hoped that the volunteers who have been trained as part of this project will return to the remaining 331 hectares in the future to complete the survey.

1.5 The survey formed part of the 'Lives in the Landscape' project, one of a number of schemes run by the Rusland Horizon Landscape Partnership (RHLP) scheme. It comprised a Historic England Level 1 landscape survey, defined as a 'mainly visual record, supplemented by the minimum of information needed to identify the archaeological site location' (Historic England 2017).

1.6 The survey comprised of the following elements:

- close field walking of selected areas of woodland to identify archaeological features;
- recording of individual features, or groups of features as appropriate, using a standard pro forma. This data was used to compile a written gazetteer (see Appendix A);
- recording of the location of archaeological features using hand-held GPS; and
- a standard digital photographic record of all sites and features identified during the survey.

1.7 The survey has provided a preliminary baseline record of identified sites across the project area and a greater understanding on the nature, form, type, extent and preservation of the above ground archaeological record, together with 'hands on' skills training for local volunteers in woodland survey techniques.

2.0 METHODOLOGY

2.1 The field survey was carried out in accordance with the following published standards and guidelines of practice:

- Understanding the Archaeology of Landscapes: A Guide to Good Recording Practice (Historic England 2017); and
- Conservation Principles, Policies and Guidance: For the Sustainable Management of the Historic Environment (English Heritage 2008).

Documentary Survey

2.2 There was no scope in the project to undertake a detailed documentary assessment. However, a degree of background research was completed to inform the field survey. Due to the time restraints, this was largely restricted to map regression (based on readily available historic Ordnance Survey (OS) maps), identification of known sites recorded on the LDNPA Historic Environment Record (HER), and a review of secondary source material.

LiDAR Survey

2.3 Unlike aerial photographs, LiDAR data has been shown to have significant value in woodland survey because of the ability of the laser to penetrate through the tree canopy and record the archaeology beneath. Environment Agency LiDAR data (1m resolution) was available for some of the project area. Where available, this was transcribed as a GIS layer onto the modern OS base map. Any potential archaeological features were then plotted onto a separate GIS layer to be checked in the field. In areas that appeared archaeologically 'busy', a polygon was drawn encompassing the visible features. However, individual elements were not digitised separately.

Aerial Photographs

2.4 As with the LiDAR data, a study of relevant aerial photography from both Historic England's Aerial Photographic Collection and Google Earth imagery was carried out.

However, the density of the tree cover made this form of desk-based analysis largely ineffectual and no new sites were identified.

Historical Ordnance Survey Maps

2.5 Map regression was carried out in advance of Season 1 using the First, Second and Third Edition historical Ordnance Survey maps to inform the field survey. Any features identified were digitised onto an 'archaeology' GIS layer to be 'ground-truthed' during fieldwork. Features appearing on the historic OS series which were identified in the field have been noted in the 'source' column in the Gazetteer (Appendix A). However, the historic map coverage was generally found to lack detail within the woodlands.

The Site Gazetteer

2.6 All existing and potentially new sites were entered onto a GIS layer and plotted onto a modern OS base map (1:10,000) (Figs 5–22). Depending on their form, existing or new sites were plotted as point, line or polygon data and embedded with a unique identification number (UIN). This has subsequently been linked to the site gazetteer. All sites recorded during both seasons will be sent to the LDNPA for entry onto the HER This information may then subsequently be used to inform woodland management regimes, as well as any future planning applications.

General Field Methodology

2.7 A series of historic and modern maps, overlain with the known and potentially new archaeological sites, were printed out at a suitable scale and given to the field teams prior to survey. The project area was then divided into blocks for ease of survey. The areas covered in Seasons 1 and 2 are illustrated on Fig. 1. Existing land divisions—woodland tracks, boundaries, planting compartments, streams and watercourses—were used to sub-divide the woodland into manageable sections.

2.8 The survey comprised a systematic walkover, which involved walking along an appropriate compass bearing, which was aligned to the orientation of the woodland block. Volunteers were shown how to use the compass to set and walk a bearing or back-bearing as appropriate. Each of woodland block was surveyed using a series of transects set at intervals of between 10m and 25m, dependant on the nature of the terrain and visibility.

2.9 It proved viable to use a hand-held GPS device to record co-ordinates, despite the tree canopy, with an accuracy of below 10m being routinely achieved. Through this method,

the co-ordinates for all 485 features were gathered. Pacing was used to record some elements on the ground (and served as a 'fail-safe' if GPS coverage was lost). The method of measuring using paces was explained prior to entry into the field and each volunteer asked to measure and record their average pace.

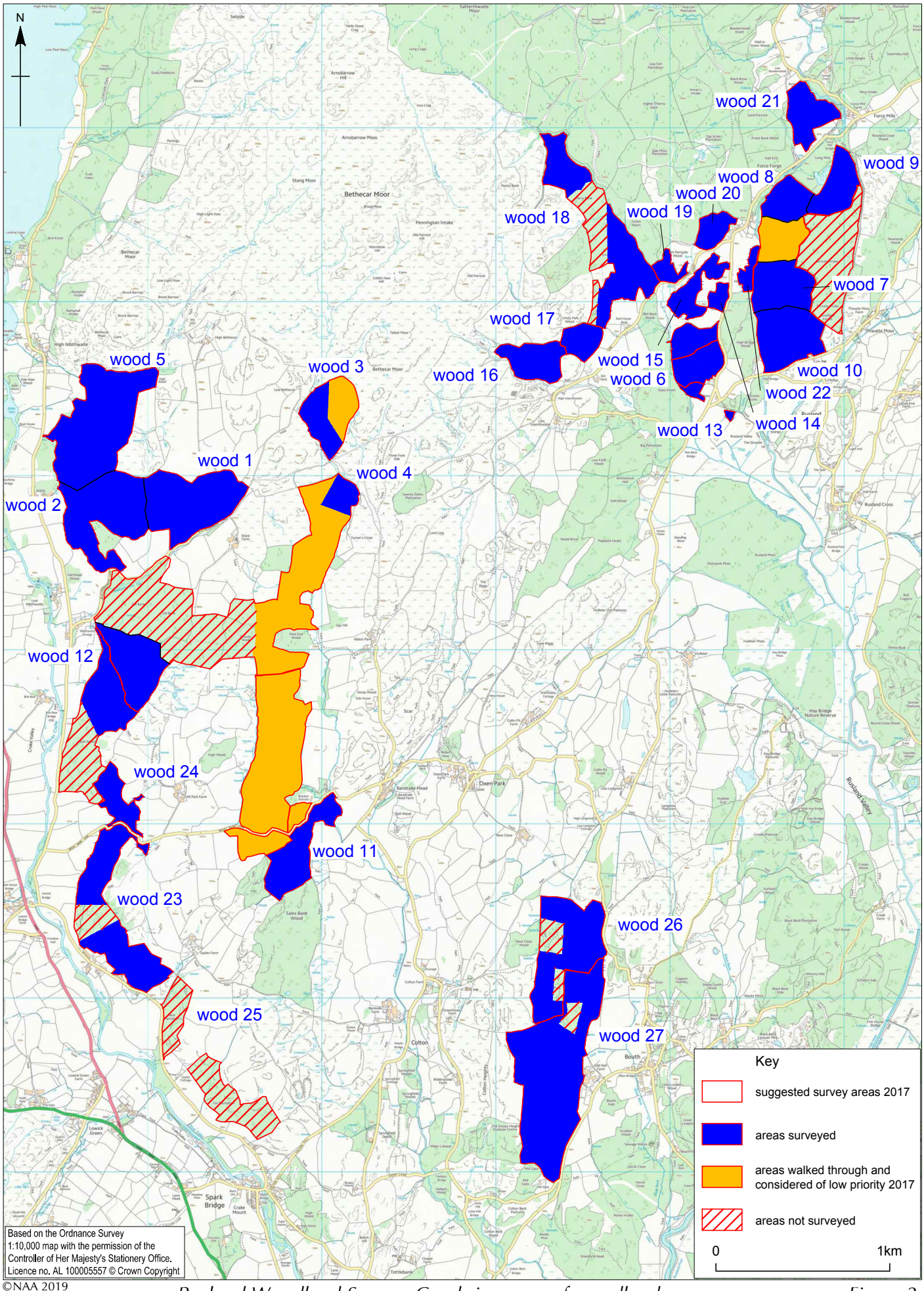
2.10 The direction of the transects walked was marked on the OS base map. Similarly, any areas that could not be surveyed were marked on the same map and given constraints detailed in Section 5.0.

2.11 A digital photographic record was made of all sites. Further photographs relating to the nature of the woodland, condition or management issues and concerns were taken as appropriate. A suitable scale was included in all photographs. The photographic record of sites recorded has been included with the site gazetteer (Appendix A).

Limitations to survey

Plate 2: dense undergrowth in Quaker's Wood.

2.12 Several factors led to certain areas being unsuitable for survey (Fig. 2). The most frequently encountered constraint during the survey was impenetrable undergrowth, usually consisting of young saplings, conifer blocks and brambles. This affected all the woods surveyed to some extent. Arklid Intake and Stock Wood were particularly difficult in Season 1, whereas Linsty Hall was the most overgrown in Season 2, with approximately 50% of the wood being impenetrable to survey. The most problematic areas were often those where deer had been excluded by fencing and the wood allowed



Rusland Woodland Survey, Cumbria: areas of woodland survey *Figure 2*

to naturally regenerate, with the resulting understorey usually proving too dense to access (Plate 2).

2.13 Forestry operations and recent woodland management also resulted in disturbed ground related to felling, thinning, replanting and the piling of timber/wood debris, all of which obscured the ground surface. This was noted particularly in Force Knott, Stricely Intake and Moss Wood, where active woodland management practices, such as coppicing and brush clearance, were taking place.

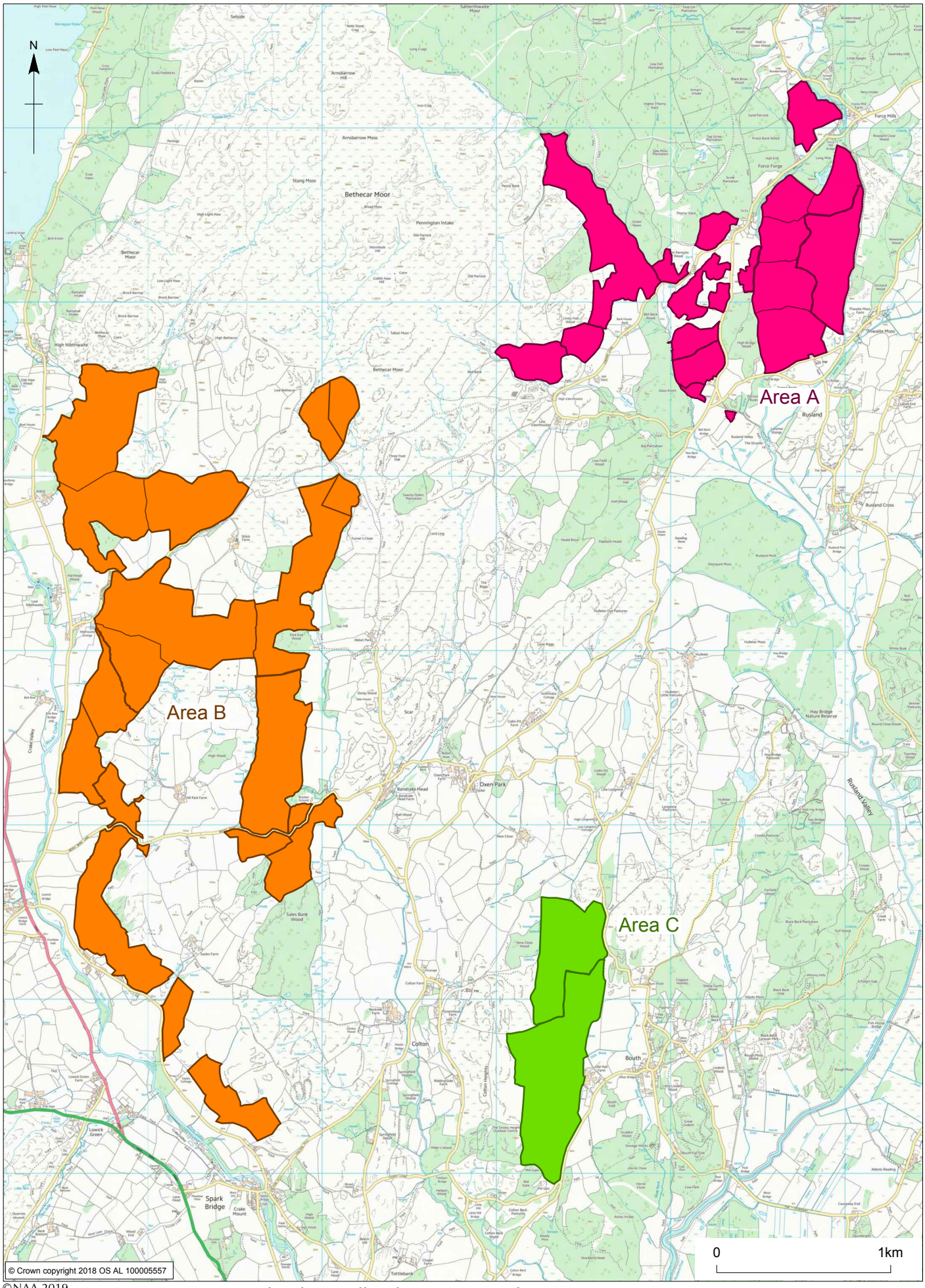
2.14 One conifer plantation was surveyed in full as a sample site; this was Arklid Great Wood: eastern area (**001**). The aim was to assess whether archaeological features that pre-dated the conifers could be identified. The results of the sample survey showed that the implementation of drainage regimes, ploughing, planting and felling has had a significant impact on the archaeological potential of these areas, either as a result of direct damage to the ground surface or by obscuring the identification of any surviving features. As such, survey in the conifer plantations were classified as a low priority. A block of Little Bank Wood did produce two pitsteads which were visible as earthworks; however, this wood had notably been replanted as conifer in 1926 but subsequently taken out of active management.

2.15 In a number of woods, steep terrain precluded safe survey. In High Wood (**005**), where an area on the boundary with Arklid Great Wood (**002**) was on a severe gradient (amongst the steepest encountered during the survey), occasional pitsteads could be seen when looking down from above, although the means of access historically was not apparent. During Season 2, Bank Wood (**023**) proved to be extremely tricky terrain as it was both very steep and very overgrown. While as much of the wood was surveyed as possible, safety remained a top priority and as such several areas of woodland were excluded.

3.0 BACKGROUND INFORMATION

Location

3.1 The project area focused on three distinct blocks of woodland (Areas A, B and C; Fig. 3) within the Rusland Valley. Area A lay to the north of Rusland Church and comprised a large, scattered block of woodland encompassing Stricely Woods and Stony Hazel (**007**, **008**, **009**, **010**), and west of this was Quaker's Wood (**006**). Further west, this block included Linsty Hall (**018**) and most of the smaller blocks of woodland that were



Rusland Woodland Survey, Cumbria: survey areas *Figure 3*

surveyed (**014**, **015**, **016**, **017**, **019**, **020** and **022**). The northern edge of the block contained Force Knott (**021**) and the southern edge was the location of the smallest wood included in the survey, Harry Intake (**013**), which was only 0.2 hectares.

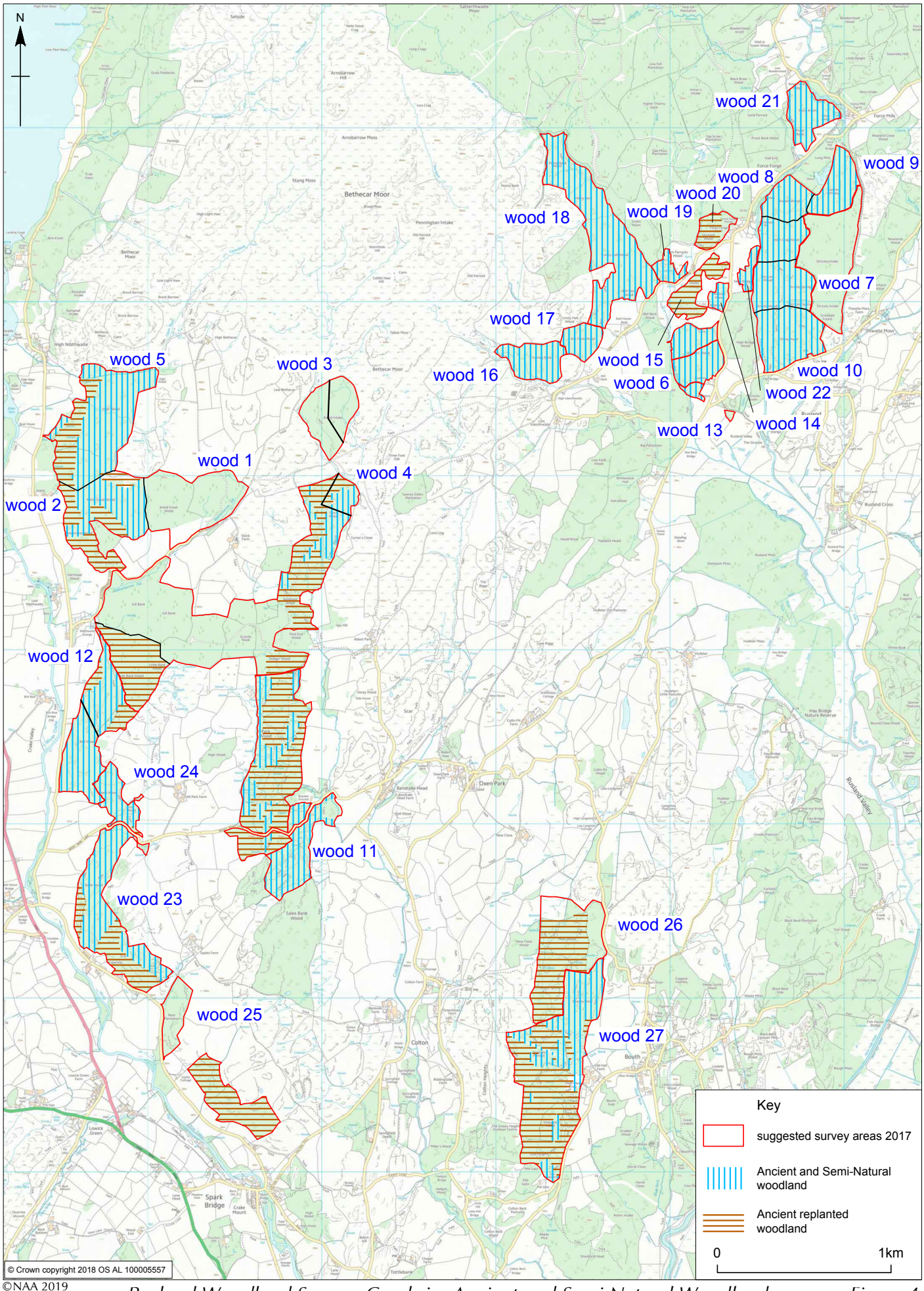
3.2 Area B was located to the south-west of Area A, straddling the high ground above the River Crake. This area primarily comprised the Arklid Great Wood group (Arklid Great Wood, Arklid Intake and High Wood; survey numbers **001**, **002**, **003** and **005** respectively), as well as a band of broadleaf woodland running south towards Spark Bridge that included Little Bank Wood (**012**). To the east lay Sales Bank Wood (**011**) and a tract of mixed conifer and deciduous woods, including Stock Wood (**004**). This woodland block continued to the south to include Bank Wood (**023**), Towers Wood (**024**) and Near Plantation (**025**).

3.3 Area C was the southernmost block in the study area, lying to the east of Bouth and was made up of two large woods—Moss Wood (which includes Height Spring) and Old Hall Wood (**026** and **027** respectively). These two woods combined to make a survey area of 56 hectares.

3.4 Several of the woods within the project area included sections classified as 'Ancient Semi-Natural Woodland' (ASNW) (Fig. 4). ASNW is defined as an area that has been wooded continuously since at least AD1600 (classed as 'ancient woodland'). This definition also includes 'Semi-Natural Woodland' (SNW) defined as woods made up of trees and shrubs native to the site, usually arising from natural regeneration. The other classification included within the survey area is 'Ancient Replanted Woodland' (ARW), which are areas that have been continuously wooded but have had more recent plantings. Both are an important and irreplaceable resource and are given equal protection under the National Planning Policy Framework (Ministry of Housing, Communities & Local Government 2018). There are also 'Plantation on Ancient Woodland Sites' (PAWS) where the semi-natural woodland has been replaced with a plantation (Forestry Commission and Natural England 2014).

Geology, landscape character and use

3.5 The Rusland area forms part of the South Cumbria Low Fells National Character Area (Natural England 2015). In this area, suites of lavas, tuffs and ignimbrites that form the Ordovician Borrowdale Volcanic Group meet softer Silurian slates and mudstones, resulting in a dramatic shift in the character of the landscape. The rugged high fells of the upland give way to gentler hills dissected by pastoral river valleys. These feature



Rusland Woodland Survey, Cumbria: Ancient and Semi-Natural Woodland *Figure 4*

long, linear lakes, such as Windermere and Coniston Water, and are surrounded by swathes of ancient woodlands. It is these areas that formed the focus of the Rusland Woodland survey project (Rusland Horizons 2019).

3.6 The Rusland Valley is located in Colton Parish amongst the lower Furness Fells and is predominately a pastoral agricultural landscape. In the lower valleys, historic field systems of (mainly) pre-18th century date enclose irregular fields of improved pasture for grazing and silage. Higher on the open fell, rough grasslands support stock grazing. Lake edges with mature trees and small woods give a parkland character to some areas.

3.7 Drystone walls form the majority of the historic boundaries and are constructed of local slate and limestone, reflecting the geological identity of the area. The same stones have been used to construct the local built heritage of the area, ranging from isolated farmsteads to small hamlets and villages. Most traditional buildings date from the late 16th century onwards, with many featuring the characteristic Lakeland slate roofs and white rendered walls.

Glossary and nomenclature

3.8 Across the country there is considerable regional variation in the terminology used to describe certain landscape features. The list below details the various terms used during the survey and their definition:

- **Charcoal stack**: a term referring to the mound created by the stacking of coppice poles or rods around a central pole before covering with leaves, bracken, earth and turf to reduce oxygen in the controlled burning of underwood to produce charcoal. The terms 'kiln' 'clamp' and 'hearth' are also regularly used to describe this method of charcoal firing.
- **Coppice**: the practice of cutting trees back to the ground to stimulate multi-shoot regrowth, usually in cycles of 7–10 years, but up to a maximum of 25 years dependant on the species of tree and what the wood is used for. Coppicing creates a constant supply of 'underwood' without exhausting the woodlands.
- **Coppice hag or panel**: subdivisions within a wood used to manage the coppice cycle of growing and harvesting.
- **Pitstead**: the regional term given to charcoal-burning sites or platforms. The inclusion of the word 'pit' is believed to derive from the earliest days of charcoal manufacture when a pit was dug, and deadwood burnt within it. In more general terms a 'pitstead' refers to a platform, either a simple level area of ground or cut

into the slope on one side with a bank to the other. The charcoal stack was then built on top of the platform.

- **Smoot**: an opening in a wall designed to allow the movement of animals through the boundary. The size varies depending on the size of animal intended to use the smoot. Rabbit-sized smoots were most common during this survey; fitted with a self-acting door these acted as traps, furnishing meat for the woodsman's table.
- **Standard or timber standard**: timber is distinct from wood or underwood as it specifically refers to mature single trunk specimens harvested for building materials. In a 'coppice and standards' wood these large trees would be dotted throughout areas of coppicing to allow both products to be generated.
- Underwood: the term used for the new harvest of poles from a coppiced wood.

4.0 ARCHAEOLOGICAL AND HISTORIC DEVELOPMENT OF THE RUSLAND VALLEY

4.1 The following section is intended to inform a greater understanding of the nature and significance of the known archaeological resource and to assess the potential for the discovery of previously unrecorded sites. It has been prepared with reference to both primary and secondary information gathered from the LDNPA HER, Cumbrian Archives (Barrow), and Historic England Archive, as well as various local histories and online sources. This has included map regression using 19th and early 20th century Ordnance Survey (OS) maps, as well as data gathered from Google Earth aerial coverage and the Environment Agency LiDAR data, where available (see Section 2.0).

Prehistoric – 800,000 BP to AD43

4.2 While there is evidence of prehistoric activity in the area, much of this comes from spot finds, and flint scatters dating to both the Mesolithic and Neolithic have been identified during archaeological survey across the surrounding upland (Cherry and Cherry 2003, 3). Similarly, several findspots of Neolithic axes have been recorded within the project area on the LDNPA HER. However, given the dense nature of the ground cover within the woodland environment, it is unlikely that such finds would be identified during survey except where they may be eroding out of soils along river courses or churned up by forestry or animal activity.

4.3 If features from this period were to be identified, they would likely be large monuments, such as barrows, and a Bronze Age cairn is recorded on the LDNPA HER on nearby Bethecar Moor. However, features of this type are not often identified in lowland, wooded areas. Several Iron Age sites are known in the wider Cumbrian landscape (OAN

2004; Hodgson and Brennand 2006) but are again located on upland moorland rather than in low-lying fells. Therefore, such features are unlikely to be identified within this project.

Roman – AD43 to 410

4.4 Whilst the presence of the Roman military in Cumbria left abundant archaeological evidence across the Lake District, the South Lakeland area does not seem to have been occupied extensively. Isolated findspots from this era have been recorded close to the project area (ADS 2019) and South Lakeland is likely to have been used for agriculture during the Roman period (Philpott 2006, 69). However, it is unlikely that any new Roman sites will be identified during the survey.

Medieval – AD410 to 1535

4.5 Following the withdrawal of the Roman army in AD410, the North West fragmented into several smaller kingdoms and tribal units. The project area formed part of the Kingdom of Rheged, ruled by the British king Urien (Rollinson 1996). Archaeological evidence for this era is sparse; however, the place names of the survey area suggest that there were people occupying the area at this time. Many of the local names end with the suffix -thwaite, for example Nibthwaite and Satterthwaite. This comes from the Old Norse for a clearing and may be indicative of the deforestation that the pollen record shows evidence of (Brydson 1908; Rusland Horizons 2015).

4.6 During the medieval period, the Rusland valley remained an area of low-population density and was used for agricultural purposes by Furness Abbey, who owned much of the land in the southern Lake District. Furness Abbey was founded in 1127 but soon came into dispute over land with the Barons of Kendal. This was resolved when, in 1196, a new boundary was drawn for Furness land, which included the Rusland Valley (OAN 2010).

