

**WOODLAND MANAGEMENT IN TWO YORKSHIRE DALES SINCE THE
FIFTEENTH CENTURY**

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**The candidate confirms that the work submitted is his own and that appropriate credit
has been given when reference has been made to the work of others**

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ABSTRACT

This study examines the woodland management traditions practised in Nidderdale and Wensleydale since the 15th century to evaluate the role of woodland management as an influential factor in determining the survival of woodland in the landscape. It has found that in these two Dales, woodland management practices were a function of the distinct land-use frameworks created by monastic (Nidderdale) or seigneurial (Wensleydale) tenure.

In Nidderdale, coppice woodland predominated over wood pasture to meet the requirements of the mineral-smelting activities of Fountains Abbey, whereas in Wensleydale a different form of land-use consisting of deer parks and stinted grazing pastures featured more wood pasture than coppice.

Within these frameworks the function of woodland was either as a source of raw materials, or as an environment for hunting. Woodland was a resource to which the landless rural population had little access and few rights. In consequence, domestic fuel and small wood was sourced from commonland and the hedgerows that characterised parts of Nidderdale and mid-Wensleydale prior to the Parliamentary Enclosures.

During the time period covered by this research, there was, in Nidderdale, a gradual transition from the intensive coppice regimes of Fountains Abbey, to the amenity and plantation forestry enterprises of the Ingilby Estate. By contrast, in Wensleydale, the remodelling of parkland-derived wood pasture into plantation forestry on the Bolton Estate occurred within the space of a few years during the late 18th century.

The characteristics of woodland are related to past management, and management is a function of the outputs, or end-uses of woodland. Thus the extensive semi-natural woods that characterised a large extent of Nidderdale, prior to their conversion to coniferous plantations, were the product of a coppice management regime whose purpose was to produce charcoal or kiln-dried wood, whereas many woods in Wensleydale were primarily planted for timber production.

The conclusion of this research is that it is the combination of end-uses and land tenure that characterises woodland and determines its continuity in the landscape rather than the form of woodland management employed.

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1. INTRODUCTION

The Yorkshire Dales is one of the most sparsely wooded landscapes in Britain. This is particularly evident when the statistic of 3.5 per cent woodland cover in the Yorkshire Dales National Park (Drewett 1991; Graham and Dalton 1993), and between 4 and 6 per cent cover in the Nidderdale Area of Outstanding National Beauty (ADAS 1995) is compared with the 10.4 per cent average woodland cover elsewhere in Britain (ADAS 1995). But although woodland represents a relatively small percentage of total land-use in the Yorkshire Dales, its contribution, in terms of visual amenity, ecological and historic landscape value, is profound.

The historical development of the Dales woodland is considered to be different from that of other regions, largely because of climatic factors and the fact that woodland clearance occurred later, and was of longer duration than elsewhere (Barber and Cooke 1990). But these factors in isolation do not provide a convincing explanation for the comparative lack of woodland in this upland landscape. It is the conclusion of one well-respected source that the sparseness of woodland in the Dales landscape is due to the absence of a woodland management tradition in the area (Barber and Cooke 1990). This is just one of many hypotheses. Less authoritative and largely anecdotal sources account for the sparseness of woodland in terms of over-exploitation by the lead-mining industry of the 16th-19th centuries, or blame the monasteries for clearing the woodland. A predominantly livestock-based farming system is also charged with overgrazing in woodlands and their consequent loss.

The underlying theme behind the assumptions is that the Dales woodland has been an undervalued resource and this has inexorably led to its fragmentation and ultimate destruction. These somewhat simplistic explanations fail to take into account that woodland cover varies considerably between individual Dales. For example, Nidderdale is a narrow valley of individual trees, small woods and large coniferous plantations that afford a well-wooded prospect to the landscape, whereas the lesser wooded and broader valley of Wensleydale has a more subtle woodscape, in the form of scar woods, field trees and small broadleaved plantations.

This research challenges all of above assumptions and explores the reasons behind the disparity in woodland cover between Nidderdale and Wensleydale. It examines the role of woodland in a diverse framework of tenure and land-use, and considers the management methodologies employed to meet the demands of a mixed rural and industrial economy. The alternative hypothesis explored by this research is that land tenure and end-use were the critical factors that determined the continuation of woodland in the landscape, and that woodland management was

the means by which woodland was conserved. This research argues that in the Yorkshire Dales woodland was a valued resource whose management was as critical as anywhere else, and dismisses the above assumptions in providing an invalid explanation for the perceived lack of woodland in the present landscape.

Because woodland history is not a discrete discipline as such, but a blend of historical ecology and landscape history, researchers tend to approach the topic from different perspectives. Watkins (1998) is concerned that historical geographers appear to be principally concerned with woodland as the precursor of land cleared for agriculture or other land-uses and that little interest has been shown in the way trees and woodland were managed and valued. Rarely are there any attempts to conceptualise woodland – to reconstruct cleared areas as woodland and to gain some insight into the characteristics and function of such woodland. In this research, Watkins' sentiments will be seen to have been particularly influential, for while this is a study of woodland within the discipline of landscape history, it goes beyond the mechanistic reconstruction of former woodland as areas on maps to explore the form, function and characteristics of woodland, both extant and defunct.

This study of woodland management in two Yorkshire Dales – Wensleydale and Nidderdale – has utilised the methodologies of Rackham (1980) and Peterken (1981) – the principal practitioners of the discipline of woodland history to gain a concept of the woodland at the macro scale. Whilst the recommended methodology, using maps, documents and fieldwork has played a large part in this study, the writer has also employed a number of techniques unused by other workers as a means of quantifying woodland. Where appropriate, these have been incorporated into the study to examine the local, or micro scale, dimensions. This thesis puts a number of local studies into context. It examines aspects of woodland management from a wide range of documentary sources and empirical study in an attempt to identify the influences that have given the Dales woodlands a distinct identity. The main research questions are, therefore:

- **Where was the woodland and what was it like?**
- **What was it used for?**
- **How was it managed?**
- **How has this affected the appearance and characteristics of the woodland in the present landscape?**
- **Why is there more woodland in Nidderdale than in Wensleydale?**

The assumptions of Barber and Cooke (1990) may stem from the fact that very little research has been undertaken into the woodland of the Yorkshire Dales. This may be due to a perception

that this sparsely wooded area has a limited capacity to contribute to the body of knowledge that supports woodland history. In consequence, there is no extensive corpus of past work from which present woodland researchers may benefit. A response to this shortcoming has, however, appeared in recent work by Gledhill (1992, 1993, 1994, 1998) and Fleming (1997, 1998). Their work has begun to address this deficiency, and highlighted the need for further research, particularly into the forms and extent of different management practices that have influenced the character of the region's woodland. This thesis is a small contribution to that aspiration.

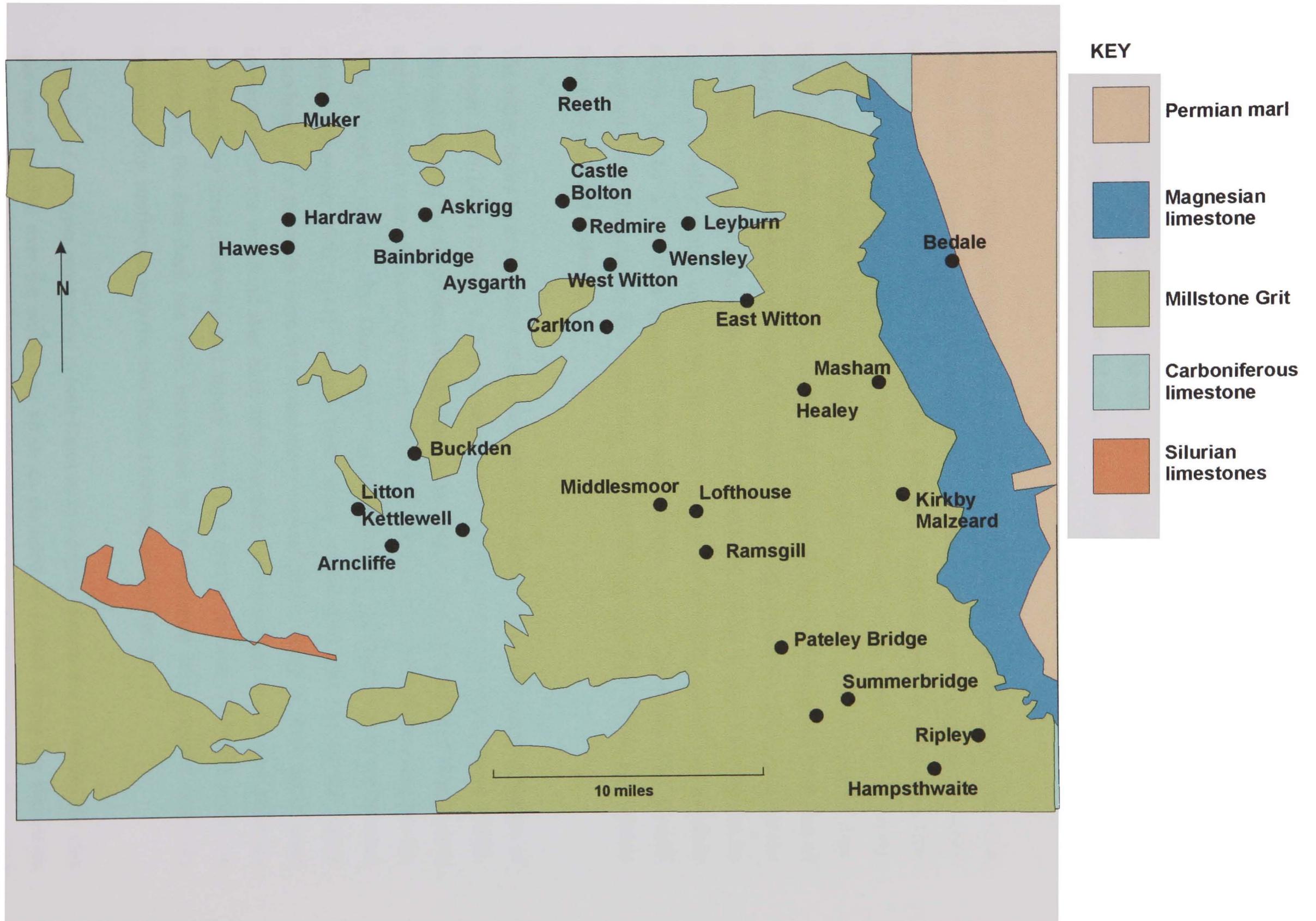
1.1 The physical environment

The Yorkshire Dales is the collective name given to an area of the central Pennine uplands situated between the Stainmore Gap in the north and the Aire Valley in the south, where river systems have cut deep valleys into an uplifted platform of sedimentary rocks. With the exception of the Howgill Fells, an outcrop of Silurian limestones in the extreme west of the region, the geology of the Yorkshire Dales is composed of sedimentary rocks laid down during the Upper Carboniferous period (350-270 ma). The two study areas in this research are characterised by the Carboniferous Limestone in Wensleydale and the Millstone Grit in Nidderdale (Figure 1.1).

The Carboniferous Limestone is the name given to a sequence of deposits which were laid down in the Viséan sequence (Edwards and Trotter 1954, p.17). In Wensleydale these deposits consist of the *Great Scar Limestone*, a marine deposit derived from an accumulation of shell debris and precipitates laid down within a shallow tropical sea, and the *Yoredale Series* (lately renamed the Wensleydale Group), a formation of beds of limestones, shales and sandstones laid down within a tropical lagoonal environment. Facies changes brought about by fluctuations in sea level caused the Yoredale Series to be deposited in rhythmic succession which resulted in the formation of a sequence of strata of varying hardness. Differential weathering of the alternating beds of limestones, shales and sandstones has led to the formation of limestone terraces on hillsides in Wensleydale. These landforms are particularly conspicuous between West Witton and Hawes, where shelf woods rooted in the shale beds emphasise the underlying geology.

The Millstone Grit, a formation composed of mudstones, sandstones, grit and shales, deposited during the Namurian sequence of the Upper Carboniferous period, is stratigraphically younger than the Carboniferous Limestone. It is a deltaic deposit whose components reflect changes in the depositional environment occasioned by fluctuations in sea level. As such, the formation is characterised by a repetitive (rhythmic) stratigraphy of alternating beds of varying hardness (Versey 1967, p.7). Whilst the Millstone Grit forms the distinctive, sombre landscape of Upper

Figure 1.1. The geology of the Yorkshire Dales (drawn by the writer)



Nidderdale, in which tracts of bleak heather moorland are punctuated by the deep narrow valley of the river Nidd, it also outcrops in Wensleydale and other limestone dales in the form of hard, erosion-resistant cappings to a number of high points. In Nidderdale, the crags and cliffs that form the moorland edge at Guisecliff, near Summerbridge and the spectacular weathered gritstone outcrops at Brimham Rocks are just two notable examples of the Millstone Grit landforms. Gritstone has been quarried widely in Nidderdale as a building material for houses, barns and for the many hundreds of miles of stone walls that characterise the Dale.