4.7 The lands of the south Lake District provided the monks of Furness Abbey with a great deal of wealth. The land was predominantly used for grazing of livestock, with ample hunting in the woodlands, to which the monks were granted exclusive rights in 1337. The monks further capitalised on their holdings by enclosing woodlands and parks as allowed by another grant of rights received two years later.

4.8 The lands of Furness Abbey not only provided agricultural wealth, but also mineral. in 1292, the monks were granted rights to iron mines in the region. The availability of iron

mining was not a new discovery, as some bloomeries in the area may have been exploited in the Roman period (OAN 2010). Evidence of numerous such bloomeries around the Rusland Valley indicates the importance of this industry (ADS 2019). Yet iron mining increased and soon provided the Abbey with double the income provided by farming. To smelt the iron, charcoal was needed in high qualities, leading to the large-scale reduction of woodland. In an attempt to mitigate this loss, the monks coppiced their woodland, a practice that had been used since prehistoric times (OAN 2010).

4.9 The woodlands of the Lake District also faced a threat from the lack of regeneration due to the pressure of grazing animals, notably pigs, which is reflected in names such as Swindale and Grisedale (LDNPA n.d.) Following the Black Death, the Lake District underwent an agricultural depression lasting until about AD1450. During the ensuing period of economic revival, new lands were taken into cultivation and sheep generally began to replace cattle (*ibid.*).

Post-medieval – AD1535 to 1900

4.10 The yeoman farmers of the Lake District had always been very independent and had become virtually removed from their monastic landlords by the turn of the 16th century (Brydson 1908). Regardless of whether they received the abbot's permission, they began enclosing much of the common land. In 1509, the 'Bounden of the Pasture' was signed between the tenants and the abbot, whereby each tenant received a parcel of common land in exchange for rent (Brydson 1908). Two centuries later, when the first visitors arrived in the Lake District, they were so struck by the independence of the yeoman farmers that they used the term 'statesmen' to describe them (LDNPP n.d.).

4.11 The dissolution of Furness Abbey in 1537 freed up much of the land for private use. At the time of the dissolution, a survey of Abbey lands recorded the value of sheepcotes and herdwicks at Parkamoor to be 46s, 8d (Brydson 1908), with additional revenue from other woodland industries, including manufacture of wooden goods and charcoal. Charcoal was exploited to such an extent that little timber was found of any value (OA North 2010). Despite the regrowth of coppiced forests, deforestation of woodland to provide fuel for iron-smelting became a growing concern. In 1567, bloomsmithies were abolished by Royal decree to allow the woodlands to begin to regenerate. However, this meant that the Crown lost annual rent from woodland. An annual 'Bloomsmithy Rent' was therefore introduced to maintain the Crown's income. This allowed the

tenants to use the tops and underwood of trees to produce charcoal-smelted iron in private bloomsmithies (Brydson 1908; OA North 2010).

4.12 Despite the Crown's actions, bloomsmithies continued in use and by the 18th and 19th centuries, were again flourishing. Demand for other wooden products increased. Additional industries also grew within the area, producing pit-props, bobbins and potash, which was created from the burning of green bracken and birch twigs to form potassium hydroxide. Potash would have been used in processing sheep's wool to remove the natural lanolin allowing the wool to be spun into yarn. In this period, woodland industries could generate up to the double the revenue of farming, and woodlands began to expand into surrounding pasture in the 18th and 19th centuries (OA North 2010). By the end of the post-medieval period, woodland cover in the Lake District had increased, partly due to its value, but also from the aesthetic preferences of the Picturesque movement that was prevalent in the 19th century (LDNPP n.d.).

4.13 Local workers worked these woodlands, many of whom were itinerant, moving between recovery periods for coppiced wood, and would live in temporary accommodation, often with their families, which consisted of bark peelers', woodmen's, and charcoal burner's huts (OA North 2010). It is probable that these workers also worked locally on the farms and supplemented their income by working in the surrounding woodlands. It is thought that the different styles of huts (stone or turf construction) could be attributed to different woodland practices. However, it is more likely that the same workers were undertaking all of these roles, given they took place at different times of year.

4.14 The railroad arrived in 1851, and with it the decline of traditional trades, as the workers' horizons expanded to more lucrative work in the growing industrial cities. Thereafter, the Lake District became a destination for day trippers on the new steam boats and for romantic poets (OA North 2010).

4.15 The potential for identifying new sites from the medieval era during the survey was considered to be moderate to high, given the higher population that is known to have been in the area at this time. The sites that were likely to be identified would be those associated with the increase in agricultural practices associated with the monastery, as well as sites that demonstrate the rise of the iron working industry in Furness. Such sites are likely to be of local significance, although they would also contribute to a regional understanding of the agricultural and industrial heritage of the Lake District.

5.0 THE WOODLAND ARCHAEOLOGY OF THE AREA

5.1 The area between Lake Windermere and Coniston Water forms one of the largest areas of dense and interconnected woodland in England and includes ASNW, SNW, managed conifer plantations and parkland. On the upland slopes there are blocks of important oak woods (mainly sessile oak), while birch and rowan grow on the lower slopes, ash and hazel on the limestone, and alder in wetter areas and along stream sides, where small-leaved lime also grows. Extensive stands of yew are also to be found and occasionally juniper on the upper moorland fringes (Natural England 2014).

5.2 In the past, the conifer, mixed and broadleaved woodlands would have been a hive of industrial activity, providing the raw material for the manufacture of bobbins, hurdles, brooms, brushes, barrels, hedging stakes, furniture, fence posts, clog soles and walking sticks, as well as for charcoal production and firewood. The woods would have also provided the raw materials to support smaller crafts industries, such as basket weaving. Some of the principle features of the managed woodland are examined below.

Methods of woodland management

Plate 3: old coppiced trees can be found throughout the project area (example from High Wood).

5.3 Coppicing trees is one of the most ancient methods of woodland management. With its origins in later prehistory, coppicing was first recorded in Cumbria in the 14th century and has been establish in Rusland since 1510 (Jones 2015, 53). It is designed to ensure a regular crop of raw material from broad-leaf trees, whilst protecting against the exhaustion of the woodland resource. It involves cutting trees down to ground level in cycles, dependant on their species, but usually between 7 and 10 years, although up to a maximum of 25 years. The cut stem will then produce several new shoots, known as 'poles', which grow to a diameter of 5-6 inches in around 15 years to become the next harvest. With time, coppiced trees or 'coppice stools' can expand to several meters in diameter (Plate 3). Different species were coppiced for different uses: for example, hornbeam and alder for charcoal; oak for bark and timber; and sweet chestnut for stakes, fencing and hop poles (rods to support growing hop plants).

5.4 Often a wood would be formed of timber 'standards' (large, single stem trees grown to produce timber for building) with coppiced 'underwood' beneath. Once fully grown, the standards would be felled, and others allowed to grow to provide a continuous supply of timber. Oak was the most common standard tree. The 'coppice and standards' method of management is the most commonly used in the woods around Rusland (Plate 4).

5.5 The underwood was differentiated from timber by law, as well as by its creation and use, and while the ownership of the valuable timber was usually held by the lord of the manor, the right to harvest underwood was one of the Rights of the Common. Known as 'estover' this granted a lord's tenants the right to take limbs of timber for repairs to buildings and making farm implements and hurdles, and deadwood for the use of fuel.

Plate 4: a mature single trunk timber standard (right) with coppicing in Quaker's Wood.

Markers and boundaries

5.6 Woodlands may also include pollards. These are created in a similar way to coppicing, except the tree is cut at the crown (usually 2–3m up the trunk) to protect the new shoots from grazing animals. Pollarding was often used in traditional wood pasture, where both grazing and wood extraction took place at the same time (Rackham 2000).

5.7 Marker trees, known as 'stubs', created by coppicing about 1m up the trunk, were sometimes located along on old boundary and often occur in older woodland. Similarly, out grown laid hedges, usually easily recognised by the accumulation on horizontal growing branches (Plate 5), are also common. Boundaries can provide clues as to the origin of the wood and range from substantial stone walls to banks and ditches, the profiles of which can help date the land allotment and suggests its historic use (*ibid.*).

Plate 5: the lone survivor of a former laid (or plashed) hedge in Quaker's Wood.

Charcoal/charcoal burning

5.8 Charcoal is created through the controlled heating of underwood species, such as oak, alder, hornbeam, willow and ash, with limited oxygen supply to create pure carbon. A levelled, often circular or oval platform was created, on which cut lengths of underwood (known as 'shanklings') were stacked around a central stake before the whole mound was covered with soil and turf to create a flattened dome-shaped structure, often called a 'clamp' or 'kiln' (Bowden 2000, 23; Plate 6). The central stake was then removed, and the stack lit via the resultant flue. Once the flue was plugged, the stack would be continuously monitored over several days of burning. At the end of this process, the wood was reduced to charcoal and was loaded into bags or panniers to be transported. It was principally use in iron smelting and the making of gunpowder. Evidence of charcoal burning is prevalent throughout the Rusland area and potentially dates to the medieval period. By the early 20th century the demand for production slowed as coke and coal eventually overtook charcoal as the main source of fuel for smelting (Winchester 1987, 104; Bowden 2000, 6).

Plate 6: Alfred Heaton Cooper's 1908 painting 'Charcoal Burning at Bouth' depicts the practice of making charcoal in the Rusland Valley around the turn of the 20th century. Note the smouldering stack in the foreground and woodman's hut behind.

Saw pits

5.9 After a timber standard had been felled, it was common to process the trunk near the source to avoid the transportation of excessive amounts of waste product. Saw pits are therefore often located close to trees grown for lumber harvest. They were created by digging a deep rectangular pit, over which a framework was erected to support a tree trunk while it was sawn through from above and below to create planks. Once abandoned, these features where either deliberately or naturally infilled to create shallow, elongated depressions in the ground, sometimes with a corresponding mound of excavated soil and usually near an access track.

Bark peeling and tanning

5.10 Oak bark was gathered in woodlands during the spring for its tannin content; a product used in the chemical treatment of animal skins to produce leather. Between 1780 and 1850, a boom in leather production resulted in a significantly higher demand for oak bark, with thousands of acres of woodland being given over to the planting of oak underwood (Rackham 2000, 46). As a process, bark-peeling does not leave any permanent trace—save the proliferation of oak trees—however, a small number of

tanneries from this period are known to have existed near coppiced woods in Cumbria, including one recorded in Rusland (Jones 2015, 57). Agricultural barns on the woodland margins may have served as storage for harvested bark (Bowden 2000).

Plate 7: a volunteer records a woodman's hut in High Wood (5/008).

5.11 By far the most common evidence of this practice, however, are the remains of bark peelers' huts (Plate 7). These were more substantial than the charcoal burners' huts, as bark peeling requiring a higher proportion of time spent dwelling in the woods. Stone-constructed huts, with chimneys and dwarf walls to support timber and turf roofs, are usually attributed to this class of woodsman.

Charcoal burner's huts

5.12 In addition to the bark-peelers, charcoal burners were also required to live for short periods of time in the woods to monitor the firing process. Their huts were typically more temporary in nature than those of the bark peelers, built from wood, wattle and turf. The only stone element was usually the chimney; this is often the only surviving above ground visible evidence of the structure.

5.13 Previous woodland surveys in the area (OAN 2010) have identified possible evidence of even more ephemeral structures. These comprised shallow sub-rectangular or

circular hollows often found near a collection of pitsteads, interpreted as the remains of temporary shelters similar to a windbreak or wattle 'tent' erected to protect the charcoal burner from the elements while they monitored the firing process.

Quarrying

5.14 The geology of the area, with its naturally occurring rock outcrops, saw the proliferation of a number of small quarrying operations. Stone was used as a building material in the construction of farms and barns, as well as in boundary walls, hut foundations, kilns, revetment walls around charcoal platforms, stone-edging and metalling of tracks, and along culverted watercourses. The local limestone was also burnt in kilns to produce quick lime for mortar and for use as fertiliser to increase the productivity of the agricultural land. Worked faces—visible as unnatural square or rectangular cuttings in rock outcrops—were identified at several sites across the area, as well as loading platforms and stone working debris, all of which supply evidence of historic quarrying.

Potash Production

5.15 As early as the 12th century, deadwood, twigs and bracken were burned in large circular 'potash' kilns and the resultant ash was mixed with lime and tallow to clean wool (Davies-Shiel 2010). Potash was also an important product in the textile industry, used as a mordant in the fixing of dyes. Although none were identified during the survey, examples of potash kilns are known from the Rusland Valley with sites recorded on the LDNAP HER close to the study area (HER 60477). Some kilns were large, stone-lined structures featuring a distinct loading or venting flue, while others were simpler in form, surviving today as only a circular depression in the ground. These were sometimes reused as woodsman's huts. A collapsed and grassed over potash kiln can be difficult to distinguish from other common features unless evidence of the substantial circular walls survive.

6.0 SURVEY RESULTS BY WOODLAND

6.1 The results of both seasons of woodland survey are presented below. Figures referenced in this section (Figs 5–22) can be found at the end of this report.

2017 Survey Season

Arklid Great Wood; eastern conifer plantation (001)

Survey Area	B
Area	17 hectares

Survey date	10/04
Existing features	0
No. new features recorded	3
% surveyed	<90
Constraints	Conifers

Plate 8: drystone wall and conifers in Arklid Great Wood (1/001).

6.2 The first area surveyed was the easternmost block of a group of woods known as 'Arklid Great Woods' (Fig. 5), located above the Crake Valley in the north-east corner of the survey area. This east section (**001**) is currently a conifer plantation, but is shown as rough, open ground on both the 1850 and 1890 Ordnance Survey (OS) maps. The block is bounded to the east by Bletherbarrow Gill, to the south by Bletherbarrow Lane and to the north and west by open pasture. A substantial stone wall marks the north boundary, dividing the wood from the rough grazing (Plate 8). To the west the conifer block is separated from the deciduous broadleaf woodland (Arklid Great Wood; **002**) by a second drystone wall (**2/001**).

6.3 For the most part the area was surveyed in transects on a fixed bearing; however, dense underwood and scrub made some sections near Bletherbarrow Gill inaccessible. A clear-felled area to the south was subject to a more general walkover survey rather than close transects. Evidence of the planting and felling regimes inherent in the management of the commercial conifer plantation were apparent throughout—

including deep plough scars and residual tree stumps and branches—and limited the survey potential of the block.

Plate 9: a dead hawthorn tree, a relic of earlier land-use. This would have been growing in open moorland before the planting of the conifer plantation that starved it of light. Arklid Great Wood (001).

6.4 Three features were recorded in the wood: the surviving remains of a former boundary wall (**1/001**) dating to at least 1850; an associated track (**1/002**) still used for access; and an agricultural building (**1/003**) on the southern margin of the wood. The building is shown on the 1850 OS map and could be 18th century in date. It was in a ruinous state, with several collapsing walls and no roof. A deer fence around the area prevented access to the building, but from the exterior the structure appears to have been extensively modified. The First Edition OS map shows the building as T-shaped in plan but today it survives as a rectangular two cell structure. The building is almost certainly agricultural in function, although its proximity to Great Arklid Woods suggests that it may have also been used for bark storage in spring.

Arklid Great Wood; western broadleaf area including Underland Wood and Ridding Spring (002)

Survey Area	B
Area	17 hectares
Survey date	11/04, 13/04
Existing features	0
No. new features recorded	35
% surveyed	<90
Constraints	Conifers, steep ground, overgrown areas

6.5 The western area of Arklid Great Wood lies on ground rising to the north, bounded by a drystone boundary wall from rough grazing of the open fell. To the south it is bounded by pasture fields, to the east by Arklid Great Wood (**001**) and west by High Wood (**005**). The northern section of the wood is mainly open mixed broadleaf, classified as an area of ASNW, although there is a block of old conifer plantation on steep ground to the south that is classed as 'replanted ancient woodland'.

6.6 Most of the wood was surveyed in transects on a fixed bearing but further south, where the wood includes an offshoot of Underland Wood and Ridding Spring (both replanted ancient woodland), the dense undergrowth was impenetrable in places. In Ridding Spring, recent timber operations had also caused considerable ground disturbance. These areas were all subject to a general walkover survey rather than close transects.

6.7 Two historic boundary walls (**2/001** and **2/020**) were recorded, both of which are shown on the 1850 First Edition OS map. A short (6m) north-northwest to south-southeast aligned section of ruinous wall (**2/003**), unrelated to any discernible historic boundary, was also recorded. The function and date of this feature remains unclear, although it may have been related to water management.

6.8 The wood also contained three tracks (Plate 10). Two of these—**2/021** and **2/032**—were pronounced routes incised into the hillside and indicated on the 1850 OS map, while the third (**2/004**) was more indistinct and identifiable only by a narrow break in the trees. All the tracks follow a sinuous course linking together charcoal pitsteads. Several pitsteads were recorded on the line of each track (e.g. **2/018** and **2/019**), providing evidence of how charcoal production progressed through the wood, linking together old and active stacks.

6.9 Twenty-two charcoal pitsteads were recorded in wood **002**; the majority of these were oval-shaped, measuring approximately 7m to 8m across. Most of the pitsteads had a

distinct profile, comprising a steep cut into the northern slope of the hill, a flat platform for firing and a downcast bank to the south. Unlike the Arklid Great Wood plantation (**001**), where no features pre-dating the conifers were recorded, several pitsteads were identified in the conifer block in the south part of wood **002**. This is likely to be because **002** is ancient woodland replanted with conifers (PAWS) rather than modern conifer planted on former open land, as was the case at **001**.

Plate 10: volunteers record track 2/004 in Arklid Great Wood.

6.10 In Underland Wood, a large level area (**2/027**) was recorded. This was enclosed by a revetment wall to the south-east and a drystone boundary wall to the north-west and appears to be the base of a charcoal stack or possibly a storage area. Notably, it was located with relatively easy access to both Bletherbarrow Lane and the road through the Crake Valley; both are connected to the wood via tracks **2/021** and **2/032** and are shown on the 1850 and 1890 OS maps.

Arklid Intake (003)

Survey Area	B
Area	9 hectares
Survey date	12/04
Existing features	0
Features recorded by survey	1

% surveyed	>20
Constraints	Overgrown, conifers

6.11 As the name suggests, Arklid Intake (Fig. 6) is a teardrop-shaped, discrete block of woodland, historically 'taken in' from the surrounding common grazing land of the fell. It lies centrally within the northern block of the survey area and is surrounded by a continuous drystone boundary wall (**3/001**). The wall is in good condition, standing on average 1.5m high by 0.65m wide, and includes a number of rabbit-sized smoots along its length, each measuring on average 0.3m wide by 0.2m high (Plate 11).

Plate 11: rabbit-sized smoot in Arklid Intake (003) boundary wall.

6.12 Today the wood has a high percentage of densely-planted conifers with an understorey of impenetrable brambles and saplings. However, historic imagery on Google Earth indicates that the entire area was clear felled as recently as 2003. The overall viability of the area for survey was assessed during the walk into the block via the public footpath and ultimately classed as unsuitable for survey at present.

Stock Wood (004)

Survey Area	B
Area	62 hectares
Survey dates	12/04

Existing features	0
No. new features recorded	4
% surveyed	25
Constraints	Overgrown

6.13 Stock Wood (Fig. 6) is located near the Arklid group of woods in the north-western block of the survey area. It is surrounded by rough pasture on all sides except to the south, where it joins Bankland Wood. The eastern boundary follows the course of Colton Beck.

Plate 12: track leading through Stock Wood (004). The dense understorey visible on each side made transect survey in this area impossible.

6.14 The woodland is classed as mixed, with both ASNW and PAWS present. The division between the conifers and broadleaf species was not as pronounced as observed elsewhere in the area but was rather more mixed, with denser growth punctuated by pockets of more open ground. This made transect survey difficult and instead a route was walked that followed the west and north boundary, where accessible, via a substantial track shown on the modern OS map. Travelling south on the track, the wood on either side showed extensive evidence of forestry management, including recent timber felling.

6.15 A largely collapsed and occasionally indistinct former drystone boundary wall (**4/001**) was recorded along the northern margin of the wood. This feature is visible on the 1890 OS map. In more recent times, the track has been widened, forming a large trackhead for the turning of forestry vehicles; however, a section of the older track (**4/002**) is still clearly visible (Plate 13). This branched off in a north-west direction through an area of extensive grown-out coppicing. The track, therefore, pre-dates recent timber operations and appears to have been associated with a historic landscape exploited for charcoal production and other woodland industries.

Plate 13: coppiced trees and old track 002 Stock Wood (004).

6.16 A general walkover survey was carried out across an accessible area of the wood north and east of the modern trackhead, where the terrain descended towards Colton Beck, creating low-lying level areas prone to marshy conditions. In this area, a wide linear feature (**4/003**), presumed to be a track, was observed running north-northeast to south-southwest. This does not appear on the 19th-century OS maps. The track was 2.7m wide with stone-edging in places and had a shallow ditch to the west, created by a parallel linear stone-edged channel. A second stone-edged channel (**4/004**), measuring 0.55m wide by 0.3m deep, was recorded branching off to the east towards Colton Beck; this may have been a drainage feature. This low-lying area of the track would have probably

been prone to water-logging (it was notably wet in places during the survey), suggesting the need for some form of water management.

6.17 A further possible track was noted (but not recorded due to time constraints) terminating at a levelled clearing near Colton Beck. Though no pitsteads were positively identified, a number of small, level areas were noted. These lacked the distinct cutting and bank profile associated with the pitsteads observed in woods with steeper terrain but could have accommodated a charcoal stack.

6.18 As a whole, Stock Wood was considered to have limited survey potential and, as such, was considered a low priority for any further survey during Season 2. However, the small clearing near Colton Beck (see above) may warrant future investigation.

High Wood (005)

Survey Area	B
Area	29 hectares
Survey dates	18/04, 20/04, 21/04, 24/04, 25/04
Existing features	0
No. new features recorded	80
% surveyed	<75
Constraints	Steep terrain (affecting access for survey and wall and track mapping)

6.19 High Wood (Figs 7–8) forms the northern extension of the Arklid group of woods and lies on ground rising to the east, above the Crake Valley, near High Nibthwaite, in the north-western sector of the survey area.

6.20 The deeply incised gorge of Caws Beck forms the northern boundary of the wood, with a small outlying parcel of land on the lower slopes of Brock Barrow. To the south and east the wood joins Arklid Great Wood, but there is not a permanent boundary dividing the two. On the east side, the wood opens out onto rough pasture with the open fell beyond. Its western perimeter joins the verdant fields of the lower Crake Valley, extending down towards the unclassified road that runs along the west shore of Lake Coniston.

6.21 Generally, the character of High Wood is fairly open, mixed broadleaf; the majority classed as ASNW, with PAWS along the southern fringes (Plate 14). Evidence of historic coppicing occurs frequently throughout the wood. Access and visibility were usually very good and almost the whole area was surveyed by walking transects on a fixed bearing except where very steep ground made this unsafe. These areas included the

woods on either side of Caws Beck and some areas along the north-west margins of the wood.

Plate 14: High Wood is an open area of ASNW on the steep, upper slopes of the Crake Valley.

6.22 Forty-four pitsteads were recorded in High Wood. Just over half of these were oval or ellipse-shaped rather than circular and most were fairly large, the circular pitsteads measuring 7m in diameter and the oval ones 6–7m in length (Plate 15). At least eight included small revetment walls, including **5/036**, which was cut into a steep section of ground. Associated with this feature were significant quantities of tumbled stone, cleared from the area to create space for the platform, and a 1.5m high retaining wall. Similarly, pitstead **5/073** featured a large level platform created by the construction of a wall measuring 9.5m long and 1.5m high. This feature was located near the western edge of the wood, close to the road through the Crake Valley, and there was some evidence to suggest that the old pitstead had be reused as a storage and transport hub once charcoal production had ceased.

Plate 15: a well-constructed example of a pitstead in High Wood (5/037).

6.23 Generally, the pitsteads occurred where natural terraces had formed across the east-to-west sloping terrain of the wood. However, they were also found on the low-lying western margins of the wood and across the steep slopes where High Wood adjoins Arklid Great Wood. Indeed, pitsteads were seen from above on a slope of such a steep gradient it was unsafe to survey.

6.24 The wood contained numerous relict boundaries, and several were recorded aligned east to west, following the rise of the slope (**5/029**, **033**, **034**, **040**, **041**, **062** and **064**). These were largely semi-ruinous and moss-covered, suggesting considerable age. All, except **5/062** (likely to connect higher up to **5/029**), were absent from the 1850 OS map. The walls are probably the remains of historic subdivisions within the wood, likely relating to historic 'rights to work' or coppice hags (see Section 5.3).

6.25 Three woodsmen's huts were recorded (**5/008**, **5/047**, **5/058**), all with distinctive stone-constructed, beehive-shaped hearths. Hut **5/008** had low turf walls that defined its footprint, **5/047** had circular low stone walls and **5/058** had no discernible wall foundations (Plate 16).

Plate 16: the largely intact hearth of a former woodman's hut, one of three such features found in High Wood (5/058).

6.26 Thirteen tracks were recorded crossing the wood (**5/006**, **014**, **018**, **021**, **035**, **038**, **043**, **044**, **051**, **054**, **072**, **077** and **079**). It is highly likely that these would have originally formed part of a more cohesive network than that suggested by the remains visible today. Indeed, **5/035**, **5/038** and **5/072** seemed to link together when plotted, as did **5/018**, **5/054** and **5/079**. The fact that many of these tracks are not shown on the First Edition OS may indicate that the network was under construction when the map was surveyed in the late 1840s. The tracks varied greatly in character, from those with pronounced profiles incised into the hill by centuries of use (**5/038** and **5/018**), to simple linear breaks in the tree cover that suggest a track was once located there (**5/006**, **5/043** and **5/044**). The tracks follow a sinuous, rather than straight route, linking together the pitsteads spread across the area (Plate 17).

6.27 On at least two occasions (**5/049** and **5/066**), evidence of attempts to manage the flow of the natural watercourses was observed. This generally involved the placement of large boulders along sections of a stream to divert water away from an area that would otherwise be prone to waterlogging.

Plate 17: two volunteers mark two forks of an old track linking pitsteads in High Wood (5/054).

Quaker's Wood and Rook How (006)

Survey Area	A
Area (hectares)	6 hectares
Survey date	27/04, 28/04
Existing features	0
No. new features recorded	35
% surveyed	<80
Constraints	Steep, overgrown area in northern half of wood.

6.28 Quaker's Wood (combined with Rook How) (Fig. 9) is located in the north-eastern survey area. The eastern boundary of the wood is formed by an unclassified road and the west boundary by Bell Beck. Open pasture lies to the south and north of the wood.

6.29 The wood is open, mixed broadleaf, classed as ASNW, with evidence of historic coppicing throughout. It includes one area of well-established conifer and is divided in half by a boundary fence that runs east to west; this replaced an earlier historic drystone wall. In the northern half of the wood, deer control measures have resulted in the growth of dense understorey that proved difficult to survey. One area of higher ground, around

a rock outcrop, proved impenetrable and was abandoned, but the remainder was surveyed by walking transects on a fixed bearing.

6.30 Today, one of the primary functions of the southern section of the wood is recreational use by groups engaged in woodland crafts. Evidence of this was apparent in the creation of pleasant routes through and around this part of the wood, but some of these may follow historic paths (Plate 18). Gathering spaces have also been created, some with benches or other seating, and an area near Rook How House and Centre has been terraced for planting. Again, echoes of former historic activities may be fossilised in some of these later arrangements, but it is now difficult to separate the new from the old.

Plate 18: stone-edged modern paths through Quaker's Wood may have earlier origins.

6.31 Both areas of the wood produced evidence of charcoal burning, with 18 pitsteads recorded across the area (Plate 19). The majority of these were circular, levelled areas between 6m and 7m in diameter. The absence of the characteristic cut and bank profile is probably due to the broadly level topography of the area. The wood also contains a number of tracks and boundary walls.

6.32 One unusual feature was structure **6/019**, the square foundations of a building locally

reported to be a water tank dating to the 1930s. The upper courses of the structure have recently been rebuilt by children to create a 'fort'.

Plate 19: volunteers record a large pitstead with a revetment wall in Quaker's Wood (6/018)

6.33 The wood also contained the well-preserved remains of a woodsman's hut (**6/035**) comprised of low, turf-covered, circular banks that created an interior measuring 2.6m wide by 2m long. It featured an almost intact stone-constructed hearth and chimney, which was located at the west end of the structure. Nearby were two shallow depressions (**6/034**) located 1.5m apart, both measuring approximately 3.3m by 1m by 0.4m deep. These may have been formed by the excavation of material to create the hut. A similar sized pair of elongated hollows were recorded in High Wood near a woodsman's hut recorded with pitstead **5/059**.

Stricely Wood and Spring, Brewer Wood and Sawrey Stricely (007, 008, 009)

Survey Area	A
Area	38 hectares (includes Stony Hazel)
Survey date	02/05, 03/05
Existing features	0
No. new features recorded	33
% surveyed	>80 (007), 25 (009), 75 (009)
Constraints	Steep terrain, overgrown

6.34 Stricely Wood and Spring (**007**), Brewer Wood (**008**) and Sawrey Stricely (**009**) (Fig. 10–11) form a block of woods that, along with Stony Hazel Wood (**010**), form the north-east section of the survey area, situated near Rusland Church and Reading Rooms. To the south, this block is bounded by an unclassified road and to the east and north by further areas of woodland. Only one of these, Stricely Intake, was included within the larger survey area, although owing to recent clear-felling this was not surveyed as part of Season 1. The impact of the clear felling also made it a low priority for Season 2. The western boundary of the block is formed by Force Beck.

Plate 20: a large, mature tree in Stricely Spring (007).

6.35 Stricely Wood and Spring, Brewer Wood and Sawrey Stricely are all open, broadleaf woodlands, classed as ASNW. In several parts of the wood, very mature tree specimens

were noted that could be grown out timber standards of beech, yew and oak (Plate 20). Elsewhere coppicing, ranging from ancient to modern, was present.

6.36 These woods are all under active woodland management programmes, which include deer control, tree thinning and felling, and modern charcoal production (Stricely Wood). The understorey is notably dense where deer have been excluded. As a result, there were areas of Brewer Wood that could not be surveyed, including an entire block called High Crag Wood. Some areas were affected by steep terrain, notably the central area of Stricely Wood and Spring and along the course of Force Beck. However, the majority of the area was accessible and was surveyed by walking transects on a fixed bearing.

6.37 The majority of the features recorded were circular, or almost circular, pitsteads with an average diameter of 6m to 7m. These were created on levelled areas of cleared wood rather than the distinct cut and bank profiling seen in the steeper woodland.

Plate 21: one of two almost identical woodman's huts in Stricely Wood and Spring, with stone-constructed dwarf walls and an off-set entrance and hearth (7/011).

6.38 Stricely Wood (**007**) contained a network of tracks (**7/003** and **7/004**), not recorded on the historic OS maps of the area. As noted in other woods, these followed a meandering

course that linked together pitsteads and the remains of a woodsman's hut (**7/002**). In one location, the track intersected a watercourse running through the wood where considerable stonework was noted, suggesting a natural crossing point may have been enhanced to provide access not only over the stream but also through the marshy ground on either bank.

6.39 Stricely Wood and Spring (**007**) also contained two very well-preserved woodsman's huts (**7/004** and **7/011**) (Plate 21). Constructed entirely of stone, both featured a beehive chimney and hearth at one end, with 0.7m thick dwarf walls enclosing rectangular interiors of similar internal dimensions—2.8m by 2.2m (**7/011**) and 3m by 2.7m (**7/004**). Both huts also had an entrance slightly off-centre in the front wall.

Stony Hazel (010)

Survey Area	A
Area	38 hectares (includes Stricely Woods)
Survey date	04/05, 05/05
Existing features	1
No. new features recorded	25
% surveyed	90
Constraints	Patches of undergrowth, rock outcrop.

6.40 Stony Hazel Wood (Fig. 10) is an open, broadleaf ASNW including (but not limited to) oak, birch, ash, hazel, beech and holly. It also contained indigenous conifer species, such as yew, that included some mature specimens. Visibility and access were both good at the time of survey, making it possible to walk the whole wood in transects on a fixed bearing except for a small overgrown area near the Reading Rooms and steep ground associated with a rock outcrop towards the north-west and south-east of the wood.

6.41 The survey identified and recorded 16 charcoal pitsteads, the majority of which were oval-shaped with dimensions averaging 7m by 6m. The pitsteads varied in form from simple levelled areas to platforms with a cut and bank profile. The latter ranged from shallow to well-defined profiles, especially on steeper sloping ground, where two of the pitsteads had low revetment walls (**10/013** and **10/016**).

6.42 The moss-covered remains of a small hearth structure (**10/020**) were recorded, which were believed to be the last surviving remnants of a woodsman's hut. This comprised several rounded boulders crudely arranged to form a distinct square fireplace and was the only domestic feature found in Stony Hazel. The hut had no discernible walls,

although a levelled area in front of the hearth was suggestive of a structure of some form attached to the hearth.

6.43 Stony Hazel Wood contains the scheduled remains of a bloomery forge. Apart for the forge complex, which was located beside Force Beck on the woods western margin, other features possibly associated with the construction of the site were also recorded. These included a network of tracks (**10/004**, **10/007** and **10/023**) (Plate 22), which proved more extensive than that shown on the historic maps of the area. One track ran downslope to Force Beck where there was extensive evidence of water management, including a number of stone-constructed reservoirs, damns, weirs and sluices. However, this area lay outside the survey area and was not recorded in detail.

Plate 22: volunteers mark the routes of two old tracks departing from the main track running through Stony Hazel Wood (10/007).

6.44 A level platform was identified in association with track **10/023** and interpreted as a storage and loading area for either raw or processed material awaiting transportation. Near this platform were several quarried rock faces cut into natural stone outcrops (**10/017**) and surrounded by associated stone-working debris. It is likely that stone for the construction of the forge and other features was quarried from these areas and potentially loaded and moved via the track. It is also reasonable to assumed that later,

once the forge was in production, charcoal and iron were moved using the same track network.

Sales Bank Wood; northern area (011)

Survey Area	B
Area	11 hectares
Survey date	08/05
Existing features	0
No. new features surveyed	14
% surveyed	>50
Constraints	Undergrowth, woodland management (felling)

6.45 The wood known as 'Sales Bank' is a parcel of woodland located in the south-west section of the survey area (Fig. 12). It lies immediately north of the main Sales Bank Wood and south of Bessy Bank Lane and Park Wood. Sales Bank is an open broadleaf woodland featuring oak, birch, holly, hazel and yew, and is classed as ASNW. Evidence of historic coppicing abounds, and some specimen trees are of considerable maturity. The southern margin of the wood is formed by a wire and post fence, beyond which is Sales Bank Wood. Here the ground slopes steeply on either bank of an un-named stream (a tributary of the Colton Beck), which bisects this section of the wood.

6.46 The east and west boundaries of the wood border agricultural grazing land and in one area encroaches into a neighbouring field, creating a small area of wood pasture. Pitsteads were noted in this location, indicating that the wood had formerly extended across the site.

6.47 The northern border of the wood is formed by Bessy Bank Lane. To the north, areas have been clear felled in places, and in other places deer fencing has allowed the proliferation of undergrowth to make significant areas impenetrable. Where practical, and almost exclusively in the southern area, survey was carried out via walking transects on a fixed bearing. Where this was not possible, areas were subject to a more general walkover. The wood contains evidence of charcoal production in the form of pitsteads. The standard form observed was oval-shaped with dimensions ranging from 7m by 8m down to 5m by 5m, the average being 7m by 6.5m. All featured a cutting and bank that created a level earthwork platform (Plate 23). The majority were located on sloping ground on either side of the unnamed stream running through the wood. A network of tracks, one with a wide stone-edged profile and parallel ditch (**11/006**), were recorded in the wood and linked together pitsteads in a similar pattern to that noted in other woods.

Plate 23: pitstead in Sales Bank Wood with the distinct cutting and bank profile visible (11/004).

6.48 The remains of a stone-constructed hut (**11/012**) were discovered immediately adjacent to an access track in a small spur of wood adjacent to Bessy Bank Lane. This area was overgrown and had been subject to felling fairly recently, making both access and visibility challenging. Though fairly ruinous compared to examples elsewhere, the hut was large with external dimensions of 5m by 3.4m. A sizeable ramshackle rubble pile, assumed to be the remains of a beehive-shaped hearth, was recorded at one end. Immediately to the rear of the hut was a shallow pit, which was partially filled with 19th-century waste, including glass bottles, china and enamel ware. This is believed to be a Victorian rubbish pit associated with the dwelling.

Little Bank Wood, to boundary with Bell Wood (012)

Survey Area	B
Area	21 hectares
Survey date	9/05, 10/05
Existing features	0
No. of new features recorded	40
% surveyed	80
Constraints	Conifers, clear felled area, steep ground.

6.49 Little Bank Wood is situated on rising ground above the Crake Valley (Fig. 13). It extends south from the drystone wall that forms the northern boundary with Gill Bank Wood to the track along the boundary with Bell Wood. To the east lies rough pasture and open fell, while to the west is farmland of the lower Crake Valley.

Plate 24: widely-spaced mature beech trees line the western boundary of Little Bank Wood.

6.50 In the main, the area was surveyed by walking transects on a fixed bearing except for: an area in the eastern part of the wood, which was excluded because it had recently been felled; an area west of the conifer plantation where the gradient became too steep to survey safely; and the conifer plantation. The trees were mainly mixed broadleaf, except in the felled area, and replanted conifer block. A line of very mature beech trees was noted that marked the west boundary with the Crake Valley pasture (Plate 24). The southern area of the wood was ASNW, while all other areas were ancient replanted woodland (PAWS).

6.51 Twenty-eight pitsteads were recorded in the broadleaf areas of the wood, with GPS references taken on a further two noted during a walk-through of the conifer plantation (**12/039** and **12/040**). These served to indicate that certain coniferous woods (replanted

from broadleaf, or not being actively managed for commercial timber operations) may potentially contain archaeological features.

6.52 The recorded pitsteads were either oval, oval-shaped or circular. The dimensions varied, with the average being approximately 6.5m in diameter (circular) or 6m by 7m (oval). A significant number had a formal revetment wall or stone-enhanced earth bank.

6.53 A commemorative stone (**12/017**) inscribed 'CDW Replanted 1926' was recorded in the wood. The 'CD' probably refers to Colton District, the stone marking the planting of a conifer plantation. The date, 1926, may suggest this was part of a state-sponsored post-war work scheme in the period of economic slump leading up to the Great Depression.

Plate 25: distinct 'Hek' gatepost in Little Bank Wood (12/009).

6.54 A gate post located on an historic boundary wall (**12/009**) was part of a 'hek' post—an upright slate slab with a series of square holes designed to take the squared end of a pole (Plate 25). The corresponding gate post would have had round holes—the squaring of one end serving to prevent the rubbing free of fully circular poles by stock. The gap between the apertures, and thus the poles, was smaller towards the base of the gate post to prevent young stock escaping. The gatepost was not in situ (it sat flush with the wall preventing the insertion of poles) and its pair was absent.

6.55 A circular stonework feature (**12/013**) was recorded in the wood (Plate 26). Initially this was interpreted as a kiln because of its modest dimensions (too small to be a hut), but it was built up against a tree estimated to be up to 100 years old based on the girth of the trunk. The stonework of the feature was very loose, making its survival over a long period unlikely. The elevated position of the structure, on the bankside with good panoramic views across the wood, would suggest it could be a small shooting hide, probably dating to the early to mid-20th century.

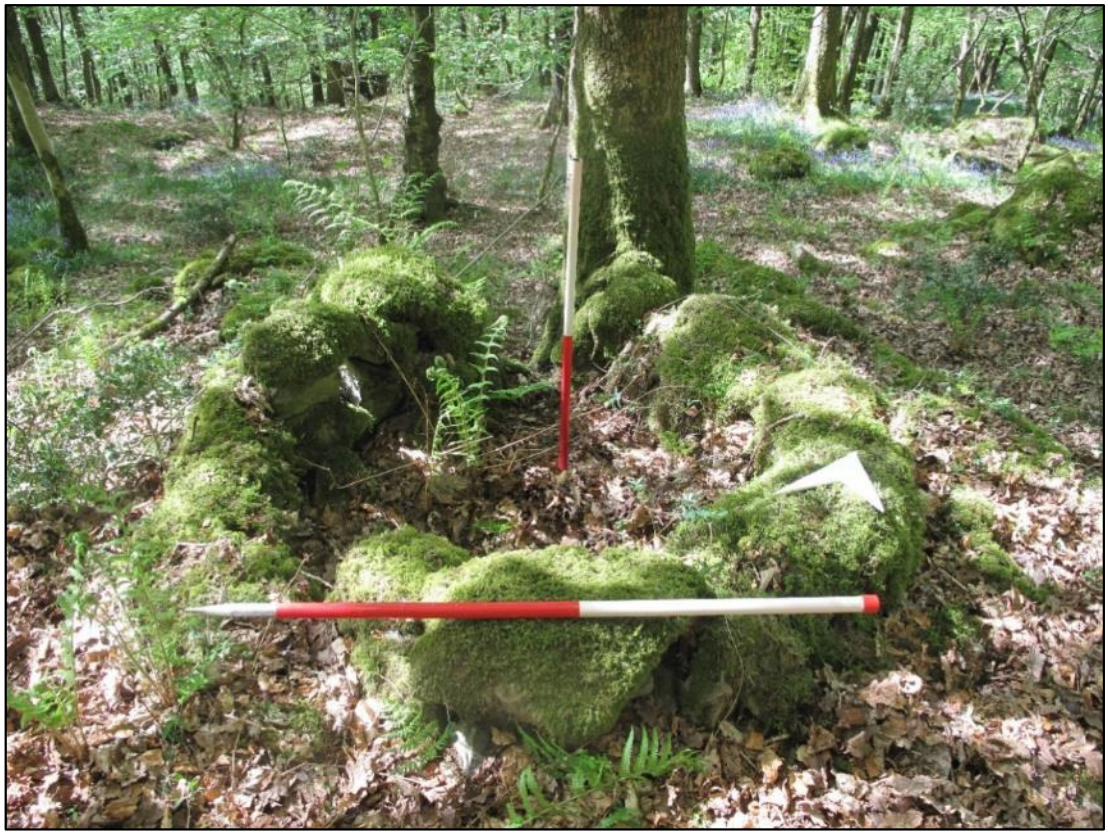


Plate 26: circular stone structure in Little Bank Wood, possibly used for shooting and built within the last century (12/013).

2018 Survey Season

Harry Intake (013)

Survey Area	A
Area	0.2 hectares
Survey date	7/03/18
Existing features	0
No. of new features recorded	1
% surveyed	80
Constraints	Overgrown areas

6.56 The first woodland surveyed during Season 2 was a very small block of woodland known as 'Harry Intake' (Fig. 14), first shown on the Second Edition OS map (date). The area is recorded as pasture on the 1850 First Edition OS map; however, the area was rough and rocky, making it unsuitable for agricultural purposes, which may have been the motivation behind its conversion to woodland. This woodland is the most southerly of the woodlands that makes up Area A and is surrounded by pasture on two of the three sides. The third side is bound by a track leading to the small settlement of Rusland Cross.

6.57 The woodland is enclosed on all sides by a low dry-stone wall, visible on the Second Edition OS map, making it likely to date to the formation of the woodland. Dense undergrowth within the wood, especially young holly, made survey difficult.

6.58 Only one feature was recorded within the wood, the site of a former quarry (**13/001**). This was approximately 15m in length and not shown on any historic mapping, suggesting it possibly relates to the construction of the stone boundary walls.

Addison Wood (014)

Survey Area	A
Area	1.5 hectares
Survey date	07/03/18
Existing features	0
No. new features recorded	2
% surveyed	80
Constraints	Small areas were steep and overgrown

6.59 Addison Wood is a small area of woodland within the survey Area A (Fig. 15), made up of ancient and semi-natural woodland. Only two features were recorded throughout the woodland, one of which was a pitstead (**14/001**), the other a track (**14/002**) that

extended from the south-western corner of the wood to the mid-point of the eastern edge. The trackway is visible on the First Edition OS map, which suggests it may have been the access to the road from Wallet Wood, which meets the south-western corner of Addison Wood at the end of the track. The track is not shown on modern OS maps.

Plate 27: the trackway (14/002) that runs through Wallet Wood and can be seen on the First Edition OS map.

Wallet Wood (015)

Survey Area	A
Area	4.5 hectares
Survey date	07/03/18
Existing features	0
No. new features recorded	15
% surveyed	80
Constraints	Small areas were steep and overgrown

6.60 Wallet Wood (Fig. 15) is situated in the centre of survey Area A, with Addison Wood directly to the east. The small block of Ancient Replanted Woodland is depicted as a solely broadleaf woodland on historic mapping. There were no previously known records on the LDNPA HER and it is not clear where the woodland gets its unusual name, although 'Wallet' it is likely to derive from the name of the landowner.

6.61 The majority of the features identified in Wallet Wood were pitsteads. These were distributed throughout the woodland, although were mainly concentrated in the south-western half of the survey area. The pitsteads identified were mostly constructed on a natural plateau with a few of exceptions (**15/005**, **15/007** and **15/011**). Pitsteads that were constructed on steeper slopes tended to have dry-stone revetment walls to support them, and the examples of revetment walling found in this woodland were particularly fine (**15/005**; see Plate 28).

6.62 A relict wall (**15/004**) was recorded that ran perpendicular to the existing boundary. Only the large orthostatic boulders that would have made up the foundation of the wall remained in situ and there was very little tumble present, suggesting the smaller stones of the wall may have been reused in the construction of the later boundary walls surrounding the woodland. The remains of a similar wall (**15/009**) were found next to the existing boundary wall in the south-western corner of the wood. These earlier walls are likely to be medieval in date, as these orthostatic foundations are typical of the period (Winchester 2016, 20).

Plate 28: an example of a particularly well-constructed revetment wall around a pitstead (15/005).

6.63 A small quarry (**15/006**) was also recorded in the centre of the wood close to the two pitsteads that had well-constructed revetment walls (**15/005** and **15/007**). It is probable that the quarry was used to obtain the stone used in the construction of the revetment walls making the quarry contemporary with the pitsteads.

Chamley Bank (016)

Survey Area	A
Area	7 hectares
Survey date	08/03/18, 09/03/18
Existing features	1
No. new features recorded	34
% surveyed	80
Constraints	Small areas were steep and overgrown

6.64 Chamley Bank (Fig. 16) is a small wood located on the western edge of Area A. It contained one site previously recorded on the LDNPA HER; a bloomery (HER 3339) identified by Fell (1908, 172) in his study of the historic iron industries of the Furness area. This site was not identified during the survey and no slag was found that would indicate the location of a bloomery site.

6.65 A total of 17 pitsteads were recorded within Chamley Bank, distributed evenly throughout the wood, with the exception of the north-eastern corner of the wood where there was a distinct lack of any features. Six of the pitsteads had clear relationships with trackways, and these features were probably contemporary.

6.66 Three sections of wall were recorded within Chamley Bank, two of which (**16/008** and **16/028**) were sections of revetment wall that ran along the stream that ran through the wood from north to south. The first of these sections (**16/008**) did not have any clear purpose, as it did not relate to a working area or a trackway. There was no evidence of quarrying nearby and access to the stream from this side was unnecessary due to the stream being much more accessible from the opposite bank. Additionally, there were no features identified in the immediate vicinity that would cause an increase in the demand for water from that portion of the stream.

6.67 The second section of revetment wall (**16/028**) was identified further south making it possible that the wall was once extant along the length of the stream but has since disappeared. The reasoning behind feature **16/028** is clearer, however, as two pitsteads were identified nearby (**16/001** and **16/027**) provided evidence that this area was being used in the production of charcoal.

6.68 The third section of wall (**16/032**) was a short portion of relict wall that was possibly associated with trackway **16/034**. The wall and the trackway both ran past two pitsteads (**16/031** and **16/033**) and appeared to continue towards the existing boundary wall. However, there was no clear current or previous opening in the wall, which suggests that the trackway, and possibly also the wall, pre-date the existing boundary wall. At the northern end of the trackway, there was a small area that contained trees that were significantly older than the majority of the trees in the woodland.

6.69 Several examples of wall furniture were identified in association with the boundary wall. Two rabbit-sized smoots were found (**16/012** and **16/013**), as well as one hogg hole (**16/014**) that may have formed an earlier enclosure, as it was located next to a former opening in the wall.

6.70 Two features to do with water management were identified within Chamley Bank. The first of these was a set of steps (**16/007**) that provide access to a small pool in the stream running through the woodland from the north boundary towards the south-east. The pool appeared to be a natural feature in the landscape rather than having been dammed, although there was a length of revetment wall (**16/008**) on one side of the stream leading to the pool, indicating some degree of water management had taken place in the past. There was no clear purpose for the steps; they are likely to have simply been placed there to ensure easier access to the watercourse. The other water management feature was a footbridge (**16/010**), which has been placed across a second stream along the western boundary of the wood. The bridge was formed of two large slabs of slate that were supported by dry-stone walls.

6.71 Several large, mature yew trees were identified in Chamley Bank (Plate 29), indicating that this woodland may have been used for timber production in addition to coppicing. However, these yew trees are likely to pre-date the post-medieval charcoal production industry.

Plate 29: young volunteers pose next to a mature yew tree in Chamley Bank (016).

Ash Slack (017)

Survey Area	A
Area	4 hectares
Survey date	12/03/2018
Existing features	0
No. new features recorded	13
% surveyed	100
Constraints	None

6.72 Ash Slack wood (Fig. 16) was also located in survey Area A and adjoins Chamley Bank (**016**) on its western boundary and Linsty Hall (**018**) on its north-east boundary. These areas are clearly defined on the First Edition OS map as separate blocks of woodland. The name Ash Slack derives from the topography of the landscape; 'slack' originating from the Old Scandinavian for a low-lying hollow (Sephton 1913, 143). Ash Slack, Chamley Bank and Linsty Hall woods are all on the western slope of the Rusland Valley. No features were plotted from the historic maps of the wood and there were no sites recorded on the LDNPA HER.

6.73 Eight pitsteads were recorded within Ash Slack wood; these were evenly distributed throughout the centre of the wood with just two on the north-eastern edge and none in

the south-western section. Only one of the pitsteads identified had a stone revetment wall, the rest were constructed of earth and were not particularly deep. The majority of the pitsteads took advantage of natural plateaus in the hillside. However, the pitstead with the stone revetment was on a slightly steeper portion of the slope.

6.74 One section of relic wall (**17/009)** was identified. This was approximately 50m in length and was largely ruinous due to natural deterioration over time. The wall was not visible on historic mapping and is therefore likely to pre-date the 1850 First Edition OS map. The function of the wall was not obvious from the remains.

Linsty Hall (018)

Survey Area	A
Area	24 hectares
Survey date	12/03/18, 14/03/18, 26/03/18, 27/03/18
Existing features	0
No. new features recorded	53
% surveyed	50
Constraints	Large areas were densely overgrown due to current deer management. Also, some very steep areas.

6.75 Linsty Hall (Figs 15–17) was by far the largest section of woodland surveyed in Area A but, perhaps surprisingly, there were no previously identified features recorded on the LDNPA HER. Active deer management strategies in the woodland resulted in certain areas being densely overgrown, making them inaccessible for survey. The woodland is listed as ASNW and comprised almost entirely broadleaf wood with some very small patches of conifer, which were visible on historic mapping. The survey confirmed the woodland still remained predominantly broadleaf.

6.76 A total of 53 new features were discovered within Linsty Hall Wood, almost all of which can be linked to the charcoal burning industry. Forty-two of the features recorded were pitsteads, which were scattered throughout the surveyed areas.

6.77 The eastern boundary of the woodland followed Bell Beck. Here, the land rose steeply towards the western boundary and the open moorland of Bethecar Moor. Unsurprisingly, many of these pitsteads in this area were located on the eastern side of the woodland, close to the water source. However, many were located on the hillside, despite the steepness of the bank. The majority of these had revetment walls that were deeply cut into the hillside.

6.78 The construction and use of the pitsteads in such steep areas, despite the limitations, demonstrates the high demand for charcoal production, likely in the late 18th and 19th century (OAN 2010, 12). Additionally, because these pitsteads had to be cut into the hillside, their construction required significant effort and left obvious scars on the landscape. Therefore, they were often in good condition and were more easily identifiable than the lower lying platforms. In the southern portion of the woodland the gradient was gentler and the pitsteads were generally more spread out; however, the distribution remained focused along the eastern edge of the wood, where there was easy access to a water source.

6.79 The remains of two small structures were also found within Linsty Hall Wood, both of which are likely to have been huts belonging to charcoal burners, or possibly bark peelers. It was not surprising to find the remains of such small huts, especially within a woodland so densely populated with pitsteads. The first hut (**18/031**) was extant to a height of almost 1m. However, a tree growing through the western edge of the hut had caused damage to the structure and made it difficult to determine the presence of a hearth.