The landforms of Nidderdale and Wensleydale are a product of the last (Devensian) glaciation (Palmer 1967). Upper Nidderdale was occupied by a glacier whose presence gave the valley south of Lofthouse a classic U-shaped profile. Melting of the glacier resulted in the deposition of fluvio-glacial material in the form of rocks, gravel and sand on the valley floor. In Lower Nidderdale, the proximity of morainic deposits from the Vale of York glacier caused the river Nidd to take a new course, and an accumulation of glacial meltwaters initiated the formation of a large lake that extended from Nidd to Summerbridge. Overflow from the lake carved out the spectacular river gorge at Knaresborough. In Wensleydale, the effects of glacial activity can be seen in the valley profile and in the deposits of poorly sorted sands, gravels and morainic detritus left by a retreating glacier in the closing stages of the Devensian. The drumlin topography that characterises the valley floor between Hawes and West Witton is a classic feature of glaciated landscape.

The valley floors lie at elevations of between 200-600ft with the moor tops reaching heights of between 1000-1400ft (Figure 1.2). A number of high points stand at elevations above 1500ft. The inclination of the underlying Askrigg Block has caused the drainage pattern of Wensleydale and Nidderdale to be orientated eastwards. Thus, the main rivers Ure and Nidd flow east into the Vale of York to join the river Ouse with eventual discharge to the North Sea by the Humber estuary (Barringer 1982, p.11). In both Dales many watercourses that rise on the higher moorlands enter the main rivers by narrow steep wooded ghylls. Many of these are of great importance for the woodland they hold. In Nidderdale, the headwaters of the river Nidd are intercepted by three reservoirs that supply water to a number of west Yorkshire towns. In Colsterdale the Pott Beck has been intercepted by the Roundhill and Leighton reservoirs upstream of its confluence with the river Burn, a tributary of the river Ure.

The range of soil types represented in both Dales is, to a degree, determined by the boulder clay that was deposited over the entire area up to an elevation of 1,500ft during the Devensian glaciation (Figure 1.3). Where these drift deposits have accumulated on the valley floors and

Figure 1.2. The Yorkshire Dales: relief and drainage (drawn by the writer)

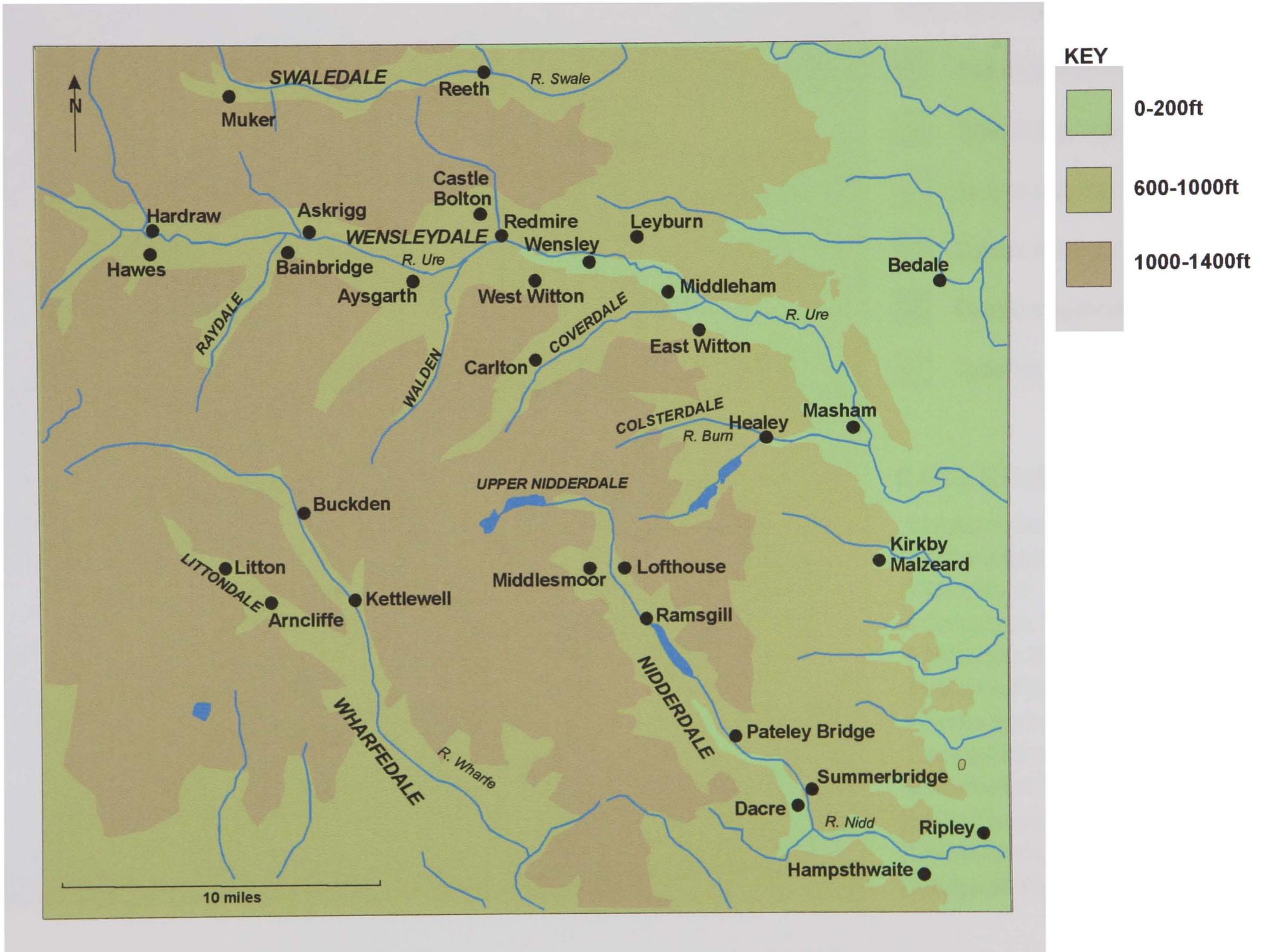
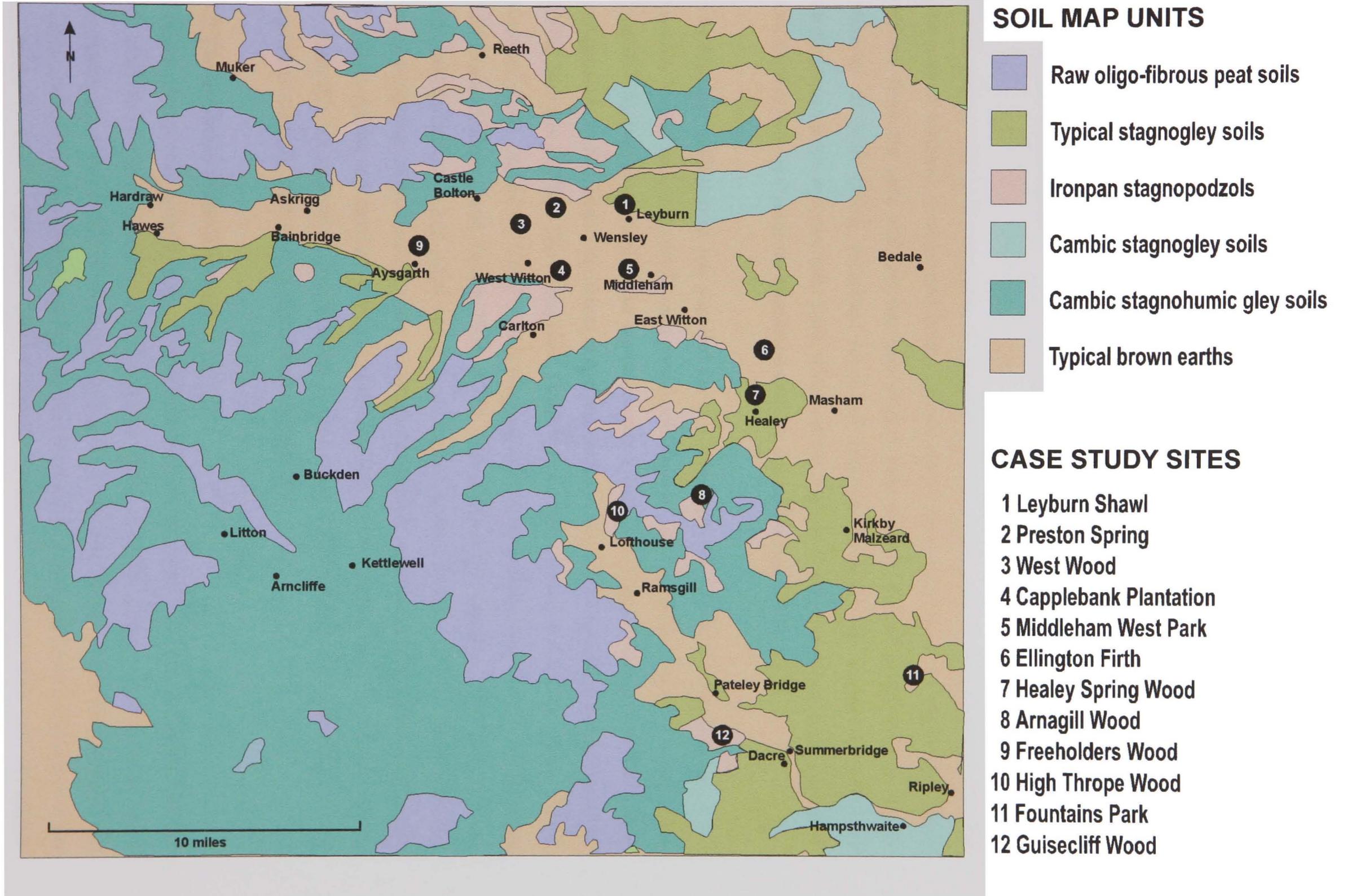


Figure 1.3. Soil map of the Yorkshire Dales. Drawn by the writer, based on the 1:250,000 Soils of Northern England map (Soil Survey of England and Wales 1983)



plateaux, the derived soils are unrelated to the underlying geology. Over much of the study area the valley-floor soils take the form of typical brown earths, where their fertility has been a focus for agricultural use (Burnham 1980). The soils on the valley sides tend to be more closely related to the underlying geology and are far less fertile. They frequently coincide with areas of woodland. In Nidderdale, soils derived from the grit are sandy, porous and infertile, whereas those from the shale take the form of cold, wet and acidic heavy clays. The addition of lime to improve the structure and fertility of these soils has been practised for many centuries to raise their agricultural potential.

On the valley sides in Wensleydale, the influence of the limestone is particularly apparent in the presence of alkaline, sweeter and drier, shallow soils. These soils are more fertile than those derived from the grit, and this has promoted a long history of agricultural use. At higher altitudes in both Dales, increased levels of precipitation have led to the formation of stagnohumic gleys and raw peat soils which, at the highest elevation support mire vegetation and blanket bog, or ericaceous vegetation on drier areas (Barringer 1982, p.27).

The physical environment has supplied the raw materials that formed the basis of extractive industry in the Dales from the Roman period until the early 20th century. Thin coal seams in the Yoredale Series were mined in the medieval period, and quarrying of limestone in Nidderdale and gritstone in Nidderdale continues in the present time. But it was the discovery of (Raistrick 1973; Rodgers 1978). The Hercynian Orogeny, a major mountain-building phase which occurred at the end of the Upper Palaeozoic, caused folding and faulting of the Carboniferous Limestone (Edwards and Trotter 1954, p.75). This allowed the intrusion of magma and hot mineral-bearing fluids into joints and fissures created in the limestone. Mineralisation resulted in the formation of ore-bearing veins within the limestone, which contained galena (lead ore), fluorspar, calcite and barytes. Whilst lead-mining was at its most extensive in Swaledale and Wensleydale, an outcrop of Carboniferous Limestone at Greenhow Hill formed the basis for an important monastic lead-mining enterprise in Nidderdale.

1.2 The evolution of the landscape

The postglacial vegetation history of Nidderdale and Wensleydale, has been examined with the aid of pollen analysis (Tinsley 1974; Honeyman 1985). This has provided a reconstruction of the composition and extent of woodland during the postglacial period. It has also revealed the presence of prehistoric agrarian activity and the clearance of woodland. Later colonisation of the landscape by Anglian and Norse settlers initiated further woodland clearance, also discernible from characteristic place-names bearing the suffix '-ley' denoting a settlement created in cleared woodland during Anglo-Saxon times, or the suffix '-thwaite' having a similar meaning but

being of Scandinavian origin. From the distribution of place-names it is apparent that settlement was initially confined to the lower and less wild areas of both Dales, with the upper Dales largely functioning as areas of summer pasture. Jennings (1967, p.21) is of the opinion that prior to the arrival of the Anglo-Saxons in the sixth and seventh centuries, the woodland in the valley bottom of Nidderdale, consisting of oak woods and dense alder/willow carr was largely intact. Following the Norman Conquest, large tracts of land in the Dales were set aside as the hunting grounds of the nobility (Muir 1997). Upper Wensleydale became a royal hunting Forest of the Lordship of Middleham and Upper Nidderdale hosted the hunting ground of the de Mowbray family. Much of Lower Nidderdale was occupied by the royal Forest of Knaresborough (Muir 1997).

In the 12th century large tracts of land in Wensleydale and Nidderdale were granted to monastic houses by baronial landowners. At this time the upper Dales were virtually unpopulated following the brutal 'Harrying of the North' inflicted by the Normans upon the rural population in the winter of 1069-70. Depopulated land was ideally suited to monastic agriculture, and under this fundamental reorganisation of land tenure Jervaulx Abbey received an estate in Wensleydale which extended from the Dale head to the location of present-day Askrigg, and most of Nidderdale passed into the hands of the Cistercian abbeys of Fountains and Byland. Both monasteries established vaccaries for cattle-breeding and turned large tracts of land over to sheep pasture on their new acquisitions (Jennings 1967). Under the terms of the land grants, the monasteries were permitted to create assarts (clear woodland for the creation of pasture) and through this process, coupled with the presence of large numbers of grazing livestock, there was a large amount of woodland clearance in the upper Dales.

By the 14th century Mid-Wensleydale had become a landscape of hunting in the profusion of deer parks owned by the Lordship of Middleham and seigneurial families (Hartley and Ingilby 1986, p.13). In contrast, Nidderdale had developed into a landscape of monastic farming based upon a system of granges that were interlinked with drove roads and packhorse tracks. Although Jervaulx Abbey had relocated to a new site at East Witton in 1156, the monastery maintained a presence in upper Wensleydale. A house of Premonstratensian Canons was established in Coverdale at Coverham Abbey in 1196.

In Wensleydale medieval settlement took the form of nucleated villages and open-field agriculture. In contrast, there was a dispersed pattern of settlement in Nidderdale, centred upon the monastic granges and small, peasant farmsteads and hamlets in the royal Forest of Knaresborough and Bishopside, the estate of the Archbishop of York (Jennings 1967). By the 16th century the open fields of Wensleydale had virtually disappeared through private

agreement and piecemeal enclosure. This saw the amalgamation of open field strips into larger units delineated in the middle part of the Dale by hedgerows.

Following the Dissolution of Fountains Abbey in 1539, the monastic estate in Nidderdale was purchased by large landowners and farmed as conventional tenanted farming units. Although the grange of Lofthouse developed into a settlement, most of the other Fountains Abbey granges remained as farms, a number of which were eventually sold to their tenants. This change in ownership ushered in a renewal phase in the 17th century known as 'the Great Rebuilding' during which time many of the original timber monastic buildings were demolished and rebuilt in stone by their new yeomen farmer owners (Jennings 1967).

In Wensleydale the sale of the Lordship of Middleham in 1628 saw the transfer of that estate to the City of London and the swift resale of most of its leased holdings to the sitting tenants or leased in perpetuity (often for 1,000-years) at nominal 'ancient rents' (Willan and Crossley 1941). This development saw the remodelling of the former parkland landscape into one of enclosed agricultural fields. Land owned by seigneurial families continued to function in the form of estate units, with entire villages and farms let to tenants.

By the late 18th century the Parliamentary Enclosure process had reached the Yorkshire Dales. In Wensleydale this took the form of subdivision of former 'Cow Pastures' into closes in lieu of stints, in (Muir 1997). In Nidderdale, the Enclosure process saw the disappearance of the Forest of Knaresborough and large areas of common grazing throughout the Dale. The landscape acquired a new identity through the construction of miles of arrow-straight gritstone walls and new roads (Cale 1998). Many new farmstead units were established at this time as part of the reorganisation of the agricultural landscape.

During the 18th and 19th centuries, the new enthusiasm for woodland planting on the landed estates saw the introduction of new plantations of broadleaved trees into the Dales landscape, while the rapid growth of the lead-mining industry, which had figured significantly in both Wensleydale and Nidderdale during the post-medieval period, fuelled the expansion of old settlements and the institution of new mining communities to cater for a rapidly growing population. The landscape of the Yorkshire Dales is a palimpsest of changes in land-use over time instituted by changes in society. Thus landscape and society form the framework into which this study of woodland management is set.

1.3 Social and economic history

For many centuries the Yorkshire Dales have been populated by small farming families, many of which are descended from Anglo-Scandinavian ancestry. These hardy, resourceful and independent people developed a lifestyle that matched the remoteness of their environment. The valley settlements that characterise the Dales have always been subject to a degree of geographical and cultural isolation due to their separation by high moorlands and the inherent difficulties in communication. Because of this isolation, the social and economic history of the region tends to be distinctive to individual Dales. Furthermore, intra-Dale variability in climate and terrain was responsible for the evolution of different types of land-use, settlement and social organisation.

These factors, coupled with differences in land tenure, were responsible for the existence of two basic farming systems in the Dales. The climatic and topographical limitations of the upper Dales restricted land-use to pastoral agriculture in livestock production and dairying in vaccary units, supplemented by cottage-based crafts and industries. In the less extreme climate of the middle and lower Dales, it was possible to grow a limited range of arable crops, and with the exception of Nidderdale, village communities extended up all the Dales, with their sometimes extensive open fields (Fieldhouse 1982). During the 12th-13th centuries there was a brief period when the climate was warmer than present and the cultivation of arable crops at higher altitudes was possible. This is evident in the presence of great tracts of strip lynchets at considerable heights on the south-facing fellsides in Wensleydale.

In the pastoral system of the upper Dales, land was organised into hay meadows and grazing pastures. The fells were grazed by hefted flocks of hardy sheep able to withstand the vagaries of the climate. Dairy cows were pastured on the hillsides during the summer months and housed during the winter. This system of conservation farming was reliant upon the effective management of valley-bottom hay meadows in order to provide the critical reserves of winter fodder upon which the system depended. Some improved 'inbye' land on the valley sides was also managed for hay and for early- and late-season grazing (Winchester 2000, pp.52-57).

During the Middle Ages the system of land tenure in the Dales did not follow the typical feudal pattern, for much of the land was in the hands of large lay/ecclesiastical lords, whose main estate centres all lay some distance from the Dales. It was not until the late medieval period that large permanent residences with their complexes of demesnes and parks were established, such as Bolton Castle in Wensleydale and Ripley Castle in Nidderdale (Muir 1997). Prior to this time, the lords used their Dales properties primarily as hunting reserves, as places for breeding livestock (for sale and to supply lowland manors), and as sources of manpower for military

operations (Winchester 2000, pp.10-18). Demesnes in the 'village' areas were usually small and restricted to one or two locations, leaving much of the best land in the hands of tenants (Brown 1892).

Despite this, peasant farming was largely a matter of subsistence and the dales people were subjected to a hard and difficult existence. An increase in the population of Wensleydale in the 13th century resulted in large areas of marginal land being put into cultivation. The existence of strip lynchets in high and windswept places is a manifestation of the 'land hunger' that developed when the population carrying-capacity of the Dale was exceeded. In an almost Malthusian situation, there was a huge population decline in the early 14th century, hastened by a succession of poor harvests occasioned by climatic deterioration, outbreaks of cattle murrain, and finally by the Black Death, which probably reduced the population by between one third and one half. The ensuing labour shortage and further deterioration of the climate were contributory factors to the decline of arable farming in the Dale. In the 15th and early 16th centuries however, there was a huge increase in the Dales population at a time when lowland villages were stagnating or declining – a phenomenon that has still not been adequately explained (Fieldhouse 1971). This influx of population led to a proliferation of small farms in the Dales. Population growth had stabilized considerably by the late 16th century and there was little further expansion until that initiated by the late 18th/early 19th century lead-mining boom (Jennings 1967, pp. 470-472; Fieldhouse and Jennings 1978, p.182). Outbreaks of the 'pestilence' continued to affect the Dales for the next 250 years, and in 1563 a severe outbreak reduced the population of Wensley to such a level that the settlement was virtually deserted and never regained its former market status. By the end of the 17th century arable agriculture had been replaced by pastoral farming in Wensleydale in a response to the rapid growth in dairy produce, especially butter, from the London market, in the middle and later decades of that century (Pearce 1970).

A different sequence of events took place in Nidderdale, where the farming system was centred upon a system of granges serving two large monastic estates. When Fountains Abbey established its farming infrastructure in the 12th century, its granges were managed by monks. This system changed during the 15th century when the monastery let most of its granges to secular tenants or keepers in return for a sum of rent, or for supplying the monastery with livestock and agricultural produce (Jennings 1967, pp.98-101). This arrangement stood until the Dissolution and the sale of the monastic estate. Initially the tenanted holdings were acquired by the new owners of the Fountains Abbey estate and managed as conventional tenanted farming units. However, a number of these properties were sold to the sitting tenants who then attained the status of yeoman farmer (Jennings 1967, pp.121-130).

The division of the vaccaries into numerous family farms in the later Middle Ages led effectively to the creation of new villages, albeit often rather scattered and amorphous in character, leading to a blurring of the distinction between the two types of rural settlement. This led in the 16th century to tensions between landlords and tenants as the latter, in both types of settlement, tried, usually successfully, to improve their grazing resources by enclosing the nearer and better parts of the old common pastures for stinted 'Cow Pastures' (Winchester 2000, pp.68-73).

In Wensleydale there were many more tenanted properties than in Nidderdale, and following the sale and re-sale of the Lordship of Middleham in 1628, most tenants on the estate were allowed to purchase 1,000-year leases of their holdings, paying only a nominal 'ancient rent' – an arrangement which left them effectively freeholders (Fieldhouse and Jennings 1978, pp.115-135). However, ordinary leaseholds at economic rents remained the norm elsewhere, as on the Bolton Castle estates. Many of the village farms of both types had grazing rights on the 'Cow Pastures' where a system of 'stintage' operated which set limits to the numbers of grazing animals that could be accommodated there (Wensleydale WEA Class 1978, pp.47-58). The management of these communal holdings was vested in the Manor Courts, which were empowered to fine anyone presented for committing offences such as exceeding the agreed stint, failing to maintain fences, or for the unauthorised cutting of wood.

The landless dalespeople were rarely prosperous, as the economic returns from hill farming were meagre. Fieldhouse and Jennings (1978, p.280) note that between 1540 and 1700 the majority of dalespeople led a typically 'peasant' existence, with 90 per cent or more of their worldly goods consisting of farm stock and very little by way of household furnishings and utensils. For the more fortunate members of society who were able to acquire their tenancies, there followed a period of prosperity which saw a widespread rebuilding of farmhouses all over the Dales between c.1660 and c.1720 (Harrison and Hutton 1984, pp.216-224).

Many of the agricultural holdings in the Dales, however, were too small to be viable in themselves, and a well established tradition of partible inheritance may have been a factor in reducing their size. In Nidderdale, partible inheritance and population growth can be recognised from the 15th century in the subdivision of tenanted monastic granges (Jennings 1967, pp.104-105).

One consequence of the proliferation of small farming units was the need for a supplementary form of income generation. The presence of lead ore-bearing veins in the Carboniferous

Limestone in Wensleydale and Nidderdale gave rise to an industry which existed in tandem with farming. In Nidderdale, lead ore was mined by Fountains Abbey on Greenhow Hill and conveyed to Brimham where it was smelted with charcoal made in the local woodlands. This enterprise provided an important source of wealth for the monastery. In Wensleydale a system of 'free mining' evolved in the 17th century, in which part-time farmers could, with the landholder's permission, dig for lead on the common lands (Jennings 1967, pp.158-161). Thus mining offered farmers with small, unviable holdings another form of income. At the end of the 18th century mining had become the main occupation for large numbers of dalespeople, with farming sidelined to the keeping of a few animals for domestic use.

In the late 18th and early 19th centuries lead-mining developed into a major industry following investment by landowners and commercial concerns. One effect of this development was a rapid increase in the population of villages in the mining areas such as Preston-under-Scar and Redmire in Wensleydale, and the creation of a new settlement at Greenhow, in Nidderdale. Very small holdings of an acre or two were a feature of the industrialised development of lead-mining and a new influx of population. By the mid-19th century the population had risen to unprecedented levels, swelled by migrant labour, but by the end of the century, cheap Spanish imports heralded the demise of the lead-mining industry in the Dales, and the population reverted rapidly to something like its earlier size (Jennings 1967, p.473). Many farming families, having lost a valuable source of income, either relocated to the industrial towns of the West Riding, Durham and Cleveland, to work in the mills and mines, or saw emigration as their best option. A slow process of depopulation was thus set in train.

In addition to lead-mining, stone-quarrying and farming, the knitting of stockings became a major business from the mid-17th century. Vast quantities of knitted woollen stockings were exported from the Tees to the Low Countries, the Rhineland and Scandinavia, and in this, Wensleydale was one of the main areas of production (Fieldhouse and Jennings 1978, p.182). Although the Industrial Revolution largely bypassed the Dales, the presence of reliable water supplies attracted a number of small cotton mills into the area, such as those established at Aysgarth and Askrigg in Wensleydale. A linen-weaving industry had gained importance in Nidderdale by the late 16th century, and this developed significantly in the 17th century as raw flax from Northern Europe became available in large quantities, imported via Boroughbridge (Jennings 1967, pp.173-176). A flax-spinning industry which became established in Nidderdale in the late 18th century, operated from a number of purpose-built textile mills around Dacre. This industry generated a requirement for bobbins and a number of bobbin mills were established in the locality, utilising raw materials taken from the coppice woodlands.

The social and economic framework of the Yorkshire Dales was, apart from the changes brought about by lead-mining, largely defined by tenure and agricultural practice. The advent of the Parliamentary Enclosures at the end of the 18th century resulted in some reorganisation of the earlier enclosed 'Cow Pastures' and the rationalisation of common rights (Fieldhouse 1980, pp.169-195). From that time until the advent of the First World War, the pattern changed little, although there was a marked exodus of the rural population and the amalgamation of farms into larger and more viable units. A number of labour-intensive practices including woodland and hedgerow management were scaled down in the light of a diminishing rural labour force.