Plate 30: volunteers record a pitstead (18/025) in Linsty Hall wood, which was constructed on a steep hillside. The extensive construction for the revetment around the platform can be clearly seen.

6.80 The second hut (**18/046**) was not as well preserved as the first. The feature stood approximately 0.2-0.3m in height and the remains of what was likely to have been a hearth was identified on the west side.

6.81 One unusual feature found during the survey of Linsty Hall Wood was a 'hek' gatepost (**18/006**), which was one of only two found during the survey. This distinctive type of gatepost is an early form of gate, typically pre-dating the 19th century, and can still be occasionally found in situ along the roadsides of South Lakeland (Rusland Horizons 2018a). The gatepost featured round holes for the gate slats and the corresponding post would have featured square holes; unfortunately, only one of the two was found. While it is usual to find just one of these gateposts, the posts with the square holes are more commonly found. This is thought to be because the posts with round holes are popularly taken to become features in modern homes.

Plate 31: one of the ruinous huts (18/046) discovered in Linsty Hall wood.

Plate 32: the 'hek' (18/006) gatepost found within Linsty Hall wood.

6.82 The number of features found within the surveyed areas of Linsty Hall Wood clearly demonstrates the potential for further features to be present in those sections that were inaccessible during the 2018 season; in particular, where the line of pitsteads appeared to continue into the inaccessible area along the beck. Given the size of the wood, there may also be further preserved evidence associated with the lives of the woodsmen, in addition to the two huts that were found within Linsty Hall (**18/031** and **18/046**). However, the uninhibited growth of the woodland plants in those areas fenced off for deer management may have caused a large amount of damage to any existing archaeology, as was seen in relation to hut (**18/031**) (Plate 33). Elsewhere, deer fencing had been placed through the centre of a pitstead (**18/036**) and the grazed side was relatively well preserved, whereas the side inside the deer fencing had large holly bushes growing within it (Plate 34).

Plate 33: damage to a charcoal burner or bark peeler's hut (18/031) caused by tree growth.

Plate 34: dense overgrowth on a pitstead (18/036) on the interior of deer fencing (left) compared to outside the deer fencing (right).

Tom Parrocks (019)

Survey Area	A
Area	2 hectares
Survey date	13/03/2018
Existing features	1
No. new features recorded	10
% surveyed	100
Constraints	None

6.83 Tom Parrocks Wood (Fig. 15) was a small area of woodland located to the east of Linsty Hall Wood and bounded to the east by open pasture. A relic boundary wall (**19/001**), visible on historic maps, formed a division between the woodland and the pasture. However, it was highly ruinous, and was approximately 0.2m in height. As there was so little of the wall remaining, it was considered likely that the stone had been repurposed in the construction of nearby built features, such as later walls (Plate 35).

Plate 35: the relic boundary wall (19/001) between the woodland to the right of the image and the open pasture to the left.

Plate 36: the pitstead (19/003), which was thought to possibly be a bloomery due to the associated borrow pits and uneven ground behind.

6.84 One feature, a bloomery, had previously been recorded on the LDNPA HER (HER30174), although it had two records and two possible locations. The bloomery was supposedly located on the edge of the survey area but was not located by the team. This may have been the result of the level of accuracy in the coordinates listed on the LDNPA HER, or the earthworks were missed by less experienced surveyors due to the absence of slag debris within the area. One feature that was thought to be the bloomery site was subsequently identified as a pitstead (**19/003**). This feature had two associated borrow pits and was located on uneven terrain that may have potentially been spoil heaps from a bloomery site. However, there was no identifiable slag and the feature had the characteristic circular platform of a pitstead cut into a slope (Plate 35).

Plate 37: the associated borrow pits and uneven ground near pitstead 19/003.

Plate 38: the ruinous structure (19/008) found within Tom Parrocks Wood (eastern elevation).

6.85 A rectilinear structure (**19/008**) was identified within Tom Parrocks Wood, the purpose of which was unclear. The building was highly ruinous, with only the foundations of the walls remaining; these measured approximately 7m in length and 4m in width. The building was not visible on historic or modern maps of the area, and therefore is likely to have been built and fallen into disrepair prior to the production of the First Edition OS maps in the 1850s. The building differed in size and shape from the other woodman's huts identified during the survey and there was no clear evidence for a hearth. Given the proximity to the open pasture land, and the likely early date of construction, this may have been a shieling or shepherd's hut that had fallen out of use when the land was planted for more profitable charcoal production.

Plate 39: the ruinous structure (19/008) within Tom Parrocks Wood (southern elevation).

6.86 A second length of relic wall (**19/006**; Plate 40) was found within Tom Parrocks Wood on the bank of the stream that divides the block from Linsty Hall Wood. The length of wall was on the west bank of the stream which makes it likely to have historically been part of Linsty Hall Wood. However, the modern woodland boundary was further west, so the feature was recorded as part of Tom Parrocks Wood. The wall is unlikely to have been a boundary wall owing to its proximity to the stream, which creates a natural boundary between the two woodlands. It is more likely to have been some form of

revetment to reinforce a working area next to the stream, as easy access to water was vital to the production of charcoal.

Plate 40: revetment wall (19/006) that would have reinforced a working platform next to the stream that creates a boundary between Linsty Hall and Tom Parrocks woods.

Orchard Wood (020)

Survey Area	A
Area	3 hectares
Survey date	13/03/2018, 14/03/2018
Existing features	0
No. new features recorded	7
% surveyed	100
Constraints	Very steep in places

6.87 Orchard Wood (Fig. 15) is a small patch of woodland within Area A. It differs from the other woodlands in that it contained very little evidence for the charcoal burning industry, with only one pitstead (**20/007**) found. One fairly large area of quarrying (**20/004**) was identified (SD 33240 90313) that possibly provided stone for the construction of the nearby Bobbin Mill located on the south-eastern boundary of the woodland. A second possible area of quarrying (**20/001**) was disregarded post-survey as being a natural bedding plane of the bedrock.

6.88 A modern midden that contained glass bottles dating to the Victorian period and later was recorded, which was located within two parallel linear features (**20/005**) These appeared to be built of stone and may relate to a ruinous structure pre-dating the midden. No structure was visible on historic maps of the area; therefore, it is likely to pre-date the First Edition map, published in 1850.

Plate 41 the linear features that make up a possible ruinous structure (20/005) containing a modern midden.

6.89 A depression at the base of a bank was thought to be a second possible ruinous structure (**20/006**). The edges of this depression contained stones that appeared to be structural, and a spread of tumble was observed around the feature. The structure may have been related to other forms of woodland industry. For example, the bobbin mill that appears on the historic maps would have required a constant supply of coppiced wood for the production of bobbins. While the production of coppiced wood would not have required the constant attention of charcoal burning platforms, it might explain the presence of a small hut-like structure in this area.

Plate 42: the second ruinous structure (20/006) that was possibly a charcoal burner's hut. The tumble can be seen covered in moss around the perimeter of the feature.

Force Knott (021)

Survey Area	A
Area	6.5 hectares
Survey date	15/03/2018, 16/03/2018
Existing features	1
No. new features recorded	16
% surveyed	80
Constraints	Active coppicing

6.90 Force Knott (Fig. 18) is the most north-eastern woodland surveyed during the project and is an ASNW. The woodland was fairly easy terrain to survey, with the exception of areas that were actively being coppiced. These were fenced off to deter deer from eating the shoots and therefore ruining the coppicing. Although these areas were accessible, piles of recently coppiced standards made survey impossible.

6.91 One previously identified paper mill was recorded on the LDNPA HER (HER30176) within Force Knott, with two additional mills (HER3145 and HER18323) noted on the periphery. The presence of three mills within the area indicates considerable industrial use within or surrounding this woodland. The paper mill that is recorded on the LDNPA

HER within Force Knott was not identified during the survey, additionally it does not appear on either the First or Second Edition OS maps. This may be due to the location of this mill being recorded to less than 100m accuracy, therefore the mill may not actually be within this woodland. Force Beck, which borders the wood on the east and south sides, would have provided water to power the mills.

6.92 Most archaeological features identified within Force Knott woods were either charcoal burning platforms or associated features, the former being distributed fairly evenly throughout the woodland. Only one trackway was identified (**21/009**). This extended from the centre of the woodland towards the modern-use path, which is visible on all historic mapping.

Plate 43: a tree causes damage to the hearth of a charcoal burner's hut (21/006) in Force Knott Wood.

6.93 Two structures were identified within Force Knott (**21/006** and **21/007**). The first (**21/006**) was the hearth of a probable charcoal burner's hut, the walls of which would probably have been of turf construction as there was no evidence of stone walls. A tree had grown through the hearth, causing the structure to become unstable and start to tumble (Plate 43). In total, ten pitsteads were recorded within Force Knott wood, so it is not surprising that a hut was also identified. Historically the area would have been

ideally situated for charcoal production, bordered on one side by a road providing easy transport for the finished product, and on two sides by streams that ensured an ample supply of water.

6.94 The second structure (**21/007**) was probably a small shelter rather than a charcoal burner's hut. It comprised a dry-stone wall built up against a natural outcrop to provide a shelter. The structure was too small to have been a hut, as it only measured 1.4m by 1.4m, and it was roughly square in shape. It was similar in construction to structures seen in survey Area C (**26/002**, **26/006**, **26/018** and **27/017**).

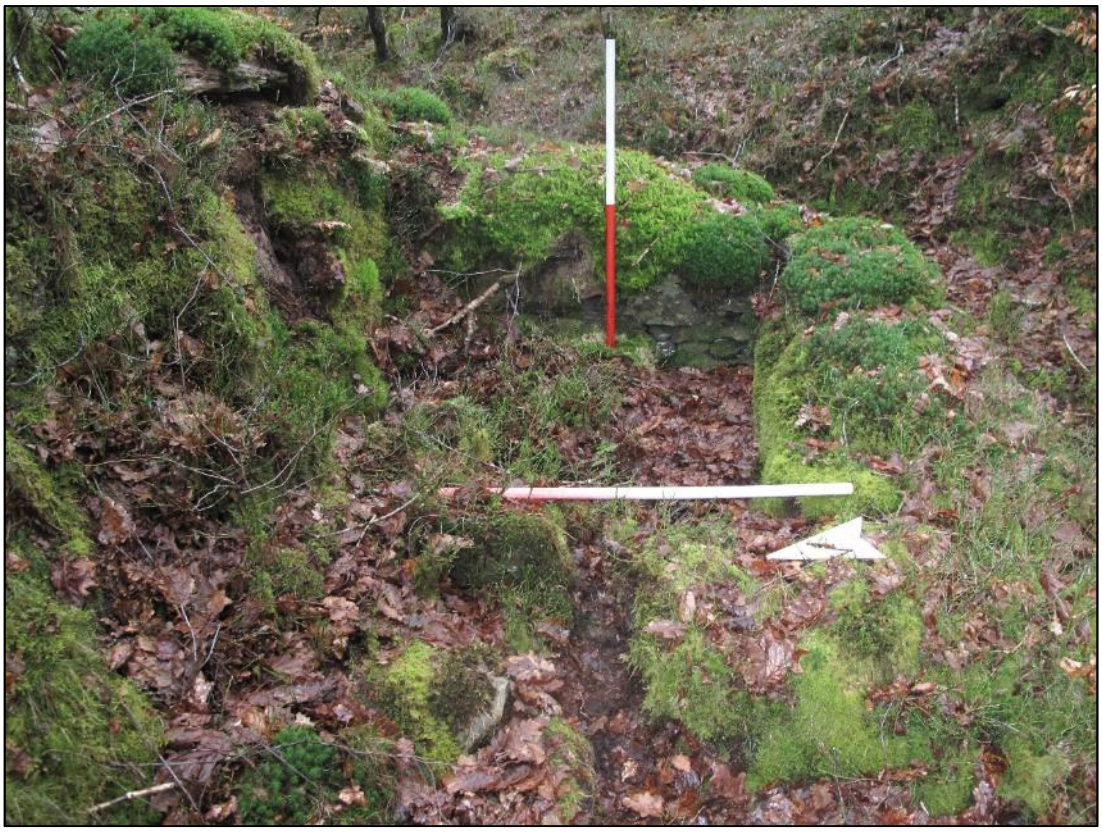


Plate 44: the rectilinear structure (21/007) identified in Force Knott, which took advantage of the natural outcrop (left).

Gate and Beck (022)

Survey Area	A
Area	1.5 hectares
Survey date	16/03/2018
Existing features	0
No. new features recorded	5
% surveyed	100
Constraints	None

6.95 Gate and Beck (Fig. 15) was the last woodland to be surveyed in Area A. It is a small parcel of ASNW woodland in the centre of the survey area, bounded to the east by Force Beck. Three pitsteads were found within the woodland, with signs of old coppicing nearby, demonstrating that the area had been used at one point to produce charcoal. One trackway (**22/001**) was also recorded extending from the pitsteads (**22/003**) towards the stream.

6.96 A section of historic wall (**22/002**) divided the woodland from the adjacent pasture that bounded the wood to the west. This relic boundary wall was not visible on any historic mapping and the woodland appeared to extend beyond its limit. As such, it is likely that the wall pre-dates the 1850 First Edition OS, especially as it is highly ruinous and appears to have been out of use for a long time. Small boulders could be seen next to the wall (Plate 45), which had probably been moved in the process of field clearance when the area of the woodland was reduced.

Plate 45: a pitstead (22/003) in Gate and Beck wood with evidence of coppicing nearby.

Plate 46: the relic wall (22/002) in Gate and Beck with later clearance boulders.

Bank Wood (023)

Survey Area	B
Area	20.5 hectares
Survey date	19/03/2018, 20/03/2018, 21/03/2018
Existing features	0
No. new features recorded	46
% surveyed	70
Constraints	Extremely steep and overgrown in parts

6.97 Bank Wood was the largest area of woodland surveyed in Area B and was mostly ASNW with some areas of ancient replanting (Fig. 19 and 20). As the name implies, Bank Wood was extremely steep terrain, and in some places not safe enough to conduct survey. It comprised mostly broadleaf woodland but with some areas overgrown with young, dense holly bushes.

6.98 No features were recorded on the LDNPA HER prior to the survey. However, 46 possible new features have now been identified, despite the difficult terrain. Of these, 34 were pitsteads, which demonstrates how heavily the area had been utilised for charcoal production in the past. Many of these seemed to take advantage of a natural plateau in the slope reduce the need to build revetment walls to reinforce the platform. The

pitsteads were found throughout the woodland; however, they were more densely packed into the northern section of the woodland, which was not as steep as the area to the south.

6.99 In addition, three quarries were found within Bank Wood, one of which (**23/016**) was located towards the eastern boundary and near the top of a steep slope. This was probably opened to provide stone for the construction of the enclosure wall that divided the eastern edge of the woodland from the neighbouring pasture, as it would have been very difficult to transport stone to the top of the slope. Two distinct levels were observed within the quarry, each with its own working platform.

6.100 A second quarry (**23/027**) was identified close to the centre of the woodland. This had an associated sub-rectangular platform and track that extended in the direction of the farm buildings. This is the only quarry out of the three identified that appears on historic mapping. The platform is likely to have been used to load stone onto carts to be transported away from the quarry using the trackway. Drilling marks for shot holes could also be identified on the rockface of the third quarry (**23/001**) (Plate 47).

Plate 47: drill marks on a quarry face (23/001) in Bank Wood.

6.101 A large pit (**23/006**), approximately 15m in diameter and approximately 2m in depth, was recorded in the wood, although the purpose of this feature remains unclear. There was a bank built up around the whole edge of the pit, which might suggest up-cast from the excavation of a prospection pit of some form. However, given the absence of mining in the area, it is more likely that this was a dew pond used in the collection of water, and associated with the nearby farmhouses. The pit is not recorded on any historic maps of the area but can be seen on LiDAR coverage. However, without further investigation no firm conclusions can be drawn about the intended purpose of this feature.

Plate 48: the pit (23/006) from the south-eastern side of the feature.

6.102 Another unusual feature was a ruinous rectangular structure (**23/007**), again not visible on any historic mapping. Its walls stood approximately 0.05m high and were very thin, at only 0.05m in depth. It was constructed of upright stone slates, which were overgrown with moss, and so difficult to clearly identify. The structure was quite small, measuring approximately 6m in length and 3m in width. Due to its size, the thickness of its walls and the lack of a hearth, it is unlikely to have been used for domestic purposes and was perhaps some sort of storage building associated with the farm.

Plate 49: the pit (23/006) from the northern (upslope) view.

Plate 50: the small rectangular structure (23/007) recorded in Bank Wood.

6.103 A charcoal burner's hut was also identified within the wood (**23/038**). The hut featured a small extant hearth and circular walls, which were largely ruinous (Plate 51). The hearth was in poor condition and appeared to be deteriorating, with some of the damage being fairly recent. To the rear of the hut (on the upslope side) was a bank that was slightly longer than the width of the hut. This had possibly been constructed to avoid water running off the hill and into the hut.

6.104 The hut was constructed on a flat circular platform that may have previously been used for charcoal burning, as the size and shape were consistent with pitsteads found within the woodland (Plate 52). This was the best-preserved example of a charcoal burner's hut found in the 2018 season, and the only one with visible walls that, even in their ruinous shape, depicted the outline of the building.

Plate 51: the hearth of the charcoal burner's hut (23/038) within Bank Wood with the recent damage clearly visible under the ranging pole.

Plate 52: the hut (23/038) was situated in the middle of a circular platform with a bank to the rear (pictured left).

Plate 53: the volunteers were delighted to find such a well-preserved example of a charcoal burner's hut!

6.105 Finally, a linear spread of stones (**23/040**) was recorded in the north-western corner of the wood. This was approximately 9m in length and 1.5m in width. This was probably a relic wall, although the spread of the stones was wider than the tumble recorded for similar features during the survey. This may be because it was located at the base of a slope and decades of hill wash and abandonment have contributed to its poor preservation. The spread appeared to comprise different types of stones, which was unusual, as the other recorded examples were constructed of nearby quarried stone. This could indicate a medieval origin for the wall, but this would require further investigation.

Towers Wood (024)

Survey Area	B
Area	5 hectares
Survey date	21/03/2018, 22/03/2018
Existing features	0
No. new features recorded	21
% surveyed	80
Constraints	Extremely steep in parts

6.106 Towers Wood is a small section of woodland located between Bell Wood to the north and Bank Wood to the south (Fig. 20). A small stream runs through the middle of Towers Wood. This runs along the western edge of the wood, making it an excellent candidate for charcoal production. The northern section of the woodland was extremely steep where it met Bell Wood; however, most of the woodland could be surveyed with caution.

6.107 Most of the features identified were located away from the steep slopes, although one pitstead (**24/011**) was recorded at the top of the slope, where there was a small plateau in the northern-most corner of the woodland. The remaining 14 pitsteads were distributed throughout the area, with a concentration on the north side of the beck. One pitstead (**24/009**) was found close to the boundary wall between Towers Wood and Bell Wood. A short section of trackway ran beneath the current boundary wall, connecting pitstead (**24/009**) with a second pitstead (**24/010**) on the other side of the wall, within the boundary of Bell Wood. The boundary wall appeared to be that marked on the First Edition map, with little to indicate it was a more recent replacement. If this is the case, then the pitsteads would pre-date the 1850s, providing a rare opportunity to assign a broad date to a charcoal burning platform without using intrusive methods of investigation. The pitstead within Bell Wood had a water channel running through it,

which had caused damage to the surface. The water channel appeared to be a natural spring, so it is not clear why a pitstead would have been built here. It is possible, although unlikely, that the spring could have appeared after the pitstead was built. The water had also caused part of the revetment wall to collapse, demonstrating how 'at-risk' these sites are and how easily they can be damaged, or lost.

6.108 Two quarries were identified in Towers Wood, one of which (**24/001**) was located close to the roadside entrance. This large quarry is not shown on any of the available historic mapping and was large enough to accommodate modern forestry vehicles. Therefore, it is likely to be relatively modern. The second quarry (**24/005**) was also not visible on any historic mapping and could be a natural feature, as it was much less distinct than **24/001**.

6.109 The last feature recorded in Towers Wood was a small water management system (**24/022**) within the beck that runs through the centre of the wood. The stream appeared to have been manipulated and dammed to create a small area of pooling. This was located adjacent to a pitstead (**24/021**) and was probably constructed to ensure an adequate water supply to the charcoal production taking place within the woodland.

Plate 54: water damming (24/022) to create a small pool within the beck running through Towers Wood.

Near Plantation and Far Plantation (025)

Survey Area	B
Area	14.5 hectares (combined Near and Far Plantations)
Survey date	23/03/2018
Existing features	0
No. new features recorded	2
% surveyed	<5
Constraints	Extremely steep in parts, hazardous weather

6.110 Near Plantation and Far Plantation are the two southern most blocks of woodland within Area B. Unfortunately, due to very strong winds and heavy rain, the survey of these areas had to be cancelled to ensure the safety of the surveyors. However, two features were recorded, both of which were pitsteads. These were constructed on a steep slope. One had a well-constructed revetment wall (**25/002**; Plate 55) and the other an up-cast earth platform (**25/001**).

Plate 55: the well-constructed revetment wall of pitstead 25/002 in Near Plantation wood.

Moss Wood and Height Spring (026)

Survey Area	C
Area	19.5 hectares (combined Moss Wood and Height Spring)
Survey date	16/04/2018, 17/04/2018
Existing features	0
No. new features recorded	18
% surveyed	75
Constraints	Some areas were extremely boggy

6.111 Moss Wood and Height Spring are two areas of woodland located in Area C (Fig. 21). There was no distinctive boundary between the two woods, so they were surveyed together. The woodland was partially ancient replanted woodland, with broadleaf trees found throughout, although the historic mapping shows Moss Wood had previously included some areas of conifer plantation. A large area in the north of Moss Wood was extremely boggy and made surveying difficult. However, it is unlikely that there were any extant features in this area, given that it appears to have been a bog for a considerable number of years. The area is depicted as a bog on the First Edition (1850) OS map and is labelled 'Peat Moss' on the Second Edition (1890) map.

6.112 Ten pitsteads were recorded within the wood, which was a smaller number than usual for the size of the woodland. Five of these (**26/001**, **004**, **015**, **016** and **017**) were found along a trackway that extends through Moss Wood east to west, which is not surprising as this would have lessened the work involved in transporting the charcoal in and out of the wood. Only two other pitsteads were recorded (**26/007** and **26/008**) in Moss Wood, perhaps because this area corresponded with the area of conifer rather than broadleaf trees marked on the historic mapping. Coppicing was traditionally done using broadleaf species, such as oak and ash, as broadleaf trees do not die when they are cut back to a stump (Reader's Digest 1984, 9; Fuller and Warren 1993, 5). Another three pitsteads (**26/010**, **011** and **012**) were identified within Height Springs.

6.113 Two ruinous structures (**26/002** and **26/006**) were recorded in the wood. Based on their construction, these did not appear to be charcoal burner's huts. The two structures identified were smaller than would be expected; both were around 1m in width and were square in shape. Additionally, they were built up against other features, as opposed to being free-standing. One was constructed against a natural outcrop of rock (**26/002**; Plate 56), and the other (**26/006**) against a dry-stone boundary wall. Similar features have been identified in the North York Moors National Park as being above ground sawpits (Hartley and Ingilby 1972). These would function in a similar manner to the

traditional dug-out sawpits that have been recorded in the Lake District. The timber would be laid along planks that would be held up by the two sections of wall and one woodsman would stand above the timber, with another below. This would allow the woodsmen to easily saw the timbers into the required size. The sawpits mentioned in Hartley and Ingilby (1972) were larger than the remains identified within the Rusland Valley, but variation between regions is likely to have occurred.

Plate 56: the first structure (26/002) identified within Moss Wood, which had been constructed against a natural outcrop of rock.

6.114 A third possible structure (**26/018**) was identified that may have been similar in construction to **26/002** and **26/006**. This proved difficult to define due to the area being covered by modern coppiced standards. Revisiting the site when active woodland management is not underway would be beneficial.

6.115 A small, shallow pit (**26/003**; see Plate 57) was recorded close to the first recorded structure (**26/002**), although beyond their proximity there was no evidence to connect the two features together. It was hypothesised that the pit may have been a rudimentary potash kiln, although these are usually stone lined. There were remnants of thin stone slates covering the surface, which may have formed part of a lining, although these were not particularly robust. It is more likely that the feature was a modern bonfire site, and

there was evidence of recent activity. However, this may have been the opportunistic reuse of an earlier feature.

Plate 57: the shallow pit (26/003) that has been used as a modern bonfire site.

Plate 58: the rabbit smoot and water smoot (26/013) recorded within Moss Wood.

6.116 A step-stile (**26/009**) was identified in a wall visible on historic maps, towards the northern boundary of the wood. The wall was in a poor state of repair, with the short stretch featuring the stile being the only section still extant. Similarly, a pair of smoots (**26/013**) were also identified in the western boundary wall (Plate 58). These were approximately 1m apart, and as such were recorded as one feature. One of the two appeared to be a water smoot and the other a rabbit smoot.

Old Hall Wood (027)

Survey Area	C
Area	36ha
Survey date	18/04/2018, 19/04/2019, 20/04/2018
Existing features	0
No. new features recorded	45
% surveyed	75
Constraints	Some areas of steep and boggy terrain, time constraints

6.117 Old Hall Wood (Fig. 22) was the largest area of woodland surveyed in the 2018 season. The name derives from Old Hall Farm, located on the eastern edge of the woodland. Prior to the survey, there were no sites recorded on the LDNPA HER apart from Old Hall Farm historic farmstead. This mentions the presence of a bloomery within the vicinity of the farm, although the only evidence for this seen during the survey was the iron slag used in the construction of the dry-stone boundary wall.

6.118 The western half of the woodland contained very steep terrain, which could only be surveyed with care. There were no features recorded in this area.

6.119 A total of 25 pitsteads were found within Old Hall Wood, which is a surprisingly small number when compared with other similarly sized woodlands within the project area. Linsty Hall (**018**), for example, is 12 hectares smaller than Old Hall Wood, but a total of 42 pitsteads were found within this area. The lack of features in Old Hall Wood may be due to the steepness of the terrain; however, Bank Wood was also very steep, and again had more pitsteads within a smaller area.

6.120 The most notable thing about the archaeology of Old Hall Wood was the abundance of historic walls and trackways. Many of these were not marked on historic maps, and so could possibly pre-date the 1850s. The area was surveyed in the last week of the project, and as a consequence the available time was limited. Therefore, only those walls and tracks not visible on the historic maps were recorded as a priority. However, to fully

understand the network of tracks and the inter-relationship between the group, it is recommended that further survey is conducted in Old Hall Wood.