Most settlements have seen a decline in population over the last century as people have left the Dales to find a more secure livelihood elsewhere, and the role of agriculture as the mainstay of the rural economy has been superseded by tourism. Today there remain the forestry enterprises of the large estates, grouse moors and the residues of a much-diminished farming economy.

In recent years academic research into the history and management of woodland has been greatly influenced and furthered by the work of Oliver Rackham. Two of his titles that have initiated the fundamentals of a methodology for research into woodland history are *Trees and Woodlands in the British Landscape* (1976) and *Ancient Woodland, its History, Vegetation and Uses in England* (1980). His much acclaimed later work, *The History of the Countryside* (1986) provides an excellent introduction to the tandem studies of historical ecology and landscape history. It is tempting to regard Rackham's specifically woodland-related titles as the authoritative texts for students of woodland history, but it is when comparisons are made between his perceptions of woodland and the woodland of the Dales that some notable distinctions emerge. These result from Rackham's perceptions of woodland history, which are written from a largely East Anglian perspective, and generally describe lowland situations that are unlike those that characterise the Yorkshire Dales – a distinctive upland area of moorlands and valleys incised into the Central Pennines.

Whilst woodland history draws upon historical ecology, it is also a subsidiary study of landscape history, whose origins can be found in W. G. Hoskins' *The Making of the English Landscape* (1955), notwithstanding the significant contributions by historians and archaeologists such as Maurice Beresford (1984) and O. G. S. Crawford (1953; Bowden 2001). But even Hoskins, although not so regionally distinctive as Rackham, did nevertheless draw many of his assumptions from the English Midlands and the south-west peninsula – again, areas with very different landscape attributes from those of the Yorkshire Dales. Perhaps it is the singular identity of Yorkshire, which sets it apart from generalisations that can be applied to other parts of the country. And in this respect, the woodland, as with many other facets of the landscape, does not follow the 'standard' pattern established in the literature.

More recently, Winchester (1987; 2000), who has made a major contribution to understanding the functions of rural land-use and rural society, and the woodland resources upon which they were dependent, has addressed this mismatch between studies of the uplands and lowlands. Similarly, Harrison (2000), in a contributory paper in Thirsk (2000) has enhanced our understanding of the functions of an upland medieval landscape and its development from the 12th century up to the present day. Hey (2000) in a contribution to the same volume, provides a useful insight into the moorland economy, taking examples from Dartmoor, the Peak District, the North York Moors and the Pennines to illustrate his text.

Prior to the adoption of coal in the late 18th century, wood and peat were the principal fuels for heating and cooking in the Yorkshire Dales. As a source of fuel and raw materials, wood was second only in importance to food and water, and therefore the importance of woodland cannot be overstated. Wood underpinned the foundations of a social economy that was reliant upon a continuous and plentiful supply. To meet these demands, woodland was conserved and managed by coppicing – utilising the ability of many species of native trees to regenerate from cut stumps. Coppice management involved the periodic cutting of trees down to a ‘stool’ [stump]. This would subsequently regrow as a crop of poles from the bud initials. Coppicing is neither harmful nor fatal to trees, but extends the natural lifespan of trees to the extent that some individual stools may be 1000 years old or more (Rackham 1976). In coppicing, the rural population had a means of managing woodland sustainably. That is to say by cutting coppice woodland on a rotational basis, it was possible to maintain a constant supply of underwood [small wood]. Timber, as opposed to ‘wood’ [underwood] was initially sourced from unmanaged woodland, but later from a dual system which incorporated the production of timber [overwood] and underwood from the same woodland. This is discussed below.

Woodmanship lay at the heart of the medieval rural economy. This term, defined by Marren (1990) as the craft of woodland management, and by Rackham (1976) as the technology of growing and harvesting trees in woodland, can be traced back to the Neolithic period when poles were cut from native trees to serve a variety of functions, or end-uses connected with primitive agriculture. These ranged from the provision of hurdles for the containment of livestock, handles and hafts for stone tools, to arrow shafts and wooden shelters. The celebrated ‘Sweet Track’, one of a number of wooden trackways dating from about 4000 BC, discovered during 20th century peat-digging on the Somerset Levels, was found to have been made from oak planks, secured by pegs of hazel and alder that had been cut from coppiced trees (Darvill 1987, p.71).

The first indication of significant human impact upon woodland in Britain is considered to be the Elm Decline of c.3100 BC (Godwin 1984), when a dramatic decrease in the amount of pollen being shed from elm (*Ulmus* spp) trees is thought to have been caused by boughs and leaves of elm being cut and fed to livestock. Another hypothesis envisages a catastrophic outbreak of Dutch Elm Disease which included not only Britain, but also extensive areas of Western Europe. The earliest form of woodland management may have sought to combine grazing with a means of harvesting small wood in the form of poles, or leaf fodder in branches from growing trees. But as grazing animals would have browsed any seedling trees and prevented the regeneration of woodland, trees were pollarded – coppiced at a sufficient height to place the regrowth beyond the reach of grazing animals. This dual system of wood production and grazing is known as wood pasture, a form of agro-forestry that is still pursued in many developing countries in the present day. Austad (1998) comments that pollarding trees to provide fodder for animals was practised throughout Europe as far back as the Iron Age. Wood pasture (*silva pastilis*) was probably the most widespread type of woodland in England at the time of Domesday (AD 1086) and a prominent feature of the Dales landscape in the 11th-12th centuries. A distinctive feature of wood pasture was that it was unfenced to allow domestic livestock and deer access for grazing. Stamper (1988) suggests that a feature of wood pasture may have been the presence of clumps of thorns which were intended to keep animals and wood thieves away from the young trees.

As a woodland management technique, wood pasture had some fundamental limitations. It was significantly less productive than coppicing and unable to provide the large volumes of wood needed to sustain the demands for fuelwood and raw materials from a growing population. Another factor, highlighted by Rackham (1976) was that the nutritional quality of grass beneath the pollarded trees was generally inferior to open pasture. Furthermore, there were dangers inherent from the need to climb trees to cut polewood that may have resulted in many injuries. Between AD 1100 and AD 1600 there was a transition from wood pasture to coppice management. Although wood pasture had largely disappeared from south-west Yorkshire in the 12th century (Jones 1998), it may have survived in pockets of the northern Dales for several centuries more (Fleming 1998).

Wood pasture began to decline in Nidderdale following the transfer of huge areas of land from lordly ownership to the abbeys of Byland and Fountains. During the 12th century, the monks of Fountains Abbey sought to maximise their pastoral land in Upper Nidderdale. McDonnell (1992) identifies the increased amount of grazing in wood pasture by monastic livestock as the factor which led to the eventual loss of such woodland. Tinsley (1974) credits the monks of Fountains Abbey with the clearance of gill woodlands, the interfluvial flanks below 260m and the

lowland oak woods (1975, p.23). By 1450 the area under wood pasture nationally had declined by half following clearance or conversion to coppice, although large numbers of pollarded trees remained in the landscape, particularly within parks and chases until the 17th century (Jones 1998). Wood pasture was perhaps at its most widespread within the profusion of deer parks that were a feature of the medieval landscape.

Rackham (1976) draws our attention to the fact that by the Saxon period the woodlands had acquired a multi-purpose role, providing pasture for pigs (pannage), building materials, fuel, food and charcoal. Coppicing was to become the principal method of woodland management for the greater part of the Middle Ages and beyond, for its practice promoted the sustainable harvesting of woodland, supplying the population with fuelwood and raw materials. In order to maintain this form of highly sustainable management, it was necessary to prevent deer or grazing livestock such as cattle, sheep, goats, horses and pigs from gaining access to the coppice after it had been cut, when the regrowth from the cut stools was at its most appetising. So important was the need to exclude grazing animals from young coppices that in 1482 Edward IV decreed a statute for the Enclosure of Woods 'in forests, chases and purlieus'. This stipulated that coppices had to be enclosed by 'sufficient hedges' for a term of seven years after cutting. James (1981) and Edlin (1956) discuss this, and later legislative measures designed to protect coppice woodland in considerable detail.

Over much of England it became the established practice to enclose coppice woodland with ditches and earth woodbanks. These were normally topped by fences or dead hedges made from brushwood or similar materials. Many former lowland coppice woods are still recognisable from their peripheral woodbanks. These are in many cases surrounded by an external ditch (in contrast with deer parks that normally had a bank and internal ditch). However, in the Yorkshire Dales, coppice woods were seldom enclosed by earthworks, but were either surrounded by ditches, walls or natural watercourses. Gulliver (1989) observed that most woodlands in the Vale of York were similarly devoid of woodbanks. Rackham (1980, 1986) discusses coppice woods in considerable detail, but his descriptions are largely applicable to lowland woods and are thus open to criticism by giving the impression that woodbanks were a standard feature of all coppice woods, irrespective of location.

To ensure a continuous supply of underwood, it was normal practice to manage coppice woods in rotations, or cycles, over a set period of years. The rotational interval was chiefly determined by the required size and intended end-use of the wood, and many coppice woods were organised into compartments, known as 'falls' or 'cants', which contained stands of even-aged trees at the

same stage in the rotation. To aid the effective management of the coppice woodland, the compartments were occasionally defined by earthen banks.

In Nidderdale, large areas of coppice were maintained by the Fountains Abbey in order to provide the charcoal upon which its mineral smelting activities depended. It will be demonstrated in Chapter 3 that the monastery practised the careful husbandry of its woodlands, for it was totally reliant upon its reserves of wood and timber for building and for making charcoal. Understandably, when the monastery embarked upon a new estate management system, which involved the letting of a number of its granges to tenant farmers, the resulting leases stipulated that the woodland remained under the direct control of the abbot. The *Fountains Abbey Lease Book* (Michelmores 1981) gives a detailed insight into the woodland management policy of Fountains Abbey in the 150 years prior to the Dissolution.

In the 16th century, coppicing was the preferred management technique in Britain. But whilst it was effective in maintaining a constant supply of underwood, the rotational cutting of young trees was unsympathetic to timber production. To prevent a shortage of naval shipbuilding timber, a combined system known as coppice-with-standards became formalised by the Act for the Preservation of Woods 1543, which decreed that all coppices should retain a minimum of 12 standard [timber] trees to the acre. James (1981) discusses this Act and later protective legislation. In consequence, from the middle of the 16th century, coppice-with-standards became the accepted system of woodland management in England.

Paradoxically, more is known about the late glacial and postglacial history of the Yorkshire Dales woodlands than the extent and nature of the woodland in the medieval and post-medieval periods. Bartley's contribution to the seminal volume *Leeds and Its Region* (Beresford and Jones 1967) provides an excellent introduction to the earliest woodland of the Dales. The application of palynological research in Wharfedale, Nidderdale and Wensleydale has resulted in the publication of a number of pollen diagrams and thus provided a valuable insight into the development of woodland during the postglacial period. Much of the early palynological research was undertaken in Wharfedale, where Raistrick and Blackburn (1938) examined cores from Linton Mires, near Grassington. Their work confirmed the belief that the Boreal woodland had been composed of pine, birch and hazel. Walker (1956) similarly carried out work in the Grassington area. His results indicated a comparable situation to that at Linton Mires. Jones (1977) studied the sequence of vegetation development at Threshfield Moor and was able to demonstrate the correlation of pine woodland to calcareous substrates. He observed, in the same manner as Moss (1904) and Woodhead (1929), the degeneration of the upland woodland, subsequent to the formation of moorland peat, with the onset of more oceanic conditions in the

Atlantic period. These workers also noted the sparse distribution of elm on the Millstone Grit, deducing that it was mainly concentrated on the Carboniferous Limestone. The pollen diagrams for the Craven district published by Manby and Turnbull (1986) revealed a similar record for the southern Dales. They show that the first woodland clearance phases took place during the Early Bronze Age.

Tinsley's palynological study of the changing woodland limits on the Nidderdale moors (Tinsley 1974) highlighted the limiting factors of climate and exposure upon the formation of woodland. This investigation into the vegetation history of Fountains Earth and the moorland of the Nidd-Laver interfluvium identified former woodland composed of Scots pine (*Pinus sylvestris*), birch (*Betula* spp.) and hazel (*Corylus avellana*) on the moor tops and mixed oak woodland in the surrounding valleys in the late Flandrian (c.5000 BC). With increasing oceanicity, following the Boreal/Atlantic transition of 7500 BC, pine and birch disappeared from the woodland assemblage, and were replaced by alder (*Alnus glutinosa*) carr. An amelioration of the climate giving drier conditions around 2000 BC prompted a transition from alder carr to mixed oak/birch woodland, where oak was able to recolonise the higher ground as it dried out. Tinsley reported evidence of oak growing at 1200ft OD (368m).

The first indications of woodland clearance by humans occurred after 2000 BC. These are attributable to the Beaker people and are probably the first instance of woodland grazing in Nidderdale. After 500 BC there was an acceleration in woodland clearance, and Tinsley notes that by 250 BC moorland limits similar to those of the present day had been established. Tinsley observes that the lowland woodland was probably more extensive than it is now, 'though similar in composition to the modern gill woodlands' (1974, p.22). Through this work, Tinsley was able to demonstrate that the development of woodland in Nidderdale paralleled that in other parts of upland Britain. Her work has put the Yorkshire Dales into context and is helpful in confirming that pollen diagrams from comparable (upland) areas are relevant in providing an understanding of the process of woodland dynamics in the light of current knowledge.