Plate 59: one of the many relic walls (27/001) running through Old Hall Wood.

6.121 Several areas of quarrying (**27/022**, **028** and **045**) were identified, although none were visible on the historic mapping, indicating that they were not active at the time of the maps being produced. One of the quarries (**27/028**) is next to the modern road and an entryway leads out towards the road. This implies that either the quarry was used in the

construction of the road or since the road was built; however, it did not appear to have been recently used, as it was densely overgrown.

6.122 Two structures were identified within Old Hall Wood (**27/017**), one of which was similar in construction to the structures found in Moss Wood and Height Spring (**26/002**, **26/006** and **26/018**). The other structure (**27/025**) was a small, single-celled structure that was built into a length of relict wall. Both the structure and the wall were highly ruinous, and it was not clear what the function of the structure was.

6.123 A small length of wall abutting a natural outcrop may have been a small enclosure within Old Hall Wood (**27/037**). Given the proximity of this feature to Old Hall Farm and the complicated system of relic walls and tracks found throughout this wood, the area may have previously been used for stock grazing. There is some evidence to suggest this in the form of feature **27/023**. This comprised two parallel dry-stone walls set in stream, with two corresponding platforms on the bank, and may be the remains of a post-medieval sheep dip. However, there were no other signs that the woodland had previously been a wood pasture and the vegetation was growing as densely as within the other woods, with no indication of historic pollarding.

Plate 60: a short section of dry-stone wall abutting a natural outcrop of rock in Old Hall Wood, which could have once been a small enclosure (27/037).

6.124 A curvilinear earthwork (**27/043**) was recorded in Old Hall Wood that is unlikely to have been associated with the charcoal burning industry. The feature was a stone and turf bank that was approximately 30m in length, 1.7m wide and 0.4m in height, although the exact boundaries of the feature were difficult to define, as the area is now a modern midden site.

Plate 61: a curvilinear stone and turf bank (27/043) identified within Old Hall Wood.

7.0 DISCUSSION AND CONCLUSION

7.1 In total, 485 features were identified during the two seasons of survey (2017 and 2018). Almost all of the sites identified were post-medieval in date, but a small number of features might be medieval in origin. These were primarily relic walls, tracks and boundary features, such as wall **15/009** in Wallet Wood. No prehistoric features were observed but, given the often-dense nature of the understorey, coupled with the deposition of leaf mulch, this was unsurprising.

7.2 An overwhelming majority of sites (71%) were a direct result of industrial use, primarily charcoal burning but also quarrying and smelting, probably dating to the post-medieval era. Other evidence related to the division and management of the woodland, including boundary walls, smoots, early trackways and water management. The likelihood is that many of these additional features were also a result of the industrial use of the woodland. For example, many of the trackways and water management systems would have been used for the transportation and management of the products of these industries. There was surprising little evidence of tree management practises like coppicing and pollarding outside of the charcoal production area. However, this may have more to do with the level and focus of the survey than any true absence of evidence, the recording of such data requiring intense and specialised walkover that was beyond the scope of the current project.

7.3 The following section discusses the results of both the 2017 and 2018 survey seasons under a series of site types, beginning with pitsteads and charcoal production, which comprised by far the largest group of features identified across the survey area.

Pitsteads and charcoal production

7.4 The abundance of charcoal burning platforms, or 'pitsteads' identified throughout the woodlands was significant and indicative of large-scale industrial activity taking place across the Rusland Valley. In total, 302 (62%) of the 485 features surveyed were pitsteads, making them by far the most commonly identified archaeological feature across both survey seasons. Most of these were interpreted with high certainty based on their easily identifiable shape and the presence of charcoal on the surface, although some were less distinct.

Plate 62: a pitstead (24/007) recorded with an absolute level of certainty due to the shape of the monument and the presence of charcoal on the surface.

7.5 Two broad types of pitstead were identified: **Type A** were level, usually circular, cleared areas, and **Type B** were oval or ellipse-shaped platforms cut into a slope. The latter usually featured a distinctive profile cut and corresponding up-cast bank (Plate 64). Where the slope was steep or the platform very large, there was often additional stone revetment (e.g. **5/023**, **5/037**, **12/005**, **23/013** and **24/008**), and in some cases retaining walls of considerable size (**2/027**, **5/036** and **25/001**) (Plate 63). It is apparent that the terrain largely dictated the form of such features, with platforms (Type B) found on steeper gradients and cleared areas (Type A) in the more level parts of the wood.

Plate 63: a pitstead on a steep slope is reinforced with a revetment wall.

Plate 64: the up-cast bank of a pitstead used to reinforce the charcoal burning platform.

7.6 Pitsteads were found in every wood surveyed except for the eastern section of Arklid Great Wood (**001**), Arklid Intake (**003**), Stock Wood (**004**), Stricely Intake (**009**) and Harry Intake (**013**). Of these, all except Harry Intake were conifer plantations. There has been limited research into the impact of conifer plantation on archaeological remains, but where some sites have survived the replantation process, other sites are often destroyed (Wordsworth 2003, 3). This can be to do with how close together the rows of conifers are planted, with larger gaps between rows resulting in less ground disturbance and the higher potential for the survival of archaeological features. Unfortunately, the replantation process in the above woods was highly destructive and there were very few archaeological sites of any type identified.

7.7 Harry Intake (**013**) was the only woodland surveyed that was not a conifer plantation and did not have any charcoal burning platforms or evidence of coppicing. This may be due to the small size of the wood; at only 0.2 hectares, charcoal burning may have been unprofitable or unviable.

7.8 A notable trend was to find pitsteads arranged across natural level terraces within the woods on steeper terrain, for example pitsteads **2/002**, **011**, **012**, **013** and **014** in Arklid Great Wood (**002**) and pitsteads **18/022**, **023**, **028**, **029** and **030** in Linsty Hall (**018**). As such, if a single pitstead was encountered at a certain height, it proved reasonable to assume further examples would be present along the same contour throughout the wood. In woods on more level terrain, no particular trend in location was observed, except in proximity to tracks and natural features, such as water courses (discussed in para. 7.23 below). It is apparent, based on both the frequency of the pitsteads and their location on extremely steep terrain, that the charcoal burners were exploiting every bit of the woods at their disposal. These pitsteads also demonstrate how significant charcoal production was to the iron industry and the need to maximise any opportunity to keep up with demand.

7.9 The pitsteads located on steep terrain were often more easily identifiable, as they had been cut into the slope, and either an earthen bank or a stone revetment wall created on the downslope facing side to support the platform and prevent erosion. In contrast, pitsteads located on flat ground were often much more subtle features, with only a faint earthwork indicating that the ground had been used at all, making them very easy to miss. Therefore, it is probable that the level of activity in some woods may have been even greater than demonstrated by the current survey.

7.10 Despite the proliferation of pitsteads, it was not possible to date those recorded, except to say they were all likely to be post-medieval. Although in some cases, where one feature cut or overlay another, it was possible to identify a localised stratigraphic sequence, no general trend was observed within any specific area that might indicate distinct phases of use.

'Sammel' or borrow pits

7.11 Shallow hollows or depressions were frequently encountered near the pitsteads (examples include **2/007**, **5/001**, **18/007** and **23/014**). They ranged considerably in size and shape and some pitsteads had several such features nearby (**5/059**, **10/014** and **19/003**) (Plate 65).

7.12 It is generally assumed these depressions are associated with the extraction (or 'borrowing') of soil to cover the charcoal stack prior to firing. The local term for these pits is 'sammel pits'. It has also been suggested that some of them may be ephemeral traces of temporary shelters created by the charcoal burners close to a platform during a firing (OAN 2010).

Plate 65: ranging rods mark the position of a pair of 'borrow pits' near a pitstead (5/059) and woodman's hut in High Wood. Material was taken for these pits to cover charcoal hearths.

Sawpits

7.13 Four possible sawpits were identified (**26/002**, **26/006**, **26/018** and **27/017**), all of which were located within Area C. These features were constructed of two parallel lengths of dry-stone wall that abutted natural banks and outcrops. No sawpits were recorded in Areas A or B. It is possible that the woodlands in Areas A and B were focussing primarily on charcoal production rather than timber production. This would account for the much higher abundance of pitsteads within these woodlands. Area C presented a lower number of pitsteads in a larger hectarage. There was no considerable difference between the species of tree identified within the different areas. All three areas were dominated by oak, which would have been used for charcoal production, as well as timber and leather production, making it a valuable commodity in any woodland. There was also no discernible difference in the terrain available, as all three survey areas had sections that were particularly steep or boggy. In Areas A and B, pitsteads were recorded even on the steepest slopes, whereas in Area C they tended to be located on the more level parts of the woodlands. This could indicate that the steeper slopes within Area C were being used to grow mature trees for timber.

Huts and domestic arrangements

7.14 Amongst the more evocative features identified during the survey were the traces of the former huts occupied by woodsmen and their families. In total, 14 such huts were recorded that were broadly categorised into two main types—turf and stone—though both featured a beehive-shaped stone hearth, a key diagnostic feature. Eight turf-constructed huts were recorded (**2/008**, **5/008**, **5/058**, **6/035**, **10/020**, **18/031**, **18/046** and **21/006**). These often-featured low grass-covered walls but in some cases no walls or foundations were visible. The other six remaining huts were constructed of stone and were either circular (**5/047**, **11/012**, **18/016** and **23/038**) or square (**7/002** and **7/011**) in plan (Plate 30). The two stone-constructed huts recorded in Stricely Wood were almost identical (**7/002** and **7/011**), suggesting perhaps either a local form or that they were built by the same person.

7.15 It has long been assumed that the difference in the two hut construction techniques (turf vs. stone) related to the trade of the occupants. Bark-peelers were believed to have built their huts of stone whilst charcoal burners, given they were required to move around from area to area to fire the stacks, were associated with more temporary and ephemeral turf and wattle 'wigwam' constructions (Jones 2015; OAN 2010). However, a more viable explanation may simply be the nature of the local construction materials to hand,

with stone huts being more common in areas where there is a readily available source of building stone. This is certainly the case in Stricely Wood (**007**) and Bank Wood (**023**), where there is clear evidence of local quarrying. Similarly, the turf-constructed huts tended to be in woodlands where there was little evidence of quarrying, for example Linsty Hall (**018**; Plate 67).

7.16 Bark-peeling and charcoal burning were also carried out at different times of year and it is possible that the huts would have served the woodsmen in the spring and the charcoal burner in the autumn, or perhaps more likely that both tasks were performed by the same man.

7.17 Given the degree of charcoal burning activity taking place within the woods, with each stack requiring constant attention, more accommodation would be anticipated within the woods. It is possible that the materials used to construct these huts have been repurposed in building other features, such as walls in and around the woods, as seen to a lesser extent in the second hut (**18/046**). Another possibility is that the huts were temporary constructions made from organic materials that would not have survived in the archaeological record. Further, the pitsteads are likely to have been used over a long period of time, particularly those with revetment walls that would have taken considerable effort to build. It is unlikely that they would have all been burning at the same time and, more realistically, they would have been used in rotation to ensure a steady supply of charcoal. Should this have been the case, the demand for accommodation would have been less than the illusion created by a high abundance of pitsteads.

7.18 The apparent absence of the traditional charcoal burner's huts in Area C may relate to the proximity of the area to the settlements of Bouth and Colton. This may have been that a stack could be visited by a burner without the need to construct a long-term shelter nearby. This theory is supported by the large number of recorded huts in Area A, which is the furthest away from any large settlements.

Plate 66: a circular, single-celled hut with stone wall foundations and hearth structure (5/047)

Plate 67: a circular, single-celled hut with turf wall foundations and a stone hearth structure (18/046)

Walls and Smoots

7.19 Historic OS maps show that the boundary walls associated with the woods have remained largely unchanged since the mid-19th century. They are generally of drystone construction using local stone—principally slate and limestone. A couple of exceptions were noted, such as **22/002** in Gate and Beck wood (**022**) and **15/009** in Wallet Wood (**015**), which consisted of rows of orthostatic boulders. Similarly, the spread of stones in Bank Wood (**23/040**) may have been an earlier wall, as it was constructed from glacial erratics as opposed to quarried stone. The different construction of these walls indicates that they are likely to be earlier in date than most of the walls recorded. It is possible that these walls date to the medieval period and were land divisions associated with Furness Abbey and their agricultural practices.

7.20 High Wood and Old Hall Wood featured a number of collapsed, moss-covered relict walls. The walls in High Wood (**5/033**, **034**, **040**, **041**, **062**, and **064**) all aligned north to south, following the natural topography. Several of these ran into rocky outcrops but continued the same course beyond these natural obstacles (**5/029** and **062**). The walls mark historic divisions within the wood, probably related to ownership or tenancy rights. Alternatively, they could be division of coppice 'hags' or panels; these were blocks of underwood managed on a rolling cycle of growth and harvest.

7.21 None of the walls in High Wood are shown on the 1850 or 1890 OS maps and their ruinous conditions may suggest they pre-date the publication of both. As such, they could be useful in establishing a chronological framework for the charcoal production industry within the wood. The walls in Old Hall Wood were also not recorded on the historic OS maps but differ from the walls in High Wood because they did not follow the natural topography. The proximity of the farm to the woodland, and the presence of two agricultural features (**27/023** and **037**), may indicate that the walls relate to the post-medieval agricultural practices of the farm. However, if the walls were contemporary with the farm, they would have presumably been recorded on the historic OS maps.

7.22 A number of the larger boundary walls contained rabbit smoots; small openings in a boundary wall identical in form to the larger ‘sheep smoot’ or ‘hog hole’ (Plate 68). These are usually found where the wood bounds rough pastureland or fell. They served the dual purpose of preventing rabbits and hares from burrowing beneath the walls, while at the same time securing a welcome addition to the woodsman's table. In a number of cases, stone-lined pits were dug below the smoot holes and connected to a wooden chute above which was set with a counter-weighted trap door. The rabbit would

fall into the pit and be trapped, providing a useful source of additional meat. No evidence of in situ traps was found in association with the Rusland smoots.

Plate 68: rabbit smoot in Little Bank Wood (12/018).

Tracks

7.23 All the woods surveyed contain a number of tracks, roads and route-ways, forming a network of transportation routes (Plates 69 and 70). It is difficult to date these accurately and some may be medieval (or earlier) in origin, while others date to the expansion of the charcoal industry in the late 18th and early 19th centuries. Historic OS maps provide some indication of date but can be misleading. Several of the tracks and boundaries identified during the survey are not shown on the First Edition OS map, published in 1850, despite clearly being of considerable age. There may be a number of reasons for this, including relevance and scale, with many of the tracks being too small to be depicted. As the name suggests, the primary purpose of the government cartographers was the preparation of ordnance maps for troop and munitions movement. Alternatively, some of the tracks may have already fallen out of use by the late 1840s when the maps were surveyed, while others may have been under construction and are shown on the later Second Edition map, published in 1890.

Plate 69: one of the well-established tracks forming part of the network in Sale Bank Wood. Like a number of the other woods surveyed, these tracks do not appear on the historic OS maps (11/006).

7.24 The tracks vary greatly in both size and profile. Some are narrow and quite ephemeral (**2/004**, **8/003** and **21/009**), traceable as an unnatural linear gap in the tree cover (**11/007** and **16/034**), while others are wide and deeply incised into the hill (**12/020** and **18/052**). The latter were frequently arranged in a series of switchbacks that criss-crossed up the hill to counter the gradient, often with stone revetment along the bank side (e.g. **5/035** and **27/030**). A few of the tracks were stone edged (**11/006** and **24/017**) and featured evidence of related draining ditches (e.g. **4/003** and **4/004**).

7.25 Tracks were closely associated with the location of the charcoal pitsteads and were a good indicator of the likely presence of platforms within an area. These were usually located directly adjacent to the track, which would follow a sinuous route through the woodland linking together the stacks. However, in some cases tracks were found running through a line of pitsteads (e.g. **2/018**, **2/019**, **2/023**, **11/001** and **11/003**), although the chronological relationship between each was sometimes difficult to define. The process of charcoal production was a continuous cycle of preparing, firing and dismantling stacks, requiring the movement and storage of both raw material and

finished product. The track network, therefore, would have grown accordingly as the work progressed through a wood. It is likely that after a platform (and its associated area) had been exhausted for firing, it was instead used for storing materials or finished charcoal.

Plate 70: another of the surveyed tracks from Sale Bank Wood (11/007).

Streams, springs and water management

7.26 Water was an important part of the charcoal burning process and was used to control the intensity of the burning operations. Many of the pitsteads recorded during the survey were found near to naturally occurring water sources. There were seven sites where there appeared to be direct evidence of water management. In High Wood, in an area of low-lying ground prone to water logging, two sites (**5/049** and **5/066**) were observed where the edges of the stream appeared to have been strengthened by placing large stones along the bank to channel water along a specific course. This may have been an attempt to create a reliable flow of water and prevent the surrounding area from becoming water-logged.

7.27 At **5/049**, this crude 'culverting' followed the course of the emerging stream to a point very near a woodsman's hut (**5/047**), where additional stonework was noted. This was possibly the remains of a crossing point or ford, or simply an attempt to shore the bank

sides. A similar feature was recorded in Stricely Wood (**7/003**), where two tracks converged near a hut and a stream crossing, again with evidence of large quantities of stone deposited in the stream bed at the point the tracks crossed.

7.28 Three sections of revetment wall were found in the sides of streams, two in Chamley Bank Wood (**16/008**, **16/028**) and one in Tower's Wood (**24/022)**. These were likely to have been placed to minimise the erosion of the bank next to the stream and therefore reinforce access. The demand for water to control the temperature of nearby charcoal stacks would have caused soil erosion to areas where prolonged access was required. Also, in Towers Wood, a dam (**24/022)** had been built to create a small pool of water with reinforced access. The slope leading to the water was very steep so creating this simple water management feature would have made accessing the water much more manageable.

7.29 A possible sheep dip was identified in Old Hall Wood (**27/023**), this is discussed further in para. 7.33.

Plate 71: the dam that made up part of the water management system (24/022) in Towers Wood

Agriculture

7.30 Agricultural practices would have been taking place in the areas surrounding the woodlands for centuries, with some suggestions that the practice of sheep farming in the Lake District has been taking place since the Bronze Age or even late Neolithic era (Rollinson 1974, 82). Several features were identified during the survey that provide evidence of post-medieval agricultural practices. Unsurprisingly they all tended to be located towards the edges of the woodland, close to nearby roads of pastures.

7.31 A section of wall on the edge of Chamley Bank wood (**16/016**) that divides the wood from the neighbouring Bethecar Moor, included several features associated with sheep farming, and may have been a sheepfold (**16/014**). This included a hogg hole (a hole for young sheep to pass through), a step stile and two vertical joins, indicating that the wall has been historically altered. Bethecar Moor is known to have been sheep pasture during the late medieval period when it belonged to Furness Abbey, and the name is thought to derive from the Old Norse for a sheiling or pasture (Ekwall 1922, 218).

Plate 72: blocked hogg hole leading out to Bethecar Moor and vertical seam (right) of two adjoining walls in possible former sheepfold (16/014).

Plate 73: young surveyors show off the step stile that joins Bethecar Moor and Chamley Bank wood in the possible former sheepfold (16/014).

7.32 The structure (**19/008**) recorded in Tom Parrocks wood (**019**) may also have been agricultural in purpose. This was highly ruinous and rectilinear in shape, measuring approximately 7m in length and 4m in width. Therefore, it was much larger than the other structures recorded during the survey. The structure appeared to be a single celled building and there was no evidence of a hearth, making it unlikely that it was domestic in function. It was located on the edge of Tom Parrocks wood where the woodland met open pasture land and, as such, is likely to have been a small field barn. As discussed earlier, the structure is not recorded on any of the historic OS maps, and therefore probably fell out of use prior to the publication of the First Edition OS map in 1850.

7.33 In Old Hall Wood, a possible post-medieval sheep dip (**27/023**) was recorded. This comprised two walls that spanned a stream to create a dam. This appeared to be multi-phase in construction with an internal dry-stone wall reinforced with later concrete. The small pool created between the walls was 1.25m in length and 1.6m in width with steep banks on either side, making it an ideal place to lead sheep into. A concrete platform constructed on one side of the stream provided a stable access. The feature was located on the eastern edge of the wood behind Old Hall Farm and close to the farm's pasture land, making it ideally located for farm access.

Plate 74: the ruinous structure (19/008) identified in Tom Parrocks wood that was likely a small field barn.

Plate 75: the pair of dams and associated concrete platform (right) that are likely to be a post-medieval sheep dip (27/023).

Quarries

7.34 Evidence of quarrying was identified in a small number of woods. The most notable was Stony Hazel (**10/017**), where historic stone extraction appeared to be linked to the construction of the nearby iron bloomery forge and associated water management systems along Force Beck (Plate 76). The majority of the quarries recorded were small and likely to have been used in the construction of enclosure walls (**10/002** and **13/001**) or revetment walls of pitsteads (**15/006**). A couple of the quarries (**20/004** and **27/018**) were located on the boundaries of the woodlands, next to roads, and were possibly used for the production of track aggregate.

Plate 76: quarry face in Stony Hazel Wood (12/017).

Absence of expected archaeology

7.35 There were several types of feature that are often identified in association with woodland archaeology that were not found during this project. This could be due to the inexperience of the volunteers, the fact that features may not be visible as earthworks or they may simply not be present in this area. It must be remembered, however, that absence of evidence is not evidence of absence, and further work in this area could reveal features that were not identified during this project.

7.36 Whilst there are several mills listed on the LDNPA HER that lie within the Rusland Horizons scheme area, there is only one that is recorded as being within the survey areas. A paper mill (HER30176) is recorded as being within Force Knott (**021**) but was not found within the survey. This is likely because the location of the site has been gained from a source rather than a site visit and is recorded to an accuracy level of less than 100m. It is therefore probable that the location is not where it was recorded as being. Additionally, there were active woodland management operations being undertaken in Force Knott that may have disguised any subtler earthworks or remains.

7.37 Perhaps most surprisingly, no bloomeries were identified during the survey. There were five bloomeries recorded on the LDNPA HER within the woodlands, one within Chamley Bank (**016**; HER3339), one on the edge of Chamley Bank (**016**; HER2538), two within Tom Parrocks (**019**; HER30174 and HER15941) and one on the edge Stony Hazel (**010**; HER2547). The bloomery on the edge of Stony Hazel was identified by the presence of the extant forgery remains, which were briefly examined in the survey (see para. 6.42). Most of the remains were outside of the survey boundary, however, so it was not recorded in detail.

7.38 The other four bloomeries were not identified during the survey. This may be due to a lack of above-ground remains. Bloomeries are notoriously difficult to identify without the presence of a slag heap, and it is likely that these heaps will have settled into being barely visible mounds. Fell (1908), who identified the two bloomeries at Chamley Bank, states that sometimes he could only recognise bloomeries by "pieces of cinder and charcoal thrown up by the mole". Therefore, the bloomeries may not have been recognisable as such and may have been identified as, or may indeed be, pitsteads. This is difficult to confirm, however, as Fell does not identify the exact location of the bloomery and merely refers to the general area. Even in the LDNPA HER records for the two Chamley Bank bloomeries, they are recorded as having been identified by the presence of iron slag in nearby streams rather than being identifiable earthworks. Further, one of the bloomeries in Tom Parrocks (HER30174) was identified by the presence of slag in the wall next to the road.

7.39 There were also two potash kilns recorded on the LDNPA HER, one in Stock Wood (**004**; HER32758) and one in Sales Bank Wood (**011**; HER30216). Both woodlands were walked through to assess their potential for archaeological features. Given the limited timeframe and the fact that both were comprised of coniferous plantation, they were

de-prioritised to return to if there was time. It would still be beneficial for these woodlands to be surveyed in the future. No other potash kilns were recorded.

Conclusions

7.40 In conclusion, the large number of archaeological features recorded has demonstrated the value of this project. Prior to the survey, there were ten features recorded on the LDNPA HER within the boundaries of the woodlands (HER16416, 32758, 2538, 3339, 30176, 15941, 30174, 16423, 2547 and 16420). The substantial volume of archaeological features recorded (485) shows how rich an archaeological resource the woodlands of the Rusland Valley are.

7.41 The woodlands provided overwhelming evidence for the woodland industries, with 71% of features recorded having been as a direct result of industrial work in the area. The real number is likely to be much higher, as this percentage does not include features, such as tracks and walls. The tracks and walls are likely to have been used in conjunction with the work at this time but could also pre- or post-date these industries. It is difficult to determine this from a Level 1 survey, however, as the features had no obvious stratigraphic sequence.

7.42 Whilst there was evidence of a number of woodland industries to some degree, the most prevalent (64% of all features recorded) was that of charcoal production. This is likely to be because the pitsteads leave easily recognisable scars on the landscape, whereas other industries would leave less archaeological evidence. For example, coppiced wood was also being used by the nearby bobbin mills in the production of bobbins. However, this is unlikely to have left any evidence other than the presence of old coppicing, which cannot be attributed to any one specific industry. Similarly, timber production would have been undertaken in the area. However, other than four possible sawpits (**26/002**, **26/006**, **26/018** and **27/017**; see para. 7.13) and the occasional veteran tree, no evidence was recorded of this industry. Therefore, the charcoal burning industry is probably overrepresented in the archaeological record and care must be taken when interpreting this information.

7.43 The different industries being undertaken in the woodland can also account for the distribution pattern of the pitsteads. There were notably more pitsteads in Areas A and B than in Area C when looking at individual woodlands. The possible sawpits (**26/002**, **26/006**, **26/018** and **27/017**) identified in Area C probably account for this anomaly.

These features were not identified in either Area A or B, indicating that the woodlands in Area C may have been used for timber production, in addition to charcoal burning.

7.44 The lack of woodsmen's huts within the recorded findings was interesting. Five huts were identified within survey Area A (**21/006**, **18/031**, **18/046**, **6/035** and **7/011**) and three were found within survey Area B (**23/038**, **2/008** and **11/012**). There were no huts recorded within Area C. The lower number of huts in Area B could be attributed to it having the highest proportion of coniferous plantation, and therefore a lot of the archaeology could have been destroyed. As discussed in para. 7.18, the lack of huts in Area C could be owing to the area's proximity to larger settlements. However, given the level of activity in the woodlands overall, there were still a surprisingly small number of huts recorded. This is likely due to these structures not surviving in the archaeological record. Even the huts that were recorded were often highly ruinous with vegetation growing throughout and causing further damage to the remaining structures. The damage that was noted on these features demonstrates the necessity to undertake further work on this area to record these buildings before they are destroyed completely. This is especially important in areas that were not surveyed during this project.

7.45 There was a notable lack of any archaeology within the woodlands that would pre-date the traditional woodland industries. This demonstrates the destructive nature of the intensive use of the land through several centuries of utilisation. It is far more likely that the land had been used historically and that any extant remains had been destroyed, than the area had simply been ignored throughout history. The detrimental effects of forestry work were noted within the survey as post-medieval archaeology was limited in areas that were still being actively managed and exploited. It is possible that these features still exist and that they are preserved sub-surface. Should this be the case they were not identified due to the ground cover. Further investigation into the areas around the woodlands would provide more insight into the historical land use of the Rusland Valley.

7.46 The results of this survey have proven that there was intensive activity within the woodlands of the Rusland Valley for several hundred years. However, there are still significant gaps in our understanding of the chronology of both the woodlands, and the wider area. Further archaeological investigation into this area could begin to answer some of those questions as discussed below in Section 9.

7.47 Finally, the community aspect of the project was also successful as is demonstrated by the increased number of volunteers who took part between Season 1 (29 volunteers) and Season 2 (42 volunteers). In total, 21 of the volunteers who took part in Season 2 had previously taken part in Season 1 and were delighted to be continuing to learn about woodland archaeology and surveying techniques. With the exception of one family who took part in Season 2, the volunteer demographic was not particularly diverse in terms of age or ethnicity. This could be combated in future projects by running the survey either at the weekends or during school holidays. Alternatively, running specific family-friendly events could encourage a more diverse group of people to attend the surveys.

8.0 RISKS, ISSUES AND FUTURE MANAGEMENT RECOMMENDATIONS

8.1 The majority of features recorded during both seasons of surveying are considered to be stable and at low risk of future deterioration. However, the following section discusses some of the risk factors observed during the survey, as well as possible mitigation measures that could be put in place. Conditional issues on a site-by-site basis are detailed in the gazetteer (Appendix A).

Plate 77: tree growth on pitsteads was prevalent throughout the survey area but was not usually as extreme as this example from Arklid Great Wood, where the pitsteads pre-date a conifer block (2/016).

Tree and plant growth

8.2 The most significant issue observed during the survey was root damage caused by self-seeded trees and other scrub growing up through, or near to, archaeological features (Plate 77). Overall the pitsteads survived well, given their age and years lying obsolete, and were relatively easy to identify even in dense tree cover. However, there were a few occasions where they had suffered damage from either water running through them or dense plant growth on their surface. This was particularly noticeable in areas near active deer management sites. One pitstead (**18/036**) bisected by a deer fence provided clear evidence of the impact of the different management regimes, the feature being better preserved on the area outside the deer fence (Plate 78).

Plate 78: a pitstead that had been recently divided by a deer fence and which demonstrates the dense overgrowth of vegetation beginning to build up on the surface of the feature (left).

8.3 Whilst the damage recorded to the pitsteads was for the most part minimal, the same was not true of other types of feature, most notably the huts. Where trees were found growing on the stone-constructed elements (usually the hearth), root action had caused severe damage, in some cases resulting in structural instability (**5/047**, **7/002**, **7/011**,

11/012, **18/031** and **21/006**; Plate 79). It is likely that this will continue unless remedial action is taken, and there will be further collapse and loss of evidence.

Plate 79: the hearth of a turf and stone hut in Force Knott wood, which displays damage from a tree growing through it.

Plate 80: a hut is almost invisible amongst tangled undergrowth in Sales Bank Wood.

8.4 The huts were also at risk from the growth of ground vegetation, which can mask and eventually obscure features. Hut **10/020**, for example, appeared to be a moss-covered stone mound until further investigation revealed it to be man-made (Plate 80). It is highly likely further huts survive across the survey area but are now obscured by the growth of ground cover.

8.5 Similarly, extant walls were at risk from trees, scrub and vegetation encroachment; however, as many were already collapsed and quite stable, the degree of risk to the structural integrity of the features was ranked as less severe. A greater threat was the loss of visibility resulting from ground cover, as with the huts. Some of the (presumably) oldest walls encountered in High Wood are now barely discernible, visible only as low, moss-covered stone spreads (**5/062**). As such, it is conceivable they will eventually become lost unless remedial action is taken.

Animal activity

8.6 Animal burrowing was noted on a number of pitsteads. Rabbit burrows caused widespread damage across several features, while the damage arising from badger setts was more extensive in smaller, concentrated areas (e.g. **2/012**).

8.7 Deer in the woods eat the bark of young trees and crop new shoots. This causes problems in terms of woodland regeneration but is of considerable benefit for the preservation of archaeological features. Where deer have been excluded from an area, self-seeding trees and understorey was prolific and the woods were generally too dense to survey.

8.8 As none of the woods are in use as wood pasture, risks associated with the grazing of sheep and cattle, including poaching around watercourses, sheep scrapes on earthworks, or concentrated damage around animal feeders, are not perceived as a risk factor at present. However, this would need to be reviewed in the light of any changes to local stock management regimes.

Forestry operations

8.9 By far the greatest threat to woodland archaeology are the cycles of commercial timber forestry—planting, felling and replanting (Plate 81). In areas like Little Bank Wood (**012**), where this has occurred historically, features pre-dating the forestry operations were found to survive, but this appears to have been the exception rather than the rule. Most

of the woods in the survey area were ASNW or SNW and it is highly unlikely that large scale felling and clearing programmes will be implemented in these areas in the future.

8.10 One of the key aims of the Rusland project was to enhance the existing LDNPA HER, enabling informed decisions regarding changes to future management regimes to be made with due consideration of the impact on the historic environment. Proactive measures to mitigate risk might also be considered, including the provision of woodland and estate managers with maps of the archaeological features in their areas to help prevent accidental damage.

Plate 81: the different terrain of ancient woodland and conifer plantation is marked where Stricely Spring borders Stricely Intake.

Water damage

8.11 Some of the tracks and pitsteads (**12/023**) recorded were noted to be at risk from water erosion, either via destabilisation of revetment walling or scouring. Several examples of pitsteads were identified with springs running through them but one particularly damaged example demonstrated the destructive effect of running water on the revetment walls of the pitsteads as it had started to tumble down (Plate 82).

Plate 82: a pitstead with severe damage to the revetment wall caused by a spring running through the feature.

Plate 83: a track is almost lost under thick vegetation and tree growth, and its course eroded deeper into the hill by water action.

Hill wash and slumping

8.12 Finally, it has been suggested that the trend towards oval shaped pitsteads on steep slopes could be caused by slumping of earth downslope onto the platform, as opposed to them being constructed in the sub-circular shape (Hazell *et al*. 2017, 195). While there was no evidence recorded of this, bad weather could cause episodes of hill wash placing the surviving archaeology at risk.

Future management options

8.13 Programmes of work to ensure the survival of vulnerable features recorded during the survey would bring many benefits. Further assessment of the destabilising effect of root action on the huts recorded would facilitate targeted remediation measures, such as tree removal or consolidation work. Management plans for the heritage features in each wood, although time-consuming and costly, would ensure the optimum outcome and take a balanced view of the relative significance of the range of features. Scrub clearance using LDNPA volunteers may also benefit some of the more overgrown or vulnerable sites recorded.

9.0 RECOMMENDATIONS FOR FUTURE WORK

9.1 The results of the two-year survey project have provided a tantalising glimpse at the potential of the archaeological resource contained within the Rusland Valley Woodland. Below are some suggestions to enhance and consolidate the work so far and develop a broader picture of the scale, nature and chronology of historic woodland landscape.

Further survey

9.2 The survey has clearly demonstrated the potential for the survival of previously unrecorded archaeological features within the Rusland area. It is hoped that the training provided will have equipped a core group of local volunteers with the practical skills to implement future programmes of survey outside the current project scope. Such work would facilitate a greater understanding of the nature of woodland activity across the area, as well as the potential for comparative analysis beyond the Colton District. It would also make an important contribution to future heritage management, expanding the LDNPA HER and serving as a permanent record of the area's archaeological sites, several which are vulnerable and at risk.

9.3 A focussed study of the coppicing and ancient trees within the area would also add valuable information to the understanding of the woodland archaeology of the Rusland Valley. This could be particularly informative if combined with an excavation of pitsteads within the area, allowing a comparison of the species that were burned through time and the species that survive today.

Detailed survey of walls, boundaries and tracks

9.4 While all the woodland contained examples of relic walls and tracks, in two woodlands there were notably higher numbers of collapsed relict walls recorded. Due to the very steep terrain in the wood in High Wood (**005**) and the tight time constraints in Old Hall Wood (**027**) it would not have been productive to 'chase' each of these walls and fully define their extent (it was also unsafe in some cases). Rather, notes were made on orientation and construction and a GPS point taken where the wall crossed a transect. This will allow further study in the future.

9.5 These woods had clearly been sub-divided in the past, possibly relating to commoners' rights and/or agricultural or coppicing practice. Detailed recording of the location and orientation of the relict walls might be considered as a future stand-alone project, in conjunction with a programme of documentary research.

9.6 Similarly, the tracks through the woods would benefit from more detailed mapping and categorisation, with the aim of achieving a greater understand of the modes of transport employed in the movement of materials and goods (i.e. foot carriers with pannier, pack animals, sleds, carts, etc.). An investigation into the historic land divisions, especially those associated with Furness Abbey would be valuable in creating a detailed chronology of the industry within this area.

Plate 84: a collapsed and moss-covered wall in High Wood (5/062). Further investigation into the nature of these boundaries could reveal evidence of woodland ownership or management regimes.

Level 3 hut survey

9.7 A detailed earthwork survey (Historic England Level 3) of representative examples of the various hut types identified: (1) stone hearth and turf walls (e.g. **6/033**); (2) stone hearth and stone walls circular (e.g. **5/047**); and (3) stone hearth and stone walls square (e.g. **7/001**). This would provide useful data to begin the process of creating woodland hut typologies for the area, which could then be compared with others in the country. It would also provide an opportunity to provide additional volunteer training in detailed earthwork and building survey techniques.

Excavation

9.8 Following on from the hut survey, a small excavation of the interior and hearth of each type of hut might provide valuable socio-economic data about the lives of the people living in the wood (see below), as well as further opportunity for community involvement.

9.9 Excavation of a representative selection of the pitsteads could provide valuable insight into the history of the woodlands and the historical exploitation of them. Similar excavations of pitsteads in South Yorkshire have revealed dates from secure contexts as early as the 14th century (Atkinson 2018). The same pitsteads have revealed dates of the 14th century from the centre of the pitstead to the 19th century on the downward slope, as charcoal has been raked off the pile to be transported away. These excavations have demonstrated the longevity of these charcoal burning sites. A comparable study of charcoal burning in the Rusland Valley could determine when the industry of the area moved from the agriculture of Furness Abbey into the Abbey's own charcoal burning regime, before moving into privatised industry.

Absolute dating and environmental potential

9.10 Although charcoal production spanned centuries, at present only a very broad timeframe can be ascribed to most features. The employment of absolute dating techniques could make a significant contribution to establishing a site chronology but would need further investigation. Samples taken from roundwood charcoal have previously been used for radiocarbon dating in a post-medieval context, although not specifically those related to charcoal production sites. It is recommended that the Historic England Regional Science Advisor should be consulted to discuss the environmental potential of the woodland archaeological resource.

Interpretation

9.11 Consideration should be given to improving the interpretation of the historic woodland. Obviously, this would need to take into consideration the particular demands of the environment, as well as its natural setting. Incorporation of the results of this work into the interactive map on the Rusland Horizons website would be a viable method of interpretation. It would be relatively easy and low cost to accomplish method of interpretation as the platform is already in place. Similarly, ensuring that the highlights of the results end up in the Greenwood Trails that are being produced within the Landscape Partnership would allow people to easily learn about this heritage.

9.12 Further methods of interpretation could be explored given appropriate resources. This might include a downloadable podcast to informally present the results of both seasons work (and any planned future work). The volunteers who took part could be approached to share their stories of the woodland archaeology and their experiences of learning about it.

Reconstruction/living history

9.13 While charcoal production using traditional methods is often demonstrated, the scope for rebuilding a woodsman's hut through a 'living history' project could be explored.

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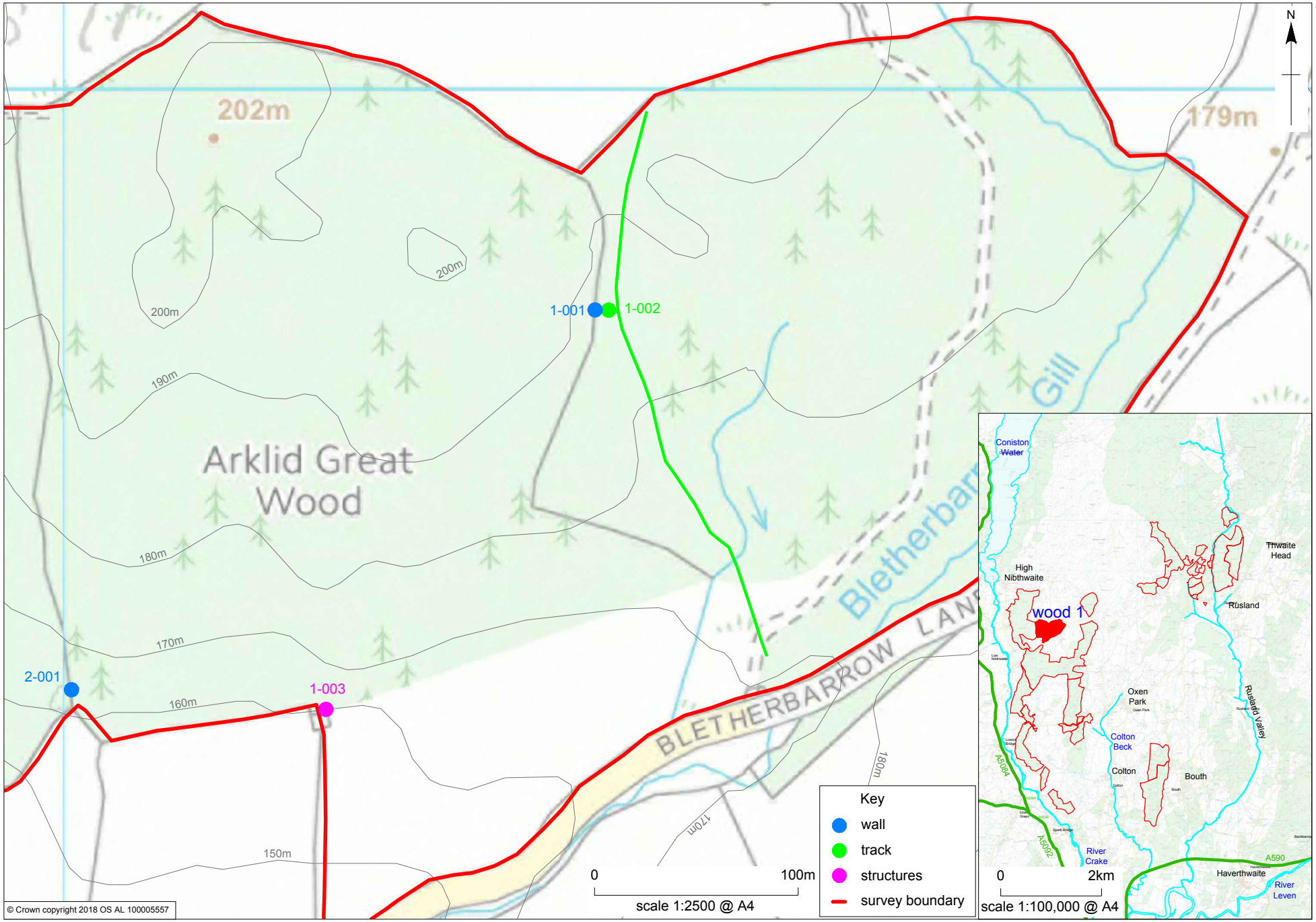
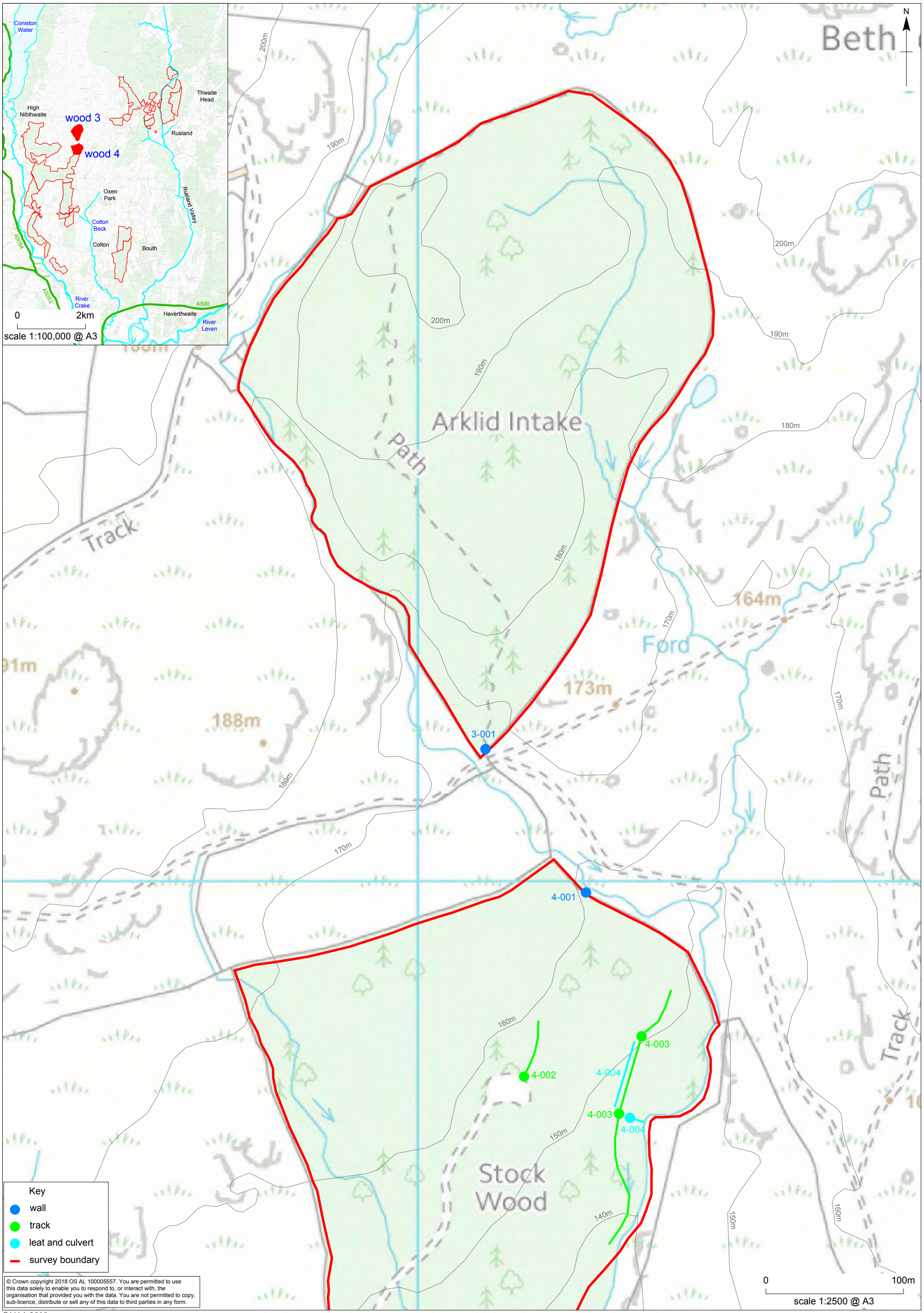
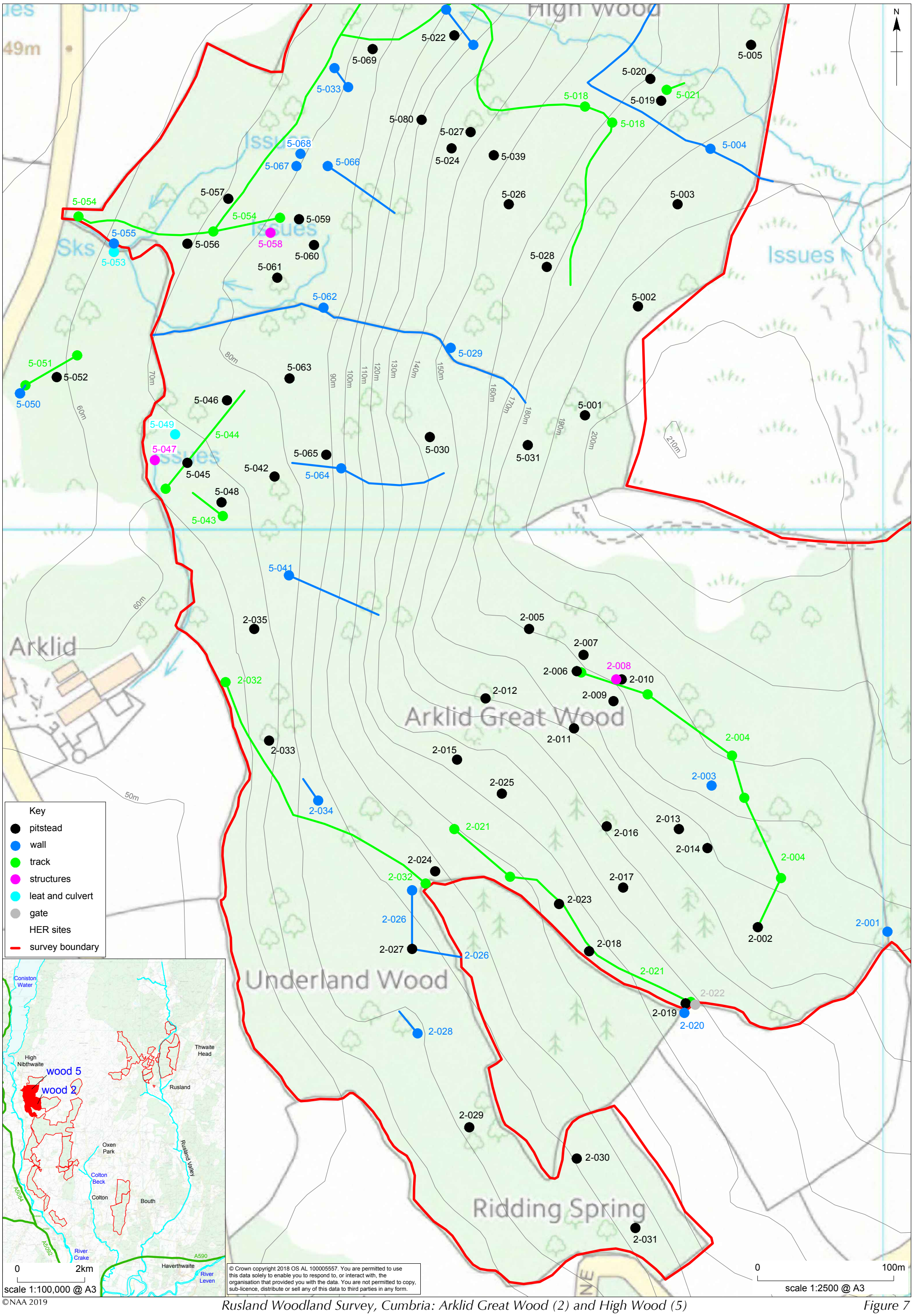


Rusland Woodland Survey, Cumbria: Arklid Great Wood (1)

Figure 5

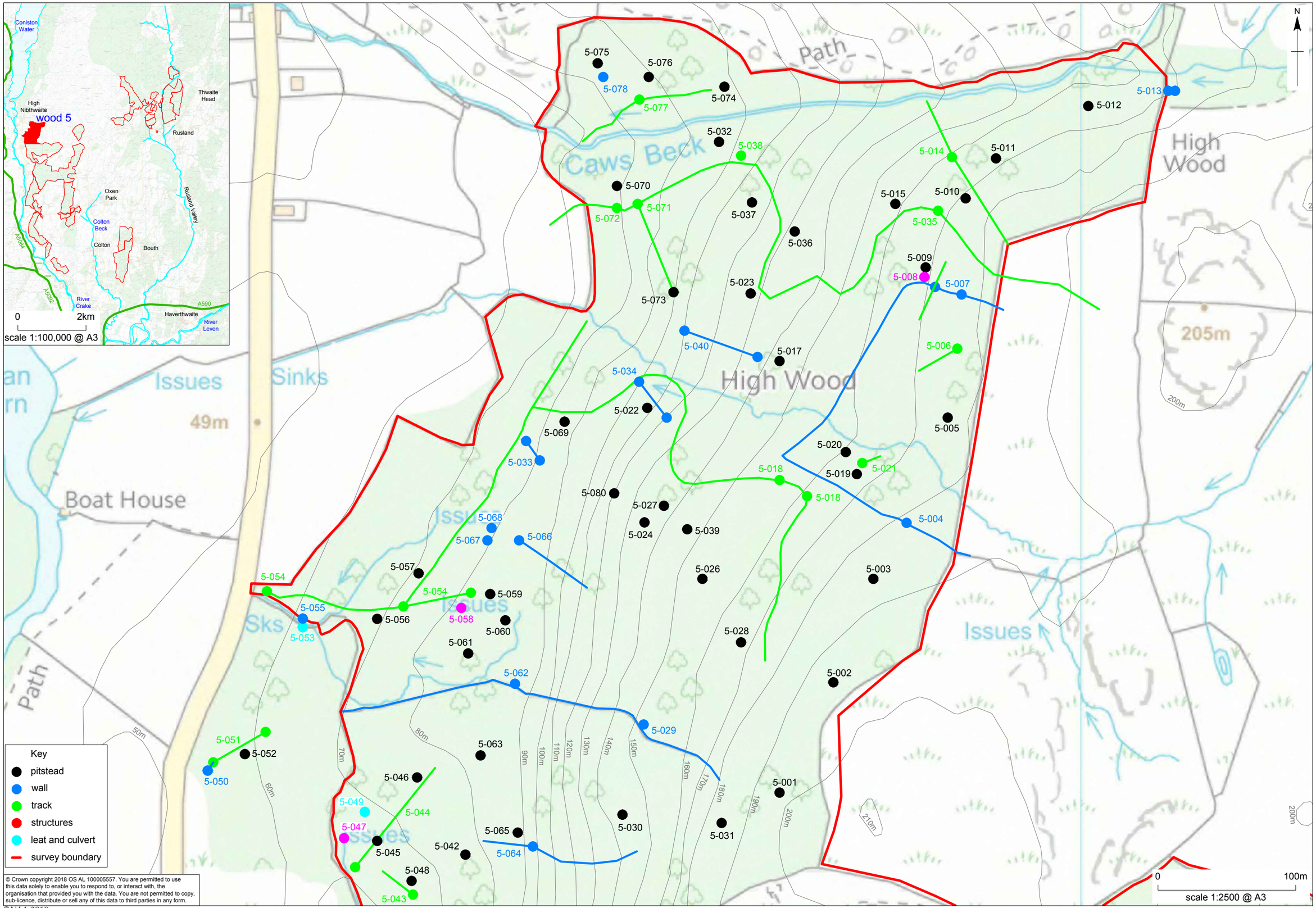


Rusland Woodland Survey, Cumbria: Arklid Intake (3) and Stock Wood (4) *Figure 6*