Turner and Hodgson (1979) were similarly able to demonstrate that the Pennine forests had been composed of hazel, pine, birch, oak and elm, and Honeyman (1985) confirmed this through her work on the Holocene vegetation of Wensleydale which demonstrated that the primeval forests in that Dale, which occurred between a datum band of 200m-700m OD, had been composed of birch, hazel, oak and alder. Prior to Honeyman's research, little was known of the postglacial vegetation history in the northern dales, in particular Wensleydale, apart from two palynological studies undertaken on late-glacial deposits at Lunds, near the dale head (Walker 1954) and Semerwater, located in Raydale, a tributary valley to Wensleydale (Ingram

et al 1959). These studies revealed a dominance of willow with birch at Semerwater, and alder, birch and hazel co-dominant with oak at Lunds, at the head of Wensleydale. The conclusion of Ingram was that the vegetation composition around Semerwater had altered little during the preceding 5,000 years apart from some decrease in the number of trees.

These investigations indicate that the initial clearance of the Pennine forests by Neolithic farmers can be correlated with the Elm Decline. In Craven this appears to have occurred around 5000 BP. At Eshton Tarn, in Wharfedale, there was a clearance of woodland for agriculture in the early Bronze Age, and it is thought that by the Romano-British period the surrounding area had been virtually deforested (Honeyman 1985). A similar date exists for Nidderdale, where Tinsley (1974) thought that the clearances were not permanent, because of the practice of *landnam* [shifting] agriculture which took place until the early Bronze Age when the woodland finally retreated. It is, however, by no means certain that the pattern of clearance was exactly the same throughout the Pennine Dales. Honeyman (1985) points out that the local variations which result from physical and human factors are of particular relevance. This is a major consideration in all phases of woodland development from the medieval period to the 19th century.

Raistrick (1968) was of the opinion that a substantial part, if not all, of the woodland had been cleared from the Pennine Dales by the Romano-British period. He postulated that in the post-Roman period there was a renewal of woodland as indigenous species recolonised the Dale bottoms to form stands of secondary woodland (Raistrick 1968). It follows therefore, that the woodland which faced the Norse and Viking settlers and the Anglo-Saxons was probably all secondary. From this work it is possible to conceptualise the appearance of the early medieval woodland. In this, recent work by Vera (2000) has served to give a new perspective to a number of long held perceptions. In the main, Vera questions the theoretical concept of closed canopy woodland that has long been a fundamental pillar of the accepted paradigm of woodland history. In this, Vera states that the impact of large grazing herbivores has been unrecognised, and the effect of continued browsing and disturbance in secondary woodland may have resulted in it having a park-like appearance rather than an impenetrable 'wildwood'.

Perhaps it is the singular identity of the Yorkshire Dales that sets it apart from generalisations that are applicable to other parts of the country. In this respect, the woodland, as with many other facets of the landscape, does not follow the 'standard' pattern established in the literature. And furthermore, the individual Dales are dissimilar, in possessing distinctive characteristics that are themselves the products of differing geology, topography, land tenure and land-use. It follows, therefore, that within this discrete area there are a number of influences which have the potential to characterise the woodland (Peterken 1996). At its simplest, there are local variations

in species communities which reflect the underlying geology (Rodwell 1991). Thus, in Nidderdale, deep acid substrates derived from the Millstone Grit are favoured by sessile oak (*Quercus petraea*), whereas in Wensleydale, the shallow calcareous substrates derived from the Carboniferous Limestone are favoured by ash (*Fraxinus excelsior*). On the fellsides and in the gills, where much of the woodland exists, the relationship of oak with acidic soils and ash with calcareous soils is clearly evident.

If the Dales woodland that was being cleared during the medieval period was secondary woodland that had arisen after the departure of the Romans (Dyer 1991), it would have consisted of damp oak woods in the valleys of Nidderdale, with oak/birch scrub on the higher ground. On the fellsides, sessile oak would have occupied the acidic soils derived from the Millstone Grit, with birch and rowan in the upland gills and higher slopes. Below the 150m contour the woods would have been composed of oak, wych elm, alder, ash and copious amounts of willow. In Wensleydale, the calcareous soils derived from the Carboniferous Limestone would have been less wooded, but supporting stands of ash and hazel.

In the immediate post-Conquest period Upper Nidderdale and Upper Wensleydale, and many other extensive areas within the Yorkshire Dales, were sparsely populated areas which served as royal hunting Forests. The term 'Forest' used in this context is a legal one, as opposed to the more familiar (modern) connotation of land covered by trees. Forests were areas set aside by the monarch for the sole purpose of hunting deer and wild boar. Rackham (1989) defines the term 'Forest' as: 'an area of roughland on which the king or some other magnate had the right to keep deer and to kill and eat them'.

To ensure that the interests of the deer predominated over those of people, areas designated as Forests were subject to Forest Law, a punitive legislation which lay outside common law, and which inflicted severe penalties upon miscreants who poached deer or impinged upon their habitat in any way. Cowling (1982) explains that unauthorised taking of game or wood ('trespasses of venison and vert') was punishable by the Forest courts. 'Venison' included red, fallow and roe deer and wild boar; 'vert' included trees, underwood, bushes, thorns, gorse and scrub, and fruit trees such as pears, crabapples, hawthorns and blackthorns. The establishment of Forests was a very significant factor of medieval land-use, and the legal mechanisms that were developed to enforce their protection, and of the deer that inhabited them, are considered by Rowley (1983), James (1981) and Cantor (1982) who all provide helpful accounts.

Royal Forests gained their greatest extent under Henry II, and by the 13th century they still occupied one-fifth of the country. One perception of the appearance of a medieval Forest is

provided by Watkins (1998) who likens them to present-day national parks, incorporating a mixture of moorland and lowland, and sometimes substantial settlements set amidst what was, essentially, a large tract of countryside set aside for deer hunting. Hampsthwaite, in the Forest of Knaresborough, is an example of a settlement within a former royal Forest. Whilst Forests did not resemble the modern perception of densely-wooded land, there would have been areas of light woodland whose purpose was to provide cover for the deer. Forests were also a source of heavy constructional timber, such as that used in the building of Bolton Castle in Wensleydale, whose timbers were sourced from the Forest of Engleby, in Cumberland. The species composition of many royal Forests, described by Cantor (1982) and Counsell (1998), typically consisted of oak, birch and alder, or ash, field maple and lime.

With large tracts of land being brought under monastic control and extensive areas being declared as royal Forest or lordly chase, by the 12th century steadily rising populations in the Dales and elsewhere were faced with an acute shortage of arable land. The need for more tillage placed enormous pressure upon the woodland through piecemeal clearance known as assarting. This was a phenomenon that reached its peak in the late 13th century and was only halted by the Black Death in the following century. Assarting is believed to have started long before the 12th century in some parts of the country, and identification of its early phases can be difficult, being almost totally reliant upon documentary sources. In an historical account of the Forest of Bernwood in Buckinghamshire, Broad and Hoyle (1997) found evidence of assarting in early 13th century written records. But often the identification of the earliest phases might well depend upon a degree of informed speculation. To complicate the matter, Cantor says that many small-scale assarts were seldom recorded and are rarely able to be researched in detail (Cantor 1982).

Occasionally, field names can be helpful in identifying former assarts. In the Dales, the commonly occurring place-name element 'stubbing' or 'ridding' is considered by Bishop (1935) to be indicative of assarted woodland. In one example, the presence of large blocks of '-ridding' fieldnames, around Carperby, in Wensleydale, suggests large-scale communal assarting (B. Harrison pers. comm.). Assarting is also detectable from maps in the occurrence of clusters of small, irregularly-shaped fields cut out from former woodland (Muir and Muir 1989). Taylor (1983) and Cantor (1982) both give excellent insights into assarting, and McDonnell (1992) discusses the assarting of woodland as a response to population pressure in the Dales. Stinson's (1983) paper on assarting and poverty in 14th century west Yorkshire creates a picture of land hunger caused by the needs of deer being placed higher than the needs of people.

Whilst the declaration of Forests was the prerogative of the king, it became fashionable in the two centuries following the Norman conquest for seigneurial landowners to set aside areas of moorland or fellside as hunting chases, or enclosed areas in closer proximity to their lordly seats as deer parks. Rackham (1976) comments that many early deer parks were created by enclosing existing woodland, and that by AD 1300 about one-quarter of all the woodland of England was contained within parks. As a form of status symbol, the deer park proliferated in numbers following the Magna Carta of AD 1215, which instituted the phasing-out of Forest Law. At the time of Domesday Book, just 35 deer parks were mentioned, although Stamper (1988) considers this figure to be an underestimate. However, by the early 14th century they extended to about 2 per cent of the country and by Rackham's (1983) calculation, numbered some 3200. The significant difference between demesne woodland and a deer park was the presence of a secure fence, wall, bank or ditch to contain a herd of deer (Cantor and Hatherly 1979). Earthworks comprising an outer bank enclosing an inner ditch, or 'deer leap' (whereby deer could gain access to a park but not escape), are characteristic forms of enclosure associated with deer parks.

Typically, deer park boundaries were in the form of a pale – a palisade fence made from upright posts, which was sited upon the crest of the peripheral earthen bank. This could, in the absence of a fence, take the form of a quickset [hawthorn] hedge or a wall. Overseeing the park would be a parker, an official keeper, whose responsibilities included wardening of the park, maintenance of the boundaries and the ensuring the welfare of the deer kept within them. As woodland would have represented a significant part of many parks, its management was specifically contrived so as to create an ideal habitat in which to safeguard the deer. In essence, this either took the form of wood pasture, in an 'uncompartmented' park (Rackham 1976), which had stands of widely-spaced pollarded trees in the midst of grazing pastures, or as a multi-system of coppice woodland and open grazing within a 'compartmented' park which would consist of wooded compartments and launds (Rackham 1976). Launds [lawns] were open areas of grassland that enabled deer to congregate in numbers and thus be more easily killed. The trees on launds would normally be pollards.

The sole purpose of parks was seldom confined to hunting; many also incorporated gardens, farms, mills, mines, kennels and a range of other facilities whose purpose was to support the lordly seat (S. Moorhouse, pers. comm.). But whilst parks were, of necessity, secure environments contained within gated perimeter boundaries, the peasantry were in many cases allowed access to the woodlands upon payment of a fee for the purpose of pannaging their pigs during the mast season (29 August – 31 December) (Edlin 1949). Clearly, one effect of parkland creation was the placing of a protective ring around areas of woodland that might otherwise

have been vulnerable to clearance for agriculture. Winchester (2000) considers therefore that the deer parks, carved out of the countryside by seigneurial families for their own exclusive use, may have preserved large areas of woodland from the demands of a rapidly increasing and land-hungry agrarian population.

Whilst woodland was invariably the preserve of the manorial lords, the landless peasantry were completely dependent upon whatever woodland was present upon the 'waste' or common land. A number of these wooded commons may have resembled wood pasture, in that the only way of managing trees in an unfenced grazing environment such as common land would have been pollarding. The only people permitted to graze animals and take wood from common land were those persons having common rights. Many commons were 'stinted' which set a limit upon the number of grazing animals that could be pastured upon them. Under this system the number of animals each commoner could put on to the common was determined by a system of beastgates (an area of pasture to feed a cow). Persons caught taking wood or unlawfully pasturing livestock on commons were liable to prosecution in the manor courts.

Up until the 18th century there had been little, if any, planting of woodland in Yorkshire. Most coppice management took place in unplanted woodland. Tuke's comment (1794) that 'The axe is often heard, but the planter is seldom seen' is particularly apposite. The 18th century represented a major watershed in the history of woodland with the rise of the plantation movement. A century earlier, John Evelyn's *Sylva* (1664) had heralded the first real awakening of silviculture, and with the new 'Spirit of Planting' that was to be the hallmark of 18th century woodland management, there was an enthusiastic response from the landed estates, two of which form the focus of detailed case studies in chapters 4 and 7 of this thesis. The seminal book on the history of forestry (James 1981) is unsurpassed in its coverage of the rise of the plantation movement and, of course, the silviculture that lay behind it. Over much of the country we see the rise of forestry in the 19th century, a period considered by many to be the golden age of traditional English woodmanship. But here, perhaps, the northern Dales lagged behind the rest of the county, for Jones (1998) draws attention to the fact that in south-west Yorkshire the golden age had already taken place in the previous two centuries.

The two *Board of Agriculture* reports for the West and North Ridings were instrumental in gaining the attention of some large landowners as to the desirability of establishing plantations for the nation's future timber needs. They also provide a valuable insight into the management of woodlands at the time. Tuke (1794), for example, in his report on the North Riding, gives a very detailed account of the management of spring woods – a Yorkshire name commonly given to coppiced woodland. In the *Board of Agriculture* report for the West Riding, Rennie (1794)

had less to say about the woodland than Tuke, but was concerned at the amount of uncultivated moorland that could, in his view, become potentially profitable forestry land. Harwood Long (1964) notes that Marshall (1788), a commentator on the rural economy of the county, had expressed the opinion that: 'apart from grass, much of the higher land was better cropped with trees than with anything else'. He thought that Scotch fir, birch, Norway spruce and larch, and possibly oak might grow satisfactorily. Interestingly, Marshall (1788) describes the coppice woods he observed on steep valley sides in Yorkshire, and usefully comments that these were managed on a 40-50 year cycle, with thinnings taken at 10 year intervals.