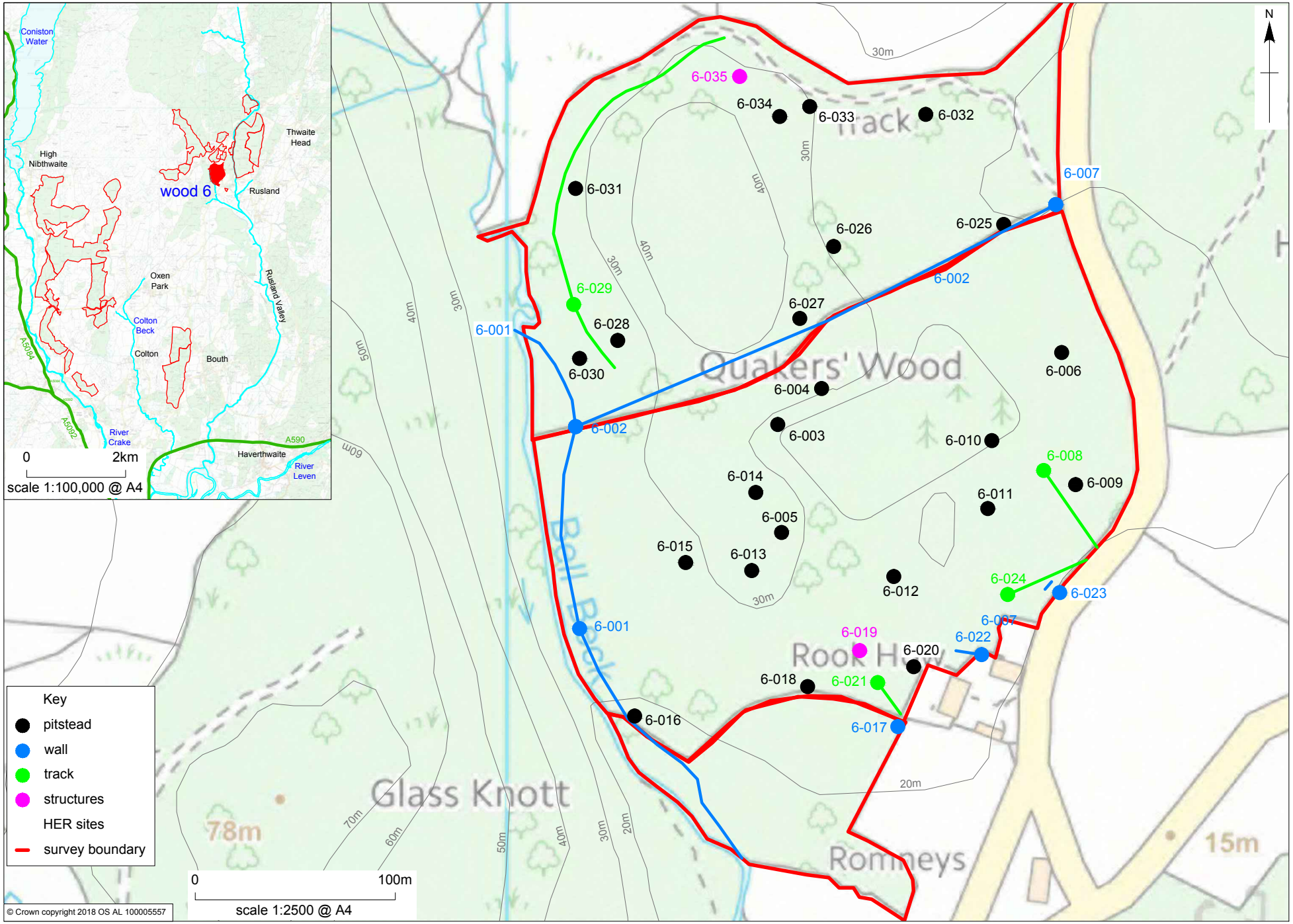
Rusland Woodland Survey, Cumbria: Arklid Great Wood (2) and High Wood (5)

Figure 7



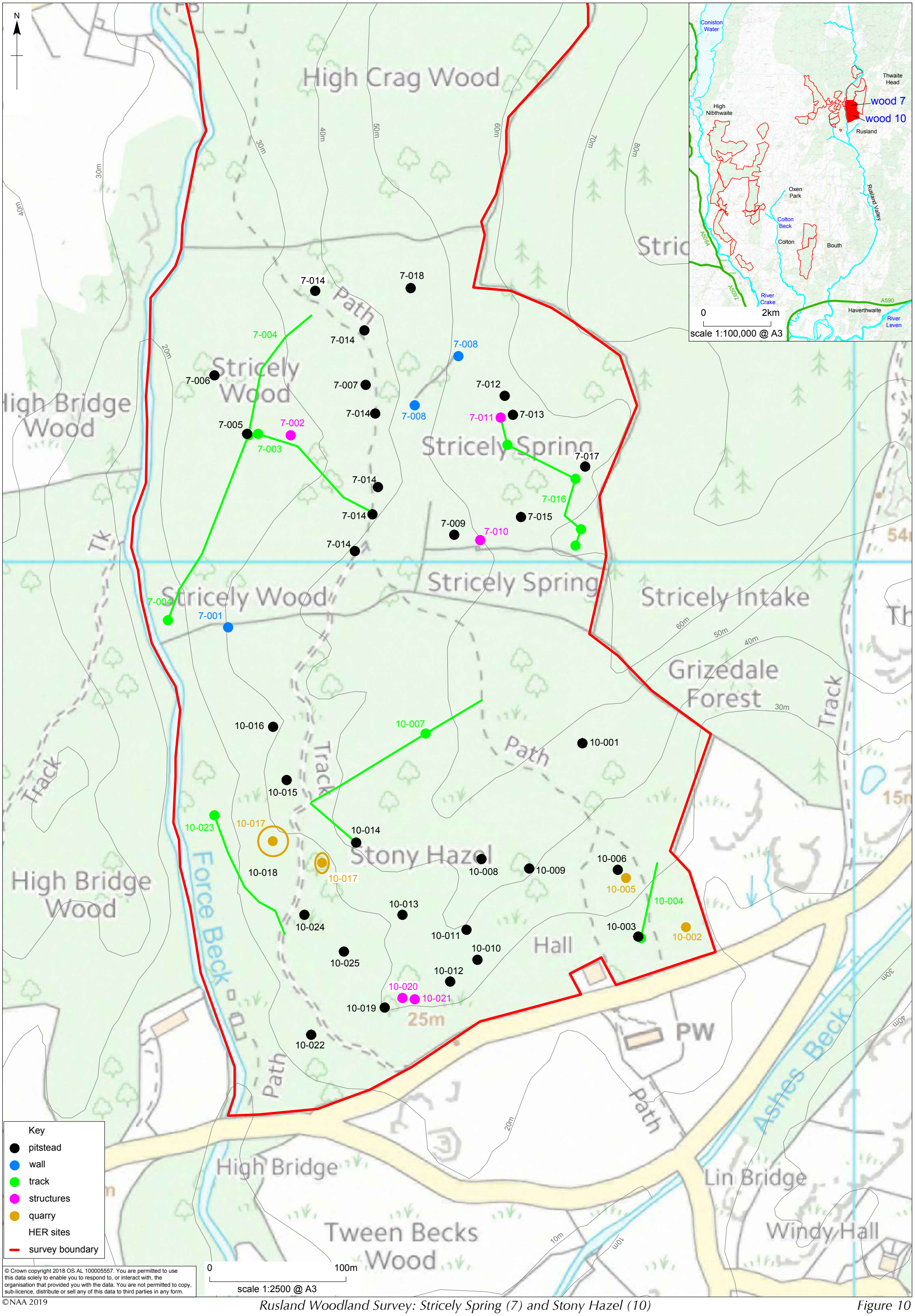
Rusland Woodland Survey, Cumbria: High Wood (5)

Figure 8

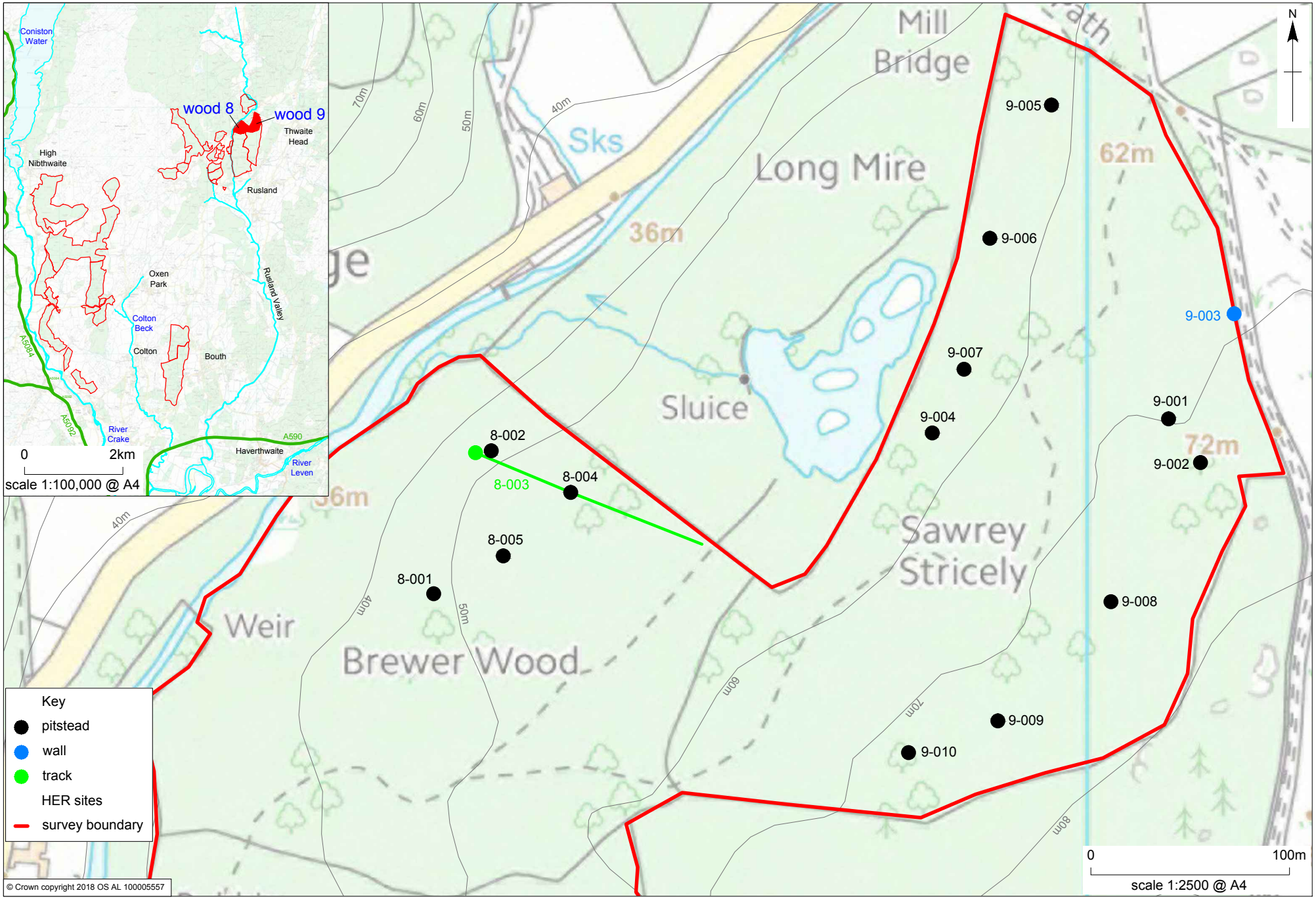


Rusland Woodland Survey, Cumbria: Quakers' Wood (6)

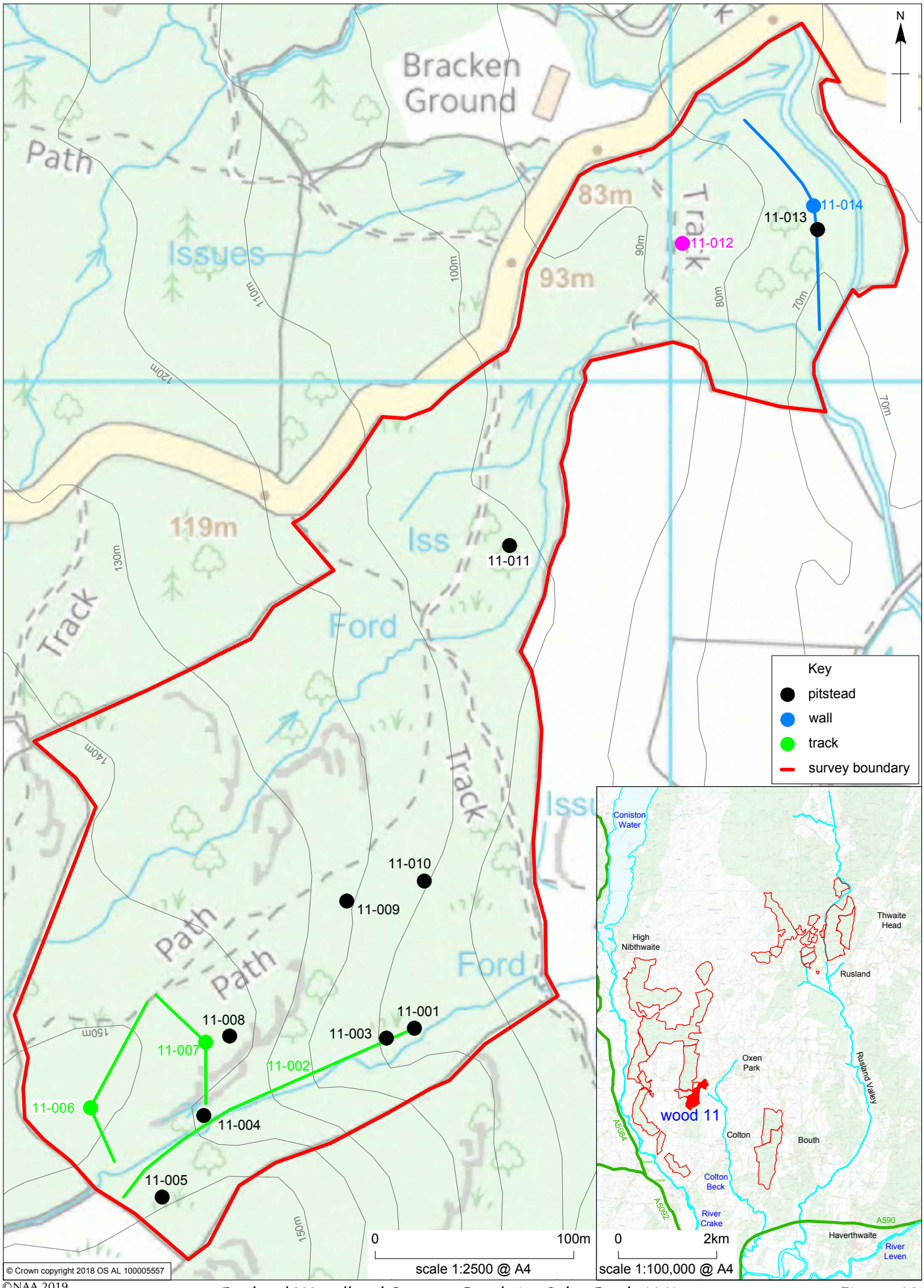
Figure 9



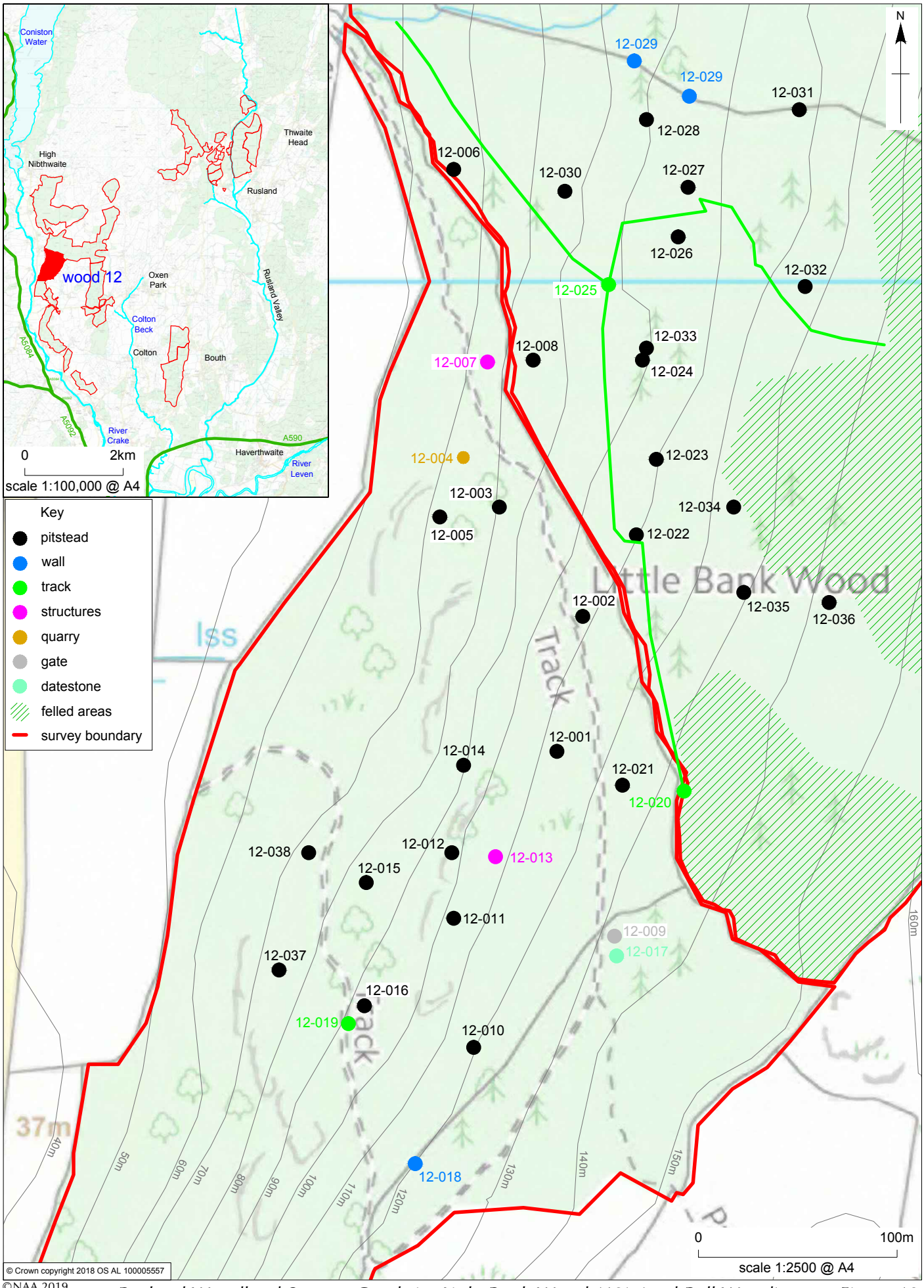
Rusland Woodland Survey: Stricely Spring (7) and Stony Hazel (10) *Figure 10*



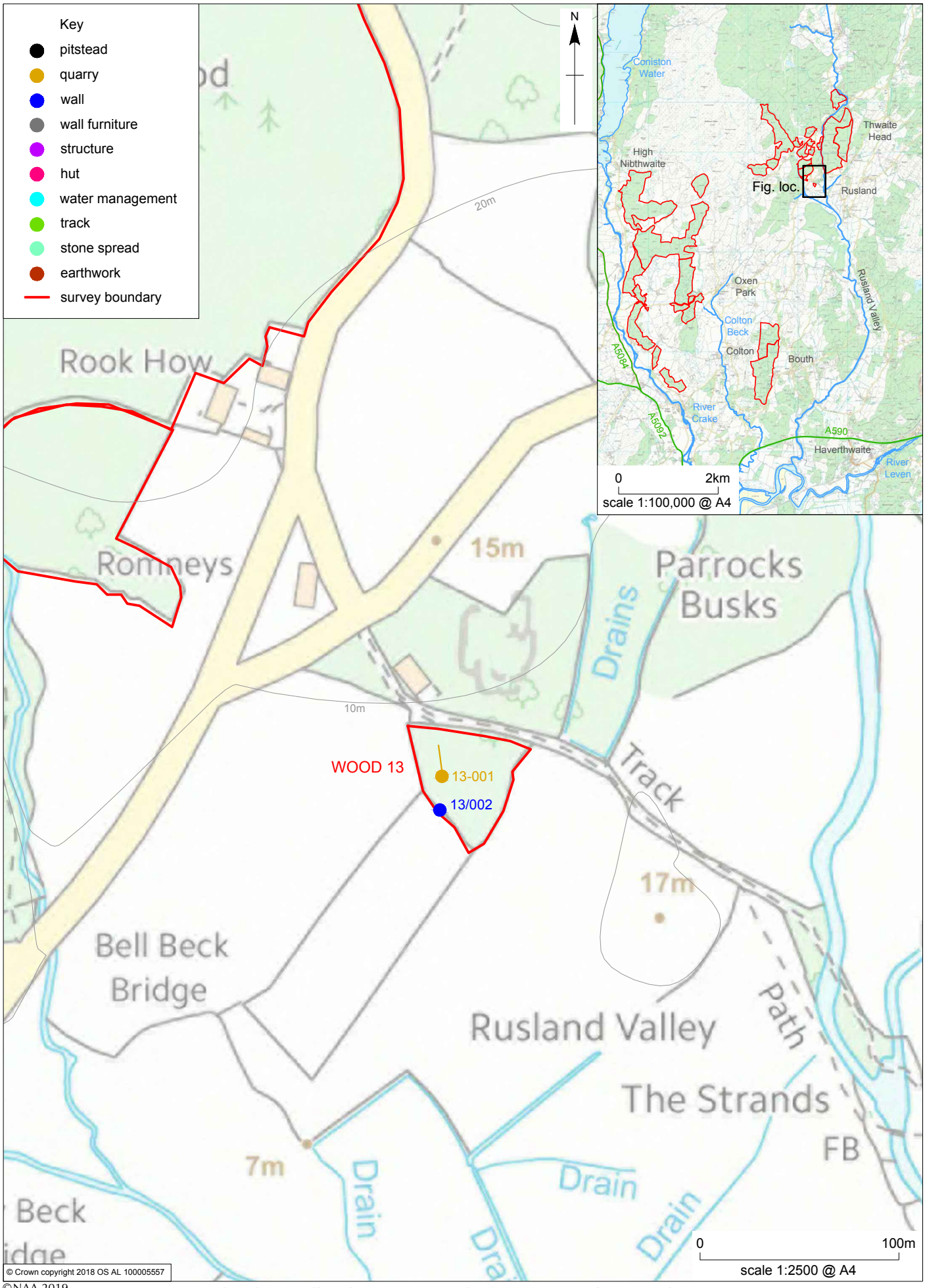
Rusland Woodland Survey, Cumbria: Brewer Wood (8) and Sawrey Stricely (9) *Figure 11*



Rusland Woodland Survey, Cumbria: Sales Bank (11) *Figure 12*



Rusland Woodland Survey, Cumbria: Little Bank Wood (12) (and Bell Wood) *Figure 13*


Key
pitstead
quarry
wall
wall furniture
structure
hut
water management
track
stone spread
earthwork
survey boundary
N
Coniston Water
Thwaite Head
High Nibthwaite
Fig. loc.
Rusland
Oxen Park
Rusland Valley
Colton Beck
Colton
Bouth
A5084
River Crake
A5092
A590
Haverthwaite
River Leven
0
2km
scale 1:100,000 @ A4
Rook How
Romneys
20m
15m
Parrocks Busks
Drains
10m
WOOD 13
13-001
13/002
Track
17m
Bell Beck Bridge
Rusland Valley
Path
The Strands
FB
7m
Drain
Drain
Drain
Beck
0
100m
scale 1:2500 @ A4
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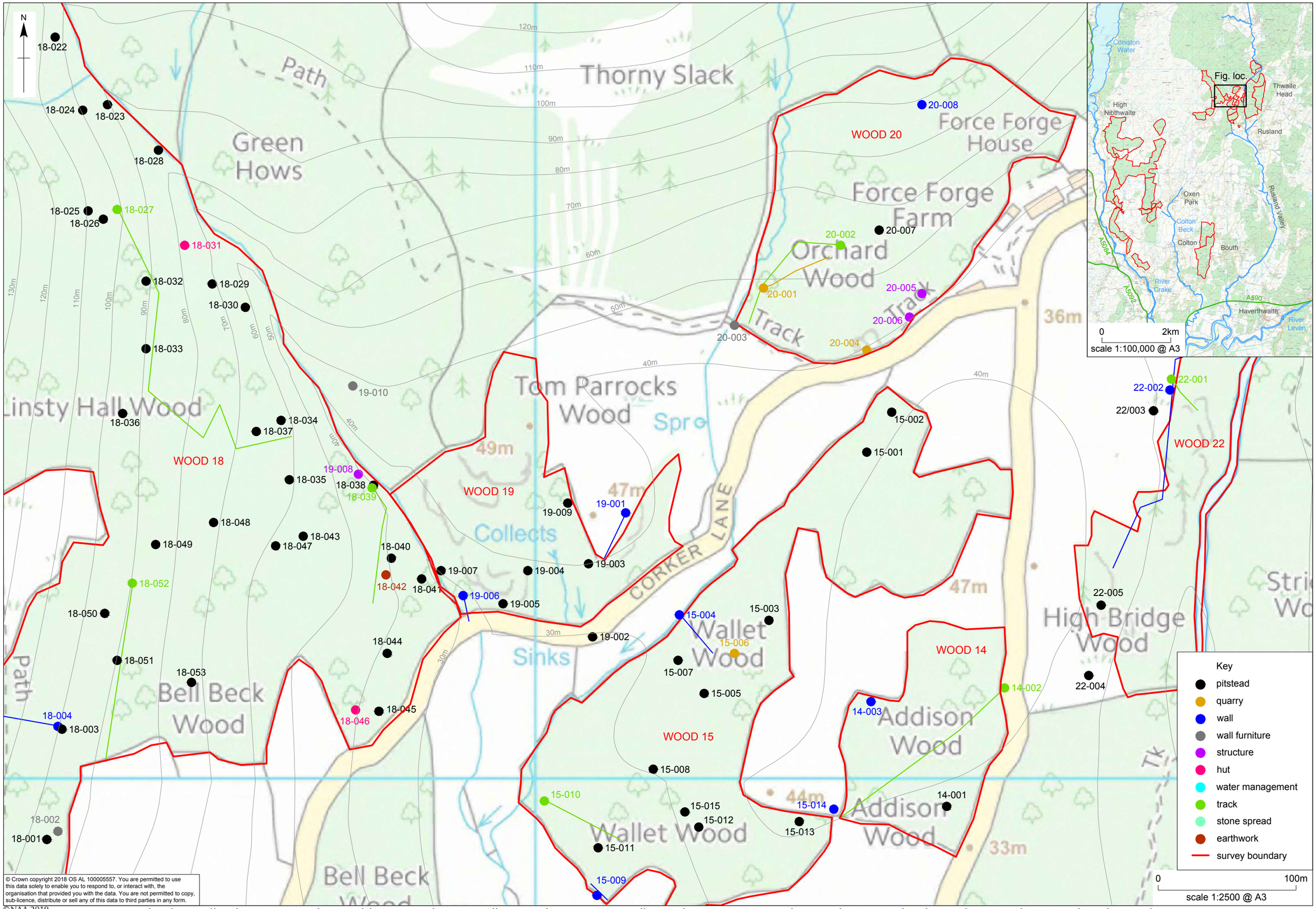
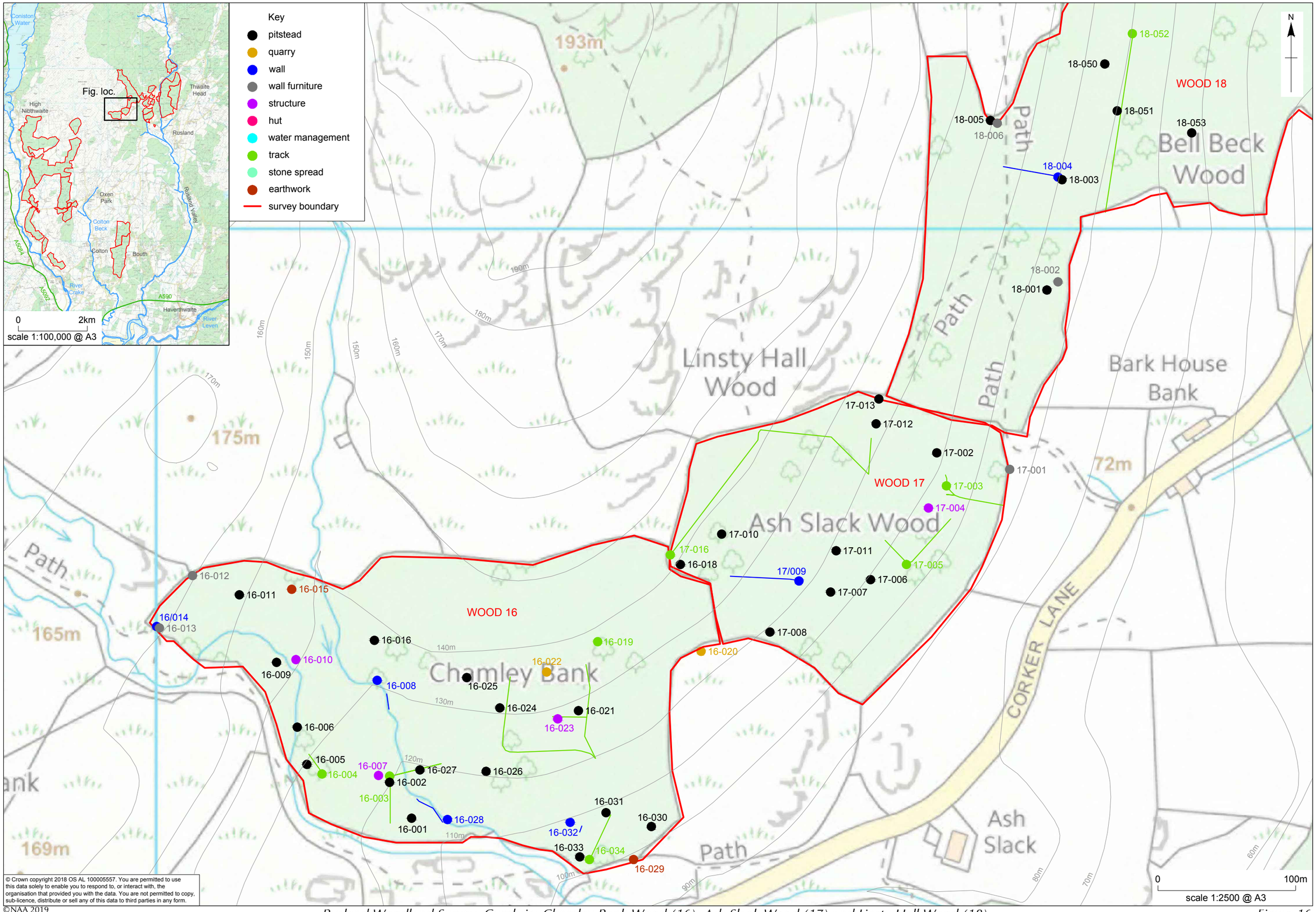
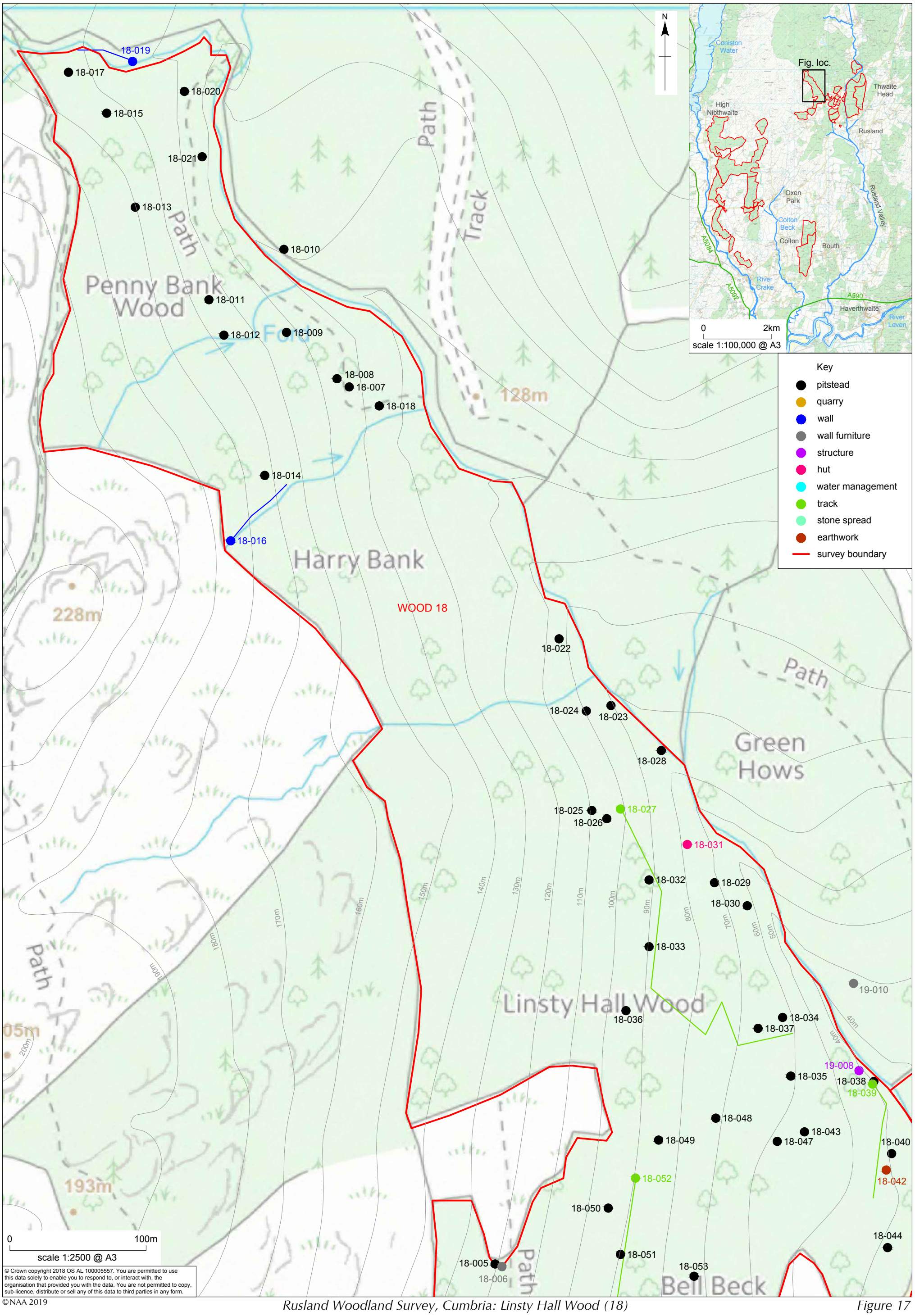


Rusland Woodland Survey, Cumbria: Addison Wood (14), Wallet Wood (15), Linsty Hall Wood (18), Tom Parrocks Wood (19), Orchard Wood (20) and Gate and Beck Wood (22) *Figure 15*

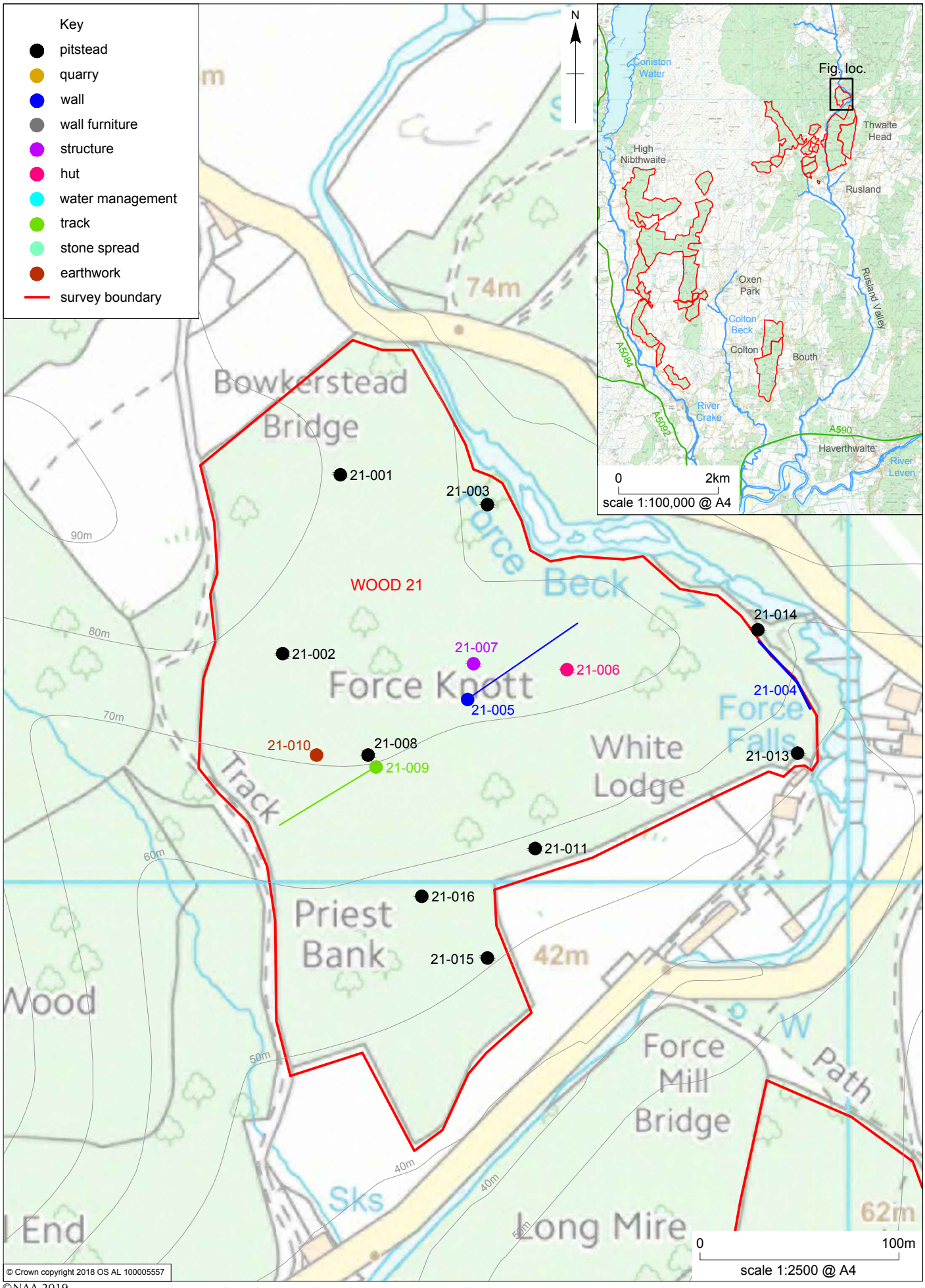


Rusland Woodland Survey, Cumbria: Chamley Bank Wood (16), Ash Slack Wood (17) and Linsty Hall Wood (18)

Figure 16



Rusland Woodland Survey, Cumbria: Linsty Hall Wood (18) *Figure 17*



Rusland Woodland Survey, Cumbria: Force Knott Wood (21) *Figure 18*

Key
pitstead
quarry
wall
wall furniture
structure
hut
water management
track
stone spread
earthwork
survey boundary

23-035
23-016
23-034
23-033
23-017
23-032
23-022
23-018
23-019
23-031
23-020
23-023
23-030
23-021
23-029
23-027
23-028
23-026
23-024
23-025
23-013
23-012
23-011
23-010
23-008
23-009
23-007
23-004
23-006
23-005
23-002
23-003
23-001
25-001
25-002

Bank Wood
WOOD 23
WOOD 25
Path
Path
Track
Scar
Scar
Bridgefield
Issues
Spr
Iss
157m
38m
62m
170m
150m
140m
130m
120m
110m
100m
90m
80m
70m
60m
50m
40m
30m

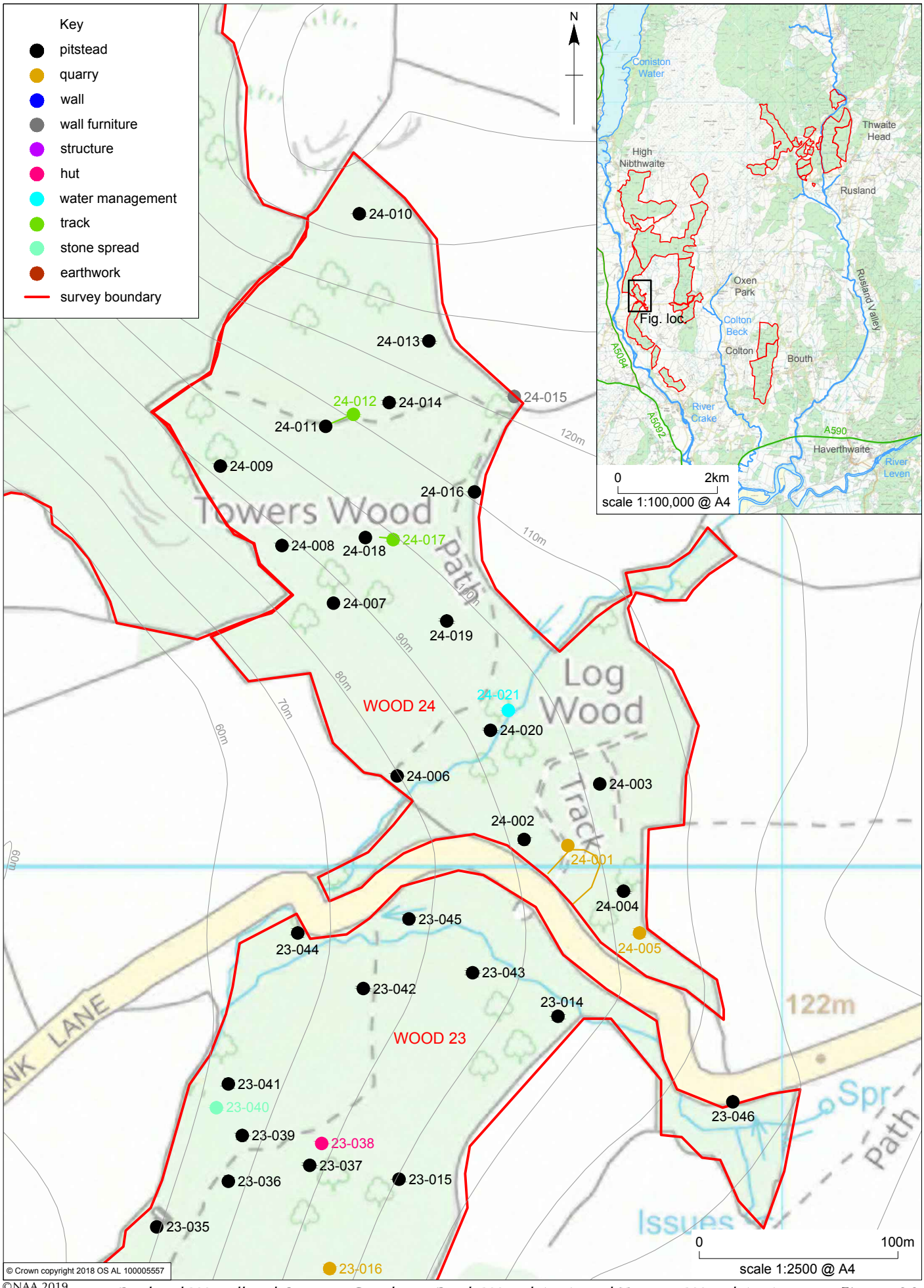
N

Coniston Water
High Nibthwaite
Thwaite Head
Rusland
Oxen Park
Colton Beck
Colton
Bouth
Rusland Valley
Fig. loc.
A5084
A5092
River Crake
A590
Haverthwaite
River Leven

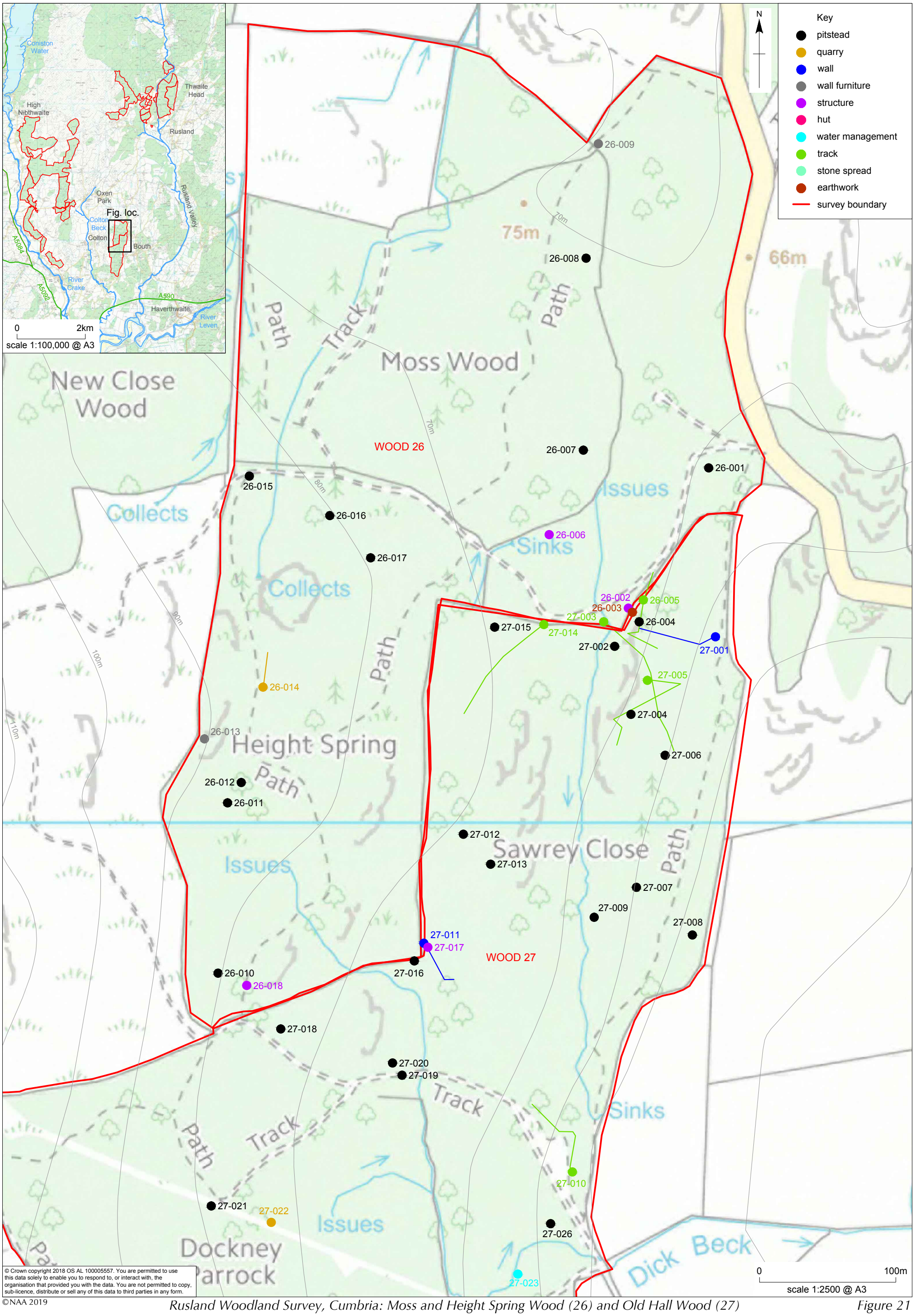
0 2km
scale 1:100,000 @ A3

0 100m
scale 1:2500 @ A3

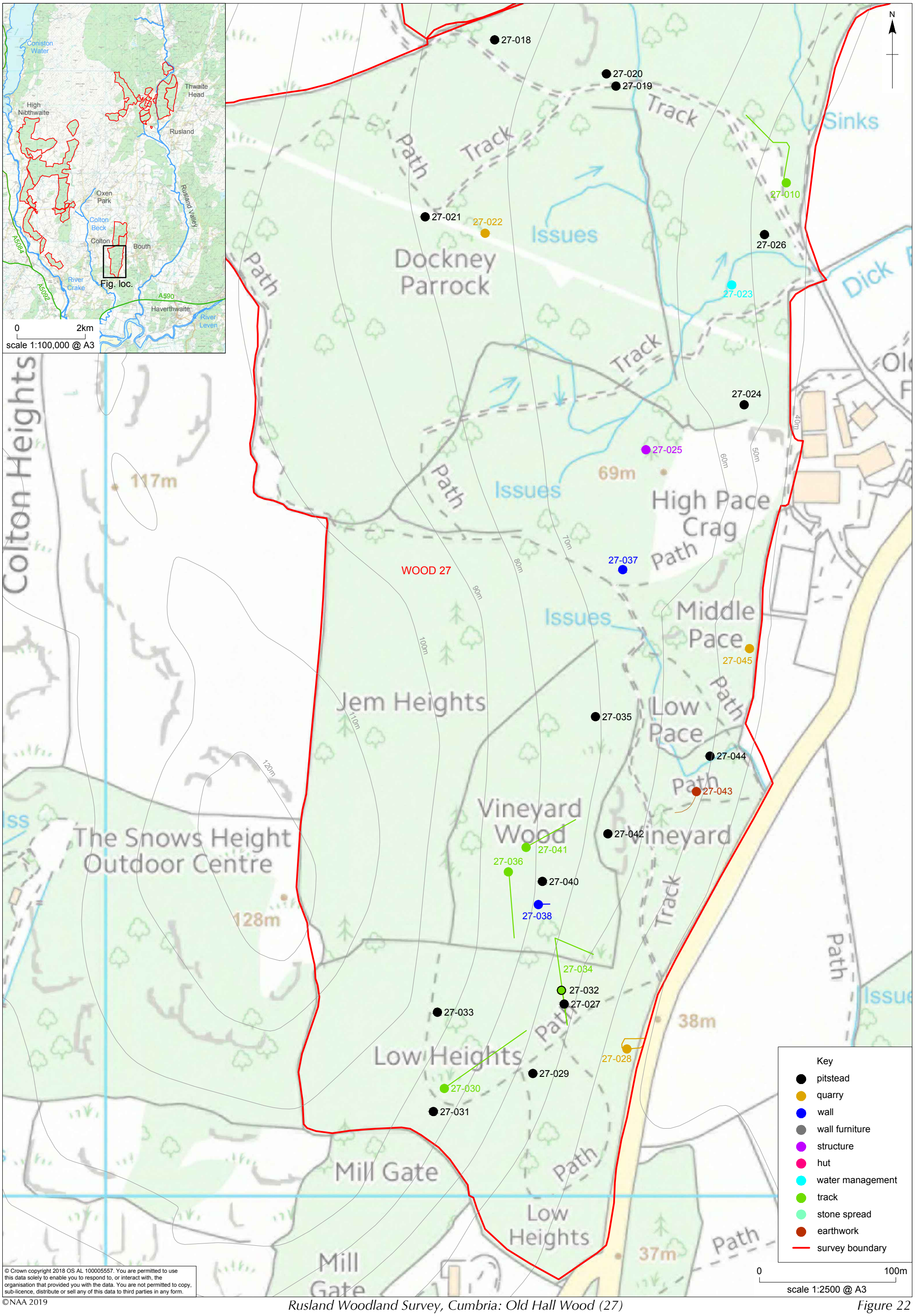
Rusland Woodland Survey, Cumbria: Bank Wood (23) and Far Plantation Wood (25) *Figure 19*



Rusland Woodland Survey, Cumbria: Bank Wood (23) and Towers Wood (24) *Figure 20*



Rusland Woodland Survey, Cumbria: Moss and Height Spring Wood (26) and Old Hall Wood (27) *Figure 21*



Rusland Woodland Survey, Cumbria: Old Hall Wood (27)

Figure 22