The end-uses, or outputs, of woodland are important aspects of its historical development, and an appreciation of the past industrial use of woodlands is particularly relevant to research in the Yorkshire Dales, where the origins of lead mining in the Nidderdale date at least to the Roman period Jennings (1967). The technological development of mining is explained by Raistrick (1972 and 1991). Towards the end of the 18th century much of the fuel used in the smelt-mills took the form of kiln-dried wood known as 'chopwood' or 'white coal'. Jones (1998) and Morrison (1998) describe the use of this material, whose characteristic archaeological feature, the elling hearth or chop kiln, is frequently observed in and around the periphery of many former coppice woods.

The utility of coppice woodland extended far beyond that of industry. Wood provided fuel and raw materials for craftsmen, farms and domestic households. Edlin (1956) catalogues the range of diverse uses to which wood was put, mentioning platters, bowls and spoons, clogs, chair legs, broom heads and baskets among many others. Some local industries grew up around coppice woodland, including the manufacture of dairy and butter-making equipment in Wensleydale recalled by Speight (1897) and bobbins for the flax industry in Nidderdale (Jennings, 1967). Harwood Long (1964) mentions the demand for ash by coopers, cartwrights and builders. Other species, importantly sycamore, were in demand by the makers of textile machinery and as a source of veneer quality logs. The coal and mineral mines also used copious amounts of wood for pit props and general mine timber. Tannery bark was a valuable by-product of the coppice system. Good accounts of this end-use are provided by Edlin (1956), Cantor (1982) and Clarkson (1966; 1974).

The advent of the plantation movement represented the climax of woodland management in the Dales, for the extensive planting by large estates changed the characteristics of much of the woodland that had previously been managed for different end-uses. With the demise of the lead industry in the late 19th century, the end-use of much woodland changed to that of timber production.

In order to understand the dynamics of woodland history, it is accepted methodology to employ a suite of techniques drawn from different disciplines. (Peterken 1981) recommends the use of multiple independent lines of evidence which, singly, merely suggest a course of development, but when used in combination, may enable a reasonably complete picture to emerge, with the different lines of enquiry in mutual support. Typically, the main strands of investigation may embody:

- **Landscape history** (to place woodland in its wider landscape context);
- **Historical ecology** (to provide an indication of past management from diagnostic woodland ‘indicator species’);
- **Documentary study** (to benefit from historic first-hand detail in the form of records);
- **Fieldwork** (to gather information concerning woodland boundaries, woodland structure and the presence of archaeological features or other indications of past management).

In this the specialisms of field archaeology, field survey and historical geography provide a major component of the investigatory process. These may in turn be supported by a number of complementary techniques drawn from the biological and environmental sciences, to include **palynology** (the reconstruction of vegetation history of a wood by means of pollen analysis) and **pedology** (the study of soils through an examination of field profiles and laboratory analysis). In addition, techniques drawn from the discipline of **forestry** have the potential to aid the research process by providing a means of quantifying woodland data. These include **dendrochronology** (the dating of wood by means of tree-ring analysis), **silviculture** (the cultivation of forest trees) and **forestry mensuration** (to provide an element of mathematical modelling).

Documents represent a fundamental resource of information pertaining to the historical development of woodlands. This thesis has drawn heavily upon published transcripts of monastic records for the research undertaken into the Fountains Abbey woodlands in Nidderdale, and upon original and untranscribed estate documents in the form of rentals, leases, surveys and correspondence for research into the woodlands of Nidderdale, Colsterdale, Coverdale and Wensleydale in the post-Dissolution period.

For much of England, Domesday Book is the prime documentary source for understanding the distribution of medieval woodland and its management. Rackham (1980) has identified the terms *silva minuta* as meaning coppice, and *silva pastilis* as describing wood pasture. However, Domesday has a major shortcoming in the way in which woodland was measured and described. In this, woodland is either referred to by area, in the form of medieval leagues, or by the number

of pigs that could be pannaged in a particular wood. This is further complicated by the lack of consistency in the way these returns are presented between counties. Harvey (1997) is particularly critical of Domesday in that an assessment of woodland by the number of pigs that might be pannaged is dependent upon an estimation of how much 11th century woodland was needed to sustain an 11th century pig. Despite these known limitations, Rackham (1980) used Domesday data to calculate that woodland cover in England in the 11th century was probably in the order of 15 per cent.

Regrettably, the Domesday record is of limited use in large parts of the Northern England. Hey (1986) says that it is incomplete, the information is untrustworthy, and its patchy coverage of the North Riding is a major limitation to its usefulness. This is due to the fact that most of the county of Yorkshire is described as 'waste'. McDonnell (1992) believes this description to be the legacy of the 'Harrying of the North' exacted by the Normans against the peasant population in the winter of 1069-70. This act of genocide resulted in virtually all the settlements between York and Durham being laid waste and many hundreds of the population being slaughtered. Sixteen years later, at the time of the Domesday survey, large tracts of Yorkshire still lay abandoned and were of little interest to the clerks who were primarily concerned with arable land. Thus large parts of Yorkshire were excluded from the survey or covered in a highly abbreviated form as in Craven (B. Harrison, pers. comm.). Darby (1962) comments that it is striking that a large part of the North Riding has no recorded woodland. Yorkshire is described in the *Victoria County History* as being 'fitfully wooded' (VCH 1914), and perhaps even that is an over-estimate, for Darby comments: 'we are probably safe in regarding the Pennines as largely without wood in the eleventh century'.

The limitations of the Domesday record in North Yorkshire have been further explored in Gledhill's research into the extent of woodland and its management in the county during the 11th century through a study of place-names (Gledhill 1998). In this study, Gledhill ascertained a mismatch between place-name evidence in the Pennine Dales, which implied a reasonable amount of woodland, and the Domesday record which records very little. Whilst Domesday Book is of limited value for woodland research in the Yorkshire Dales, later medieval and post-medieval documents are more useful. During a large part of the 500 year timespan of this research, extensive tracts of the Dales landscape were either under monastic control or in the hands of seigneurial families. These two different forms of land tenure have left a rich documentary legacy in the form of monastic archives, manorial records, probate inventories, court rolls and estate surveys. The (unfortunately incomplete) records of Fountains Abbey have been the subject of academic study for many years, and transcripts of the most comprehensive cartulary (Lancaster 1915), the Bursars' Books (Fowler 1918), the Dissolution valuations

(Walbran 1863) and the Lease Book (Michelmores 1981) have been published for the benefit of researchers. Many documents that were initiated from secular ownership are still in their original untranscribed form in the county Record Offices for North and West Yorkshire.

Dyer (1988) identifies some key documentary sources for woodland history in manorial records and probate inventories. Turner (1984) is in broad agreement, but expresses a word of caution with regard to the use of medieval documents as 'some of the content of medieval documents is open to question and as accuracy cannot be guaranteed, they should not be taken too literally'. Turner also advises researchers to use documents with 'a willingness to consider a wide range of possibilities'. To a degree, the shortcomings of medieval documents can be overcome by the use of retrogressive analysis – commencing with more recent written records and working backwards in order of time elapsed. This approach, when using post-medieval documentary sources, is recommended by Hoskins (1959), Turner (1984) and Roberts (1984).

Early maps that depict woodland are a basic research resource, but maps that accurately depict woodland did not appear until the 16th century. On the very earliest maps, woodland is often indicated by symbols. An early example of such a map is that of the village of Boarstall in Buckinghamshire which is contained in the 'Boarstall cartulary' of 1444-6. This map depicts woodland in the form of individual tree icons, surrounding what is believed to be the earliest representation of an English village (Harvey 1997). Turner (1984) sounds a word of caution, pointing out that early maps were drawn for a particular objective and, as a consequence, this affects what is shown on them. After the 16th century woodland began to be shown in more detail and by AD 1600 there were a number of relatively good maps denoting areas of woodland and parks. In consequence, the beginning of the 17th century was chosen as the defining datum point for the Inventory of Ancient Woodland (NCC 1987). The rationale that lay behind this choice of date was that woodland depicted on maps of this period would have been unplanted, originating before the advent of silviculture and plantations, and therefore likely to be remnants of ancient semi-natural woodland.

By the 18th century reliable estate maps appear. These are especially useful, as many survive with their corresponding field books and these together provide a detailed account of land-use. Similarly, tithe maps represent an extremely useful source of information particularly in respect to the accompanying awards. Together, these provide details of ownership, tenure, field names, land-use, areas and valuations. Parliamentary Enclosure and pre-Enclosure maps although restricted to common land, are an invaluable source of reference. These maps, when used in combination with the excellent mid-19th century Ordnance Survey First Edition maps provide a means of reconstructing former areas of woodland. The First Edition 1-inch and 6-inch maps

were used by the Nature Conservancy Council as a means of identifying woodland to be included in the Inventory of Ancient Woodland (NCC 1987).

Whilst palaeoecological studies enable a broad impression of the characteristics of early medieval woodland to be gained in terms of species and cover, the extent of former woodland can be mapped by the use of toponyms [place-names]. Anglo-Saxon charters frequently refer to woodland and trees in boundary perambulations, and a number of place-names are now recognised as being diagnostic of woodland. These be indicative of settlements in cleared woodland or may provide a clue to the former existence of different woodland species (Gelling 1984; Smith 1928; Raistrick 1968; Wright 1986; Mills 1991; Gambles 1995). In the Yorkshire Dales, the blend of Old Norse and Old English place-names is another factor that distinguishes this area from other parts of Britain. Settlements created in cleared woodland are identifiable from the etymology of toponyms such as ‘-thwaite’, (Old Norse *thveit* – *a clearing*) as in Hampsthwaite, Nidderdale; ‘-with’ (Old Norse *vithr* – *a wood*) as in Hartwith, Nidderdale; ‘-ley’ (Old English *leah* – *a clearing*) as in Wensley, Wensleydale, ‘-skew’ (Old Norse *skogr* – *a wood*) as in Litherskew, Wensleydale. Some indication of woodland types can be gained from toponyms such as ‘birk’ (Old English *birki* – a birch tree) as in Birkrigg, Wensleydale; ‘ask’ (Old Norse *askr* – an ash tree) as in Askrigg, Wensleydale, ‘eller’ (Old Norse *elri* – an alder tree) as in Ellerbeck, Nidderdale; and ‘ays’ (Old Norse *eiki*, Old English *aesc* – an oak tree) as in Aysgarth, Wensleydale. In the Yorkshire Dales, the place-names ‘Spring’ and ‘Hagg’ are indicative of woods managed as coppices. Tolan Smith (1997) mapped the distribution of furlong names denoting woodland, woodland assarts and individual trees in an evaluation of the former extent of Horsley Wood in Tynedale, Northumberland. Her research also demonstrated that place-names could, in some instances, be used to reconstruct the woodland prior to the earliest documents, which in this case, dated to the 13th century.

Fieldwork is an essential tool for woodland researchers, for observation and analysis lie at the very heart of an empirical discipline. Aston (1992) and Brown (1987) provide sound guidance on fieldwork methodology and survey techniques, albeit directed towards an archaeological audience. Rackham (1980, 1976) offers a widely adopted methodology for undertaking fieldwork in woodland, and Peterken (1981) similarly provides a helpful guide to field observation and recording procedures. This work is also a particularly valuable source of background material for woodland researchers, for while it is principally concerned with the ecological conservation of woodland, Peterken demonstrates the potential of landscape history in understanding the past management of woodland. A more recent contribution by Bowden (ed 1999) provides an excellent introduction to landscape survey methods and, furthermore, this work extends to include woodland survey. Similarly, a very useful contribution by Bannister

(1996) provides a detailed checklist and dichotomous keys to aid the recognition of archaeological and woodland management-related features in woodland, albeit from a southern perspective.

The literature that covers the Yorkshire Dales is mainly comprised of topographical works and guidebooks. The latter are principally aimed at visitors, and virtually none cover woodland in any depth. One title that does acknowledge the role of woodland in the landscape is Barringer's *Introduction to the Dales* (1982), which is helpful, but limited, concentrating principally on place-names that indicate areas from where woodland has been cleared. Arthur Raistrick, a prolific writer on all aspects of the Dales, had a particular interest in woodland history. Two of his works, *The Pennine Dales* (Raistrick 1968), and a discourse on the 'Forests of the Dales' in an anthology of his essays (Joy 1991), provide an insight into his personal perceptions of the Dales woodlands. The prolific local writers Marie Hartley and Joan Ingilby have written numerous titles on the Dales, but apart from a study of Askrigg and the Forest of Wensleydale in *Yorkshire Village* (1953), and an item on Forests in *The Yorkshire Dales* (1991), there is very little mention of woodland in any of their books. More recently, Richard Muir has authored a number of titles, which address the landscape history of Yorkshire, of which *The Yorkshire Countryside: A Landscape History* (1997) is particularly relevant to this research.

A number of 19th- and early 20th-century topographic writers produced books that are informative to this research. Of these, Harry Speight, whose titles *Romantic Richmondshire* (1897) and *Upper Nidderdale with the Forest of Knaresborough* (1906) contain much interesting background material pertinent to the research area, is of particular note. Meticulous observations of Nidderdale were made by Grainge in *Nidderdale: An Historical, Topographical and Descriptive Sketch of the Valley of the Nidd* (1863).

The observations of Lucas (1872), another writer from the same period, provide an insight into his perceptions of relict woodland in *Studies in Nidderdale*, a book that is typical of the Victorian enthusiasm for the natural environment. Similarly, Whitaker's *History of Richmondshire* (1823) contains some useful historical background material. A more up-to-date account for Wensleydale is provided by Fieldhouse and Jennings *A History of Richmond and Swaledale* (1978), and a good historical account for Nidderdale is Jennings (ed 1967) *A History of Nidderdale*.

The paucity of woodland in the Dales landscape is not a new phenomenon. When John Leland travelled through parts of the North Riding of Yorkshire in the 16th century he commented that there were hardly any trees (Hey 1986). He also said that there were no woods worth

mentioning in the northern Vale of York apart from the Forest of Galtres. And of Nidderdale he observed:

the river sides of Nidde be welle woddied above Knarresburgh for a 2 or 3 miles, and above that to the hedde all the ground is baren for the most part of wood and corne, as forest ground ful of lynge, mores and mosses with stony hills . . . The principal wood of the forest is decayed. In Wensleydale he observed that: ‘the soile about is very hilly and berith litle corne, but norisith meny bestes.

Coverdale had ‘even less corn and hardly any wood’ (Toulmin Smith 1964).

Leland’s perceptions of the scantily wooded landscape are supported in a 17th century estate survey of Richmond and Middleham which observed that:

There are few or no woods or tymber trees in the two Lordships besides the woods growing in Radale, Bishopsdale Chace and the Heaning; the rest are in hedgrowes and consist of Ashe, Hasel, Hollings and the like (Willan and Crossley 1941).

Our perceptions of the post-medieval woodland of the Dales are largely reliant upon subjective observations of these early commentators, and it is not until the 18th century that we gain an accurate assessment of the extent of woodland and its composition in the two *Board of Agriculture* reports prepared for Yorkshire by Tuke (1794) and Rennie (1794). That for the North Riding, by John Tuke, commented that the woods were comparatively small, and furthermore: ‘their amount cannot be spoken of with perfect exactness’. In Tuke’s estimation the western moorlands carried no more than 1,000 acres of woodland. Interestingly, he appeared to be fully aware of past woodland clearance:

There is reason to believe that woods formerly covered great tracts of country, where not a tree now remains, and which, it is the present opinion, are incapable of growing timber; but evident remains of trees, and traces of woods, still indicate that the Moorlands were once a forest (Tuke 1794).

The guidebooks and topographies that began to appear in the 19th century, stimulated by the advent of railway travel and the consequent increase in mobility of people from the surrounding conurbations, provide valuable first-hand impressions of the appearance of some of the woodland a century ago. For example, Jones Barker’s description of Leyburn Shawl in Wensleydale evokes an impression of a veritable sylvan paradise:

The steep precipice drops away abruptly from your feet, and at the bottom lie huge masses of grey rocks, splintered and shattered as if an earthquake had strewn them there. Light hazels shoot up among them; and all spring and summer, but chiefly in the latter spring, a profusion of wood-flowers fill the interstices. Here, too, there is the most delightful walk. Old trees grow picturesquely from narrow clefts in the precipice, their

topmost boughs just waving along the edge of the terrace, where ground honeysuckle and wild thyme blossom luxuriantly. Still lower down rise the thick woods (Jones Barker 1854, p.169).

Edmund Bogg, writing in a somewhat flowery style about the same location a little later, observed that:

Below the verge whereon we stand and look south, is a sea of woodland swaying in waves, their crest-like sprays dipt in golden sunlight, of a thousand fantastic shapes, receding gradually as ebb-tide waves might do from the cliff to the green bed of the vale, away where the river Yore winds among its fringing verdure (Bogg 1909, p.115)

Of the village of Preston-under-Scar, some three miles to the west of Leyburn Shawl, Bogg observed that the vegetation was:

arboreal and floral and ferny may truly be said to run riot. From every conceivable roothold, dwarf hazels, and ash, and vase-like clusters of ferns, and horns-of-plenty in the form of wild flowers spring and shoot (Bogg 1909, p.117).

Looking towards Castle Bolton from the hill of Scarth Nick (to the west of Preston) Bogg describes ‘a deep gorge, filled to the brim as it seems with firewood’ (1909, p.119) – identifiable today as Bolton Gill Plantation. Although both writers give a tantalising impression of still-extant woodlands, their observations unfortunately reveal little about the manner in which the woodlands were managed. For instance, there is no mention of the coppice regime that would have formed the dominant characteristic of those woodlands at the time. Perhaps coppice woodlands were so much a part of the rural scene that comment upon them seemed superfluous. But Bogg provides a valuable impression of Haw Bank, near Carperby, in Wensleydale (1909, p.146) which, in his day, was a productive wooded hillside, adjacent to a lead mine. That same location now bears little resemblance to his description: ‘a delightful bosky silvan “Arcadia” – natural wood-clothed scar and slope, arcaded by ash and hazel, wych elm, rowan and holly tree’, having fallen into dereliction through neglect. These examples show that the value of topographical writers’ impressions should not be underestimated, as they have the capacity to provide an additional layer of descriptive matter beyond that of the pure documentary. And the information they offer can aid the process of conceptualising woodland that has either disappeared or become changed beyond recognition.

This chapter has established the framework into which this research is set and defined the fundamental research questions. It has discussed the principal sources of supporting literature that provide the theoretical and methodological background for a study such as this and provided an introduction to the history of woodland and its management. The following chapter builds upon this Introduction by providing an overview of the research design and methodology

used. In this, it will be seen that a structured approach has been employed which may be of significance for those engaged in further research. It is to be hoped that, in addition to purely academic interest, this research may have some practical application in providing information to support planning and management in this much-revered upland environment.

2. RESEARCH METHODOLOGY

In the preceding chapter it was explained that the woodland of the Yorkshire Dales is a largely unstudied topic. Previous research has been focused upon the postglacial vegetation history of woodland (Honeyman 1985), the distribution of woodland at Domesday (Gledhill 1998), the industrial archaeology of woodland (Gledhill 1982) and a study of relict wood pasture in Swaledale (Fleming 1997). This research takes a different perspective in focusing upon the topic of applied woodland management within a defined areal and temporal framework. It is, in consequence, a project in landscape history, but employing a range of techniques drawn from complementary disciplines, including silviculture, historical ecology, countryside management and landscape archaeology in which the writer has received formal training.

Landscape history rests upon empirical study through site investigation and documentary study, rather than ‘upon the development of strong theoretical foundations’ (Muir 2000b, p.4). This research is therefore based upon observation and written records to elucidate the key elements that have influenced the characteristics and distribution of the woodland in two Yorkshire Dales – discrete areas having disparate geology and land tenure. At the core of this research is an awareness that woodland management has the potential to influence the characteristics, and indeed the perpetuation, of woodland and is, therefore, a function of human interaction with the landscape.

A preliminary background study was undertaken to assess the nature and scope of research-informed knowledge about the woodland of the Yorkshire Dales, and to identify gaps in that knowledge. Because of the large geographical extent of the region, it was considered that, in the time available, a linear study extending across two principal Dales and their tributary valleys would be the most effective means of rapidly gathering a large body of data. A literature survey was undertaken concurrent with the background study, together with an evaluation of potential sources for research and possible approaches. Primary sources included documents, maps and aerial photographs, and records held by national and local government environmental agencies.

2.1 The research design

The research design (Figure 2.1) sets out a systematic framework and procedure for the selection of case studies and the data collection process. The initial phase of the project took the form of a

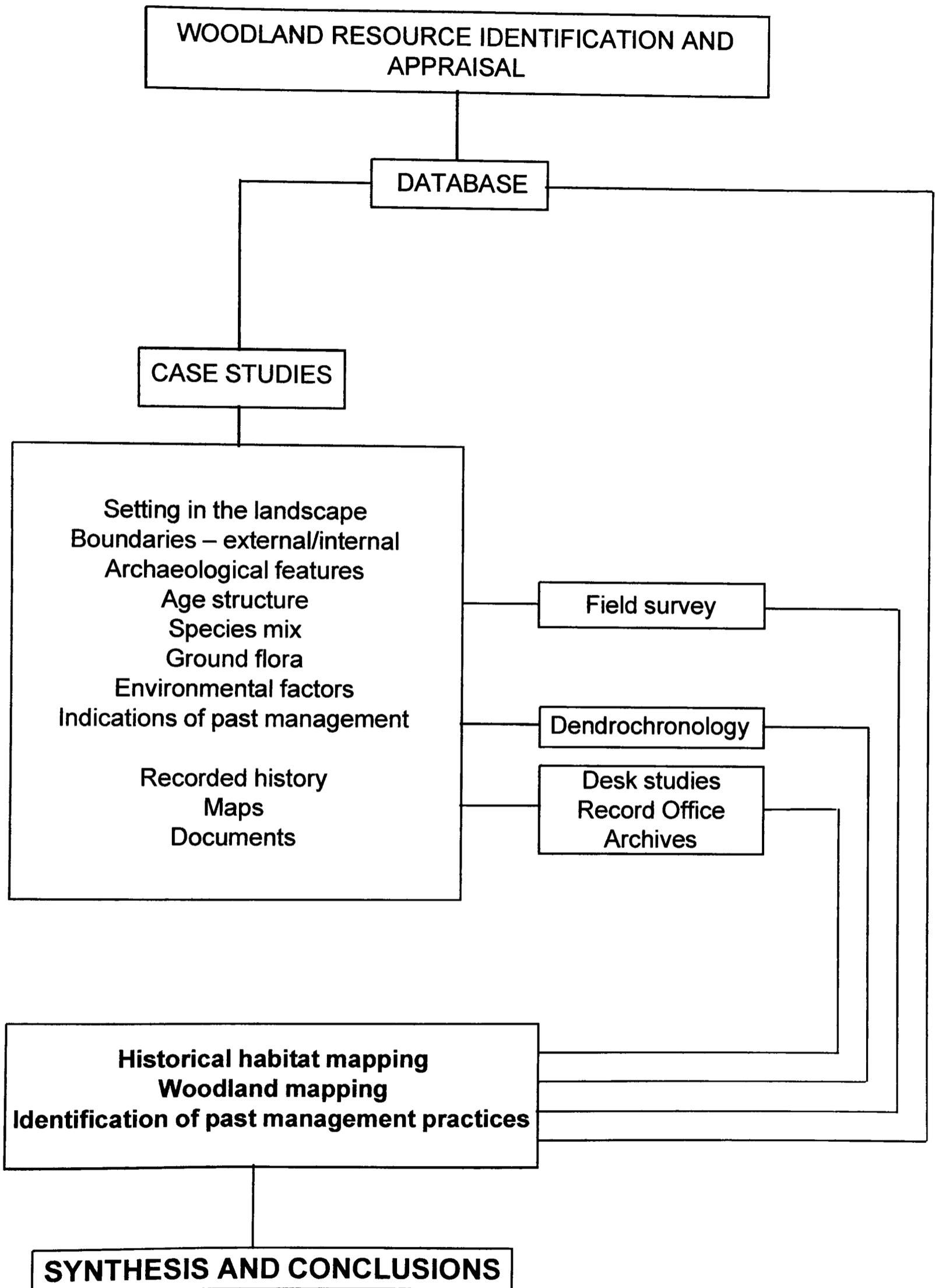


Figure 2.1. The research design

desktop survey, the purpose of which was to identify and collate information from the Inventory of Ancient Woodland and the Ordnance Survey First Edition and modern maps. Other information was extracted from woodland survey data compiled by English Nature, the Yorkshire Dales National Park Authority and Harrogate Borough Council. This information was entered into a database to provide a rapid form of reference and to aid the identification of discrete woodlands as potential fieldwork sites. The database fields held information on ownership, access and status of the woods, together with physical and environmental data, such as boundaries, woodland type, soil group, elevation and aspect. The database was also used to investigate a range of variables connected with the occurrence of woodland in the landscape. A sample print-out of this data is attached as Appendix 1.

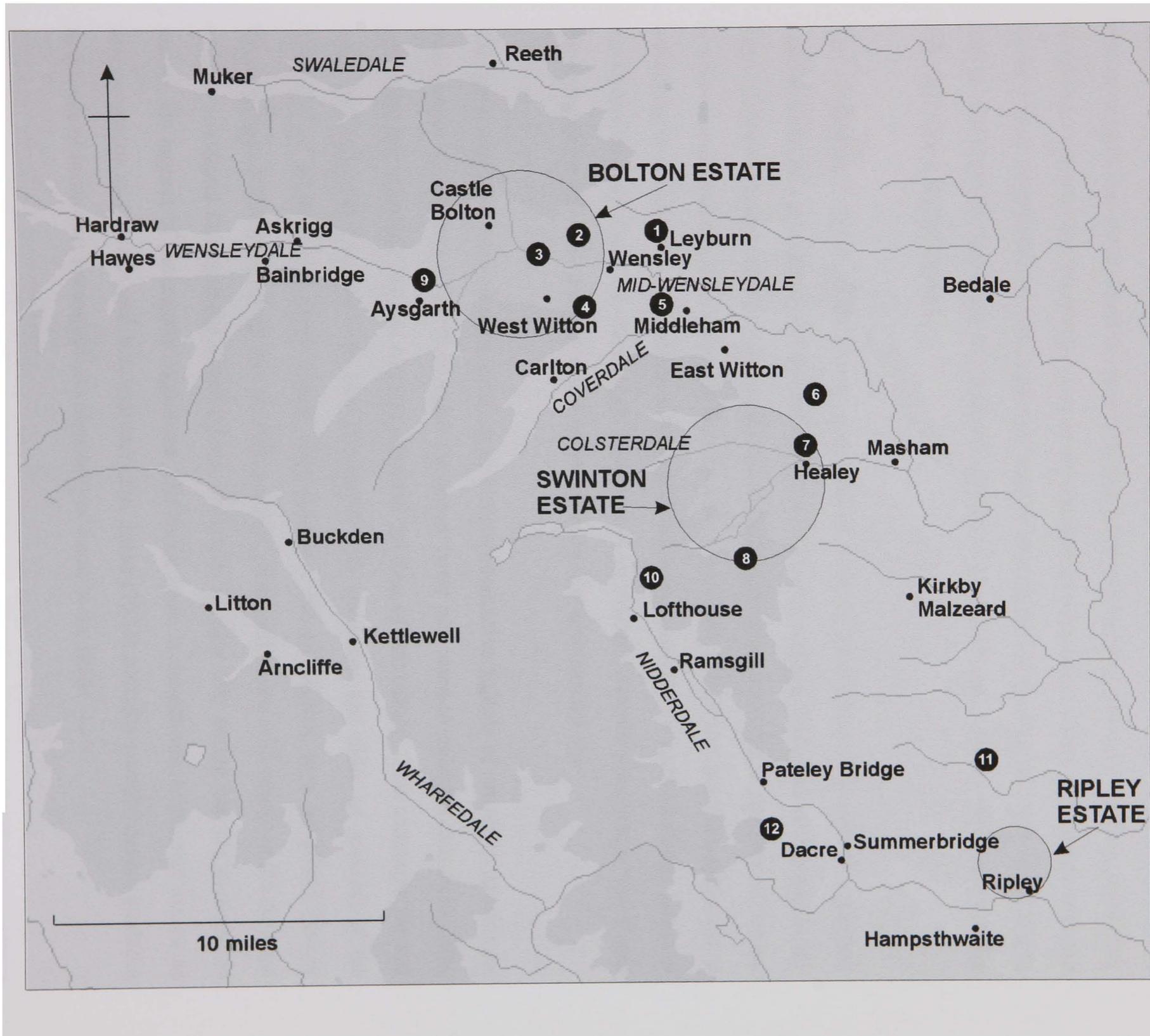
At an early stage in the project it became apparent that large parts of the survey area (Figure 2.2) lay in the ownership of three large estates – the Bolton Estate (Wensleydale); the Swinton Park Estate (Colsterdale) and the Ingilby Estate (Nidderdale). Permission was obtained from the Bolton and Swinton Park estates to enter their woodlands. All of the woodland studied on the Ingilby Estate was accessible from public rights of way. Where it was necessary to gain access to other woodlands, permission was sought from their respective owners. A programme of research casework was generated from the database records which held information on 230 individual woodland stands, distributed throughout the research area, in a variety of different landscape situations. Fifty-two woods were selected for field study from the database.

The acquisition of similar data for each field study involved a combination of archival research and fieldwork. The substance of this data included: the setting of woodland in the landscape – its role and situation; the presence and form of external boundaries and internal compartments; the existence of visible archaeological features; the age structure of the woodland its species composition; the presence or otherwise of ancient woodland indicator species; an assessment of environmental factors such as proneness to exposure and indications of former woodland management regimes. Supporting information was gathered on individual woodlands from documents and maps.

2.2 Field survey

The main objective of the fieldwork was to look for visible indications of former management practices within extant woodlands and to examine the sites of cleared woodland for traces of boundary features. Some work was undertaken within modern plantations to identify the residual features of former land-use. The fieldwork was conducted in phases over two seasons, starting in

Figure 2.2. Location map showing the case study sites. (Drawn by the writer)



CASE STUDY SITES

- 1 Leyburn Shawl
- 2 Preston Spring
- 3 West Wood
- 4 Capplebank Plantation
- 5 Middleham West Park
- 6 Ellington Firth
- 7 Healey Spring Wood
- 8 Arnagill Wood
- 9 Freeholders Wood
- 10 High Thrope Wood
- 11 Fountains Park
- 12 Guisecliff Wood

Wensleydale and progressing southwards along a transect, through the interfluvial areas of Coverdale and Colsterdale, and into Nidderdale. A form of rapid survey was employed which consisted of an initial inspection of the external woodland boundaries to establish the presence of woodbanks or similar earthworks or relict internal compartments. Level surveys of peripheral earthworks were undertaken at West Wood, Redmire, in Wensleydale, and at Healey Spring Wood, in Colsterdale. The inspection of woodland interiors consisted of transect sampling to establish the presence of features that might remain from industrial activity within woodlands. It was envisaged that these could include pitsteads [charcoal-burning hearths], stacking platforms, chopkilns, saw-pits and trackways. Linear measurements were taken where appropriate with the use of a laser rangefinder. A soil auger was used to investigate soil profiles in a number of woods and to establish the presence of charcoal residues. All significant features were additionally recorded with a digital camera.

The silvicultural aspect of the survey consisted of a visual assessment of woodland structure, species mixture, age classes and the indications of former woodland management regimes in the form of stored coppice and/or relict pollarded trees. It was anticipated that indications of former woodland management regimes might survive better in locations that had not been subjected to replanting or coniferisation on account of the poor economic potential of such woodland. Some of the fieldwork was, therefore, directed to woodland in particularly remote situations where it was felt there was a low likelihood of recent intervention having been carried out.

The girth measurements of trees were taken in a representative sample of woods to provide an assessment of age structures. A Pressler increment borer was used to extract cores from some pollarded and coppiced trees in order to establish the date of last cutting. This technique worked well with oak and ash, but was less successful with sycamore and alder on account of the difficulty of discerning a clear annual ring structure. As an adjunct to a woodland history investigation, dendrochronology can provide a degree of quantification with regard to the duration of past woodland management interventions. However, in view that coring has the potential to permit the ingress of pathogenic organisms into living trees, it should only be carried out on as few occasions as possible and with extreme care. Josza (1998) provides comprehensive guidance in the use of increment borers and the treatment of cores in the field.

In terms of field archaeology, the inspection sought to establish the presence of non-woodland management-related features such as old field boundaries, lynchets, hollow ways and especially ridge and furrow cultivation at a number of locations where aerial photographs had indicated a possible extension into woodland from surrounding fields. Woods in close proximity to field

systems were afforded a high priority in the selection of case studies to determine whether encroachment upon former arable fields had occurred.

2.3 Documentary research

The use of records formed a major pillar of this research as a complement to fieldwork. Attendance on a Leeds University palaeography course provided the writer with some basic skills in the transcription of 17th/18th century estate records. A wide range of documentary sources was used including rentals, surveys, valuations, leases, Enclosure awards, Tithe Map awards, estate correspondence, terriers and perambulations. Cartographic sources included Ordnance Survey First Edition 1-inch, 6-inch and 25-inch maps, tithe maps, Parliamentary Enclosure maps and estate maps.

Published documentary sources used included charters, deeds, monastic cartularies, wills and inventories, Inquisitions Post Mortem, monastic leases, dissolution documents, Hearth Tax returns and trade directories. Libraries used included the J. B. Morrell Library, The King's Manor Library and York Minster Library (University of York), York St John College Library and the English Nature libraries at York and Leyburn. Frequent reference was made to the topographical collections held at the Brotherton Library (University of Leeds), and the local studies collections held by the Northallerton, Richmond and Harrogate public libraries. Internet sources were explored but were not found to be particularly helpful apart from their use in identifying the location of archive collections. Where applicable, iconography provided a useful form of complementary information, particular with respect to the former appearance of some designed landscapes.

2.4 Fieldnames

A major study of woodland-related fieldnames was undertaken to facilitate a reconstruction of areas of former woodland in a number of sample parishes, using the tithe map awards held at the Northallerton and Leeds record offices. The landowners' names, tenants' names, land-use, field areas and field names were entered into a Microsoft Excel database. These data were subsequently used to reconstruct models of former land-use, using woodland-related fieldnames as indicators of cleared woodland. The conversion to metric areas of acres, rods and poles was effected with a Microsoft Excel spreadsheet formula.

2.5 Aerial photographs and Sites and Monuments Records

Reference was also made to the collections of aerial photographs held by the Yorkshire Dales National Park Authority and North Yorkshire County Council. Aerial photographs were

examined in order to gain a clearer insight into the structure of some replanted woods and coniferous plantations, and to examine the setting and relationship of certain woods with regard to surrounding landscape features. An opportunity was taken to consult the relevant Sites and Monuments Records where they were held at the same location as the aerial photographs.

2.6 Presentation of the research

The results of this research are presented in the form of case studies drawn from Nidderdale, Colsterdale, Coverdale and Wensleydale. Each deals with a different aspect of historical woodland management and land tenure, making use of documentary material. The earliest phases in the timespan covered by this research are presented in Chapter 3. This includes an interpretation of the Fountains Abbey woodlands, using the Dissolution valuations of 1540 and 1574.

An examination of the former monastic woodland which passed to the Ingilby Estate after the Dissolution forms the substance of Chapter 4, in a case study focused upon the parish of Dacre, in Nidderdale and an overview of the late 18th century afforestation around Ripley.

The interfluvial section (Chapter 5) is principally focused upon the Swinton Park estate, where a large amount of fieldwork and documentary study was undertaken to interpret the medieval woodland. The two chapters that refer to Wensleydale commence with a description of woodland as a medieval land-use (Chapter 6) with specific reference to deer parks and hunting chases. Chapter 7 gives a detailed account of the rise of forestry on the Bolton Estate in Wensleydale, drawn from the estate correspondence. In this, the writer has transcribed and interpreted a previously unstudied archive to gain an insight into a critical phase in the woodland history of the Dales. This study alone represents a particularly important contribution to understanding the woodland history of Wensleydale.

The topic of woodland end-uses and related management is dealt with in Chapter 8, taking examples from the case study material. The thesis draws to a conclusion in Chapter 9 with a Discussion which characterises the factors that determined the framework of land-uses within which woodland was managed over a period of 500 years.

3. WOODLAND MANAGEMENT IN NIDDERDALE DURING THE MONASTIC AND POST-DISSOLUTION PERIOD

This chapter examines the historical evolution of woodland management in Nidderdale. Initially it is concerned with woodland management as practised by the Cistercians, who received grants of land there in the 12th century, and then with woodland management throughout the century following the Dissolution of the monasteries whose lands were transferred into secular hands. The documentary sources upon which this chapter is based include the published charters, leases and Dissolution valuations of Fountains Abbey. The writer has interpreted this material beyond the simple published transcriptions, in order that a clearer appreciation of the woodland management techniques practised by the Cistercians in Nidderdale can be gained, together with a detailed analysis of the areas of managed woodland.

3.1 Grants of land to the monasteries

From the 12th century until the Dissolution of the monasteries in 1539, the whole of Upper Nidderdale and much of Lower Nidderdale was in the hands of the Cistercian abbeys of Fountains and Byland. The two monastic communities acquired their extensive holdings through gifts of land bestowed upon them by Norman seigneurial families. Their estates in Upper Nidderdale were acquired by a grant from Roger de Mowbray of his Nidderdale hunting chase. Under the terms of the grant, the township of Fountains Earth, which lay to the south of the Stean Beck, was given to Fountains Abbey, and the townships of Stonebeck Up and Stonebeck Down, which lay to the north of the Stean Beck, were granted to Byland Abbey, whose principal estate lay some 30 miles to the east on the fringe of the North York Moors. It is thought that following the Harrying of the North in the winter of 1069-70 Upper Nidderdale had become a depopulated wilderness, whose principal function was that of a hunting forest (R. Muir, pers. comm.). This remote area found immediate concord with the Cistercians who, over a period of some 400 years, gained considerable wealth from their livestock farming and mining activities there.

There is no known contemporary record that describes the appearance of the Upper Nidderdale landscape at the time it came into monastic hands, but the 19th century topographic commentator, Lucas, thought that the fellsides would have been clothed in secondary oak/birch woodland that had become re-established after the initial prehistoric woodland clearance phase (Lucas 1872). It is unlikely that much of this woodland was a relict of the postglacial woodland, but Lucas, who undertook extensive field studies in the dale, was of the opinion that the macrofossils he observed incorporated into the moorland peats were the remnants of former birch woodland that had also included hazel, willow, hawthorn and oak (Lucas 1872, p.110). Lucas postulated there had been

two main zones of woodland, dominated by oak below the 360m contour, and by birch at higher elevations – an ecological community equating in current terminology to W16 in the National Vegetation Classification (Rodwell 1991). Tinsley's (1974) palynological investigation, discussed in Chapter 1, has confirmed Lucas' hypothesis.

It is useful to consider how this woodscape may have appeared at the time the land was granted to the Cistercians. The woodland, which probably took the form of a semi-open parkland landscape of trees, shrubs and glades, rather than closed-canopy climax woodland (Vera 2000), was mainly situated on the valley floor, along its margins, and in the gills. According to Vera, the open nature of the woodland would have been largely the creation of large grazing herbivores such as deer, and consequently it may have had an appearance not dissimilar from wood pasture, with large trees browsed up to the line of maximum animal reach, interspersed with acid grassland. This perception may be further validated by our knowledge that the area had been a hunting chase, where large stands of dense woodland would have made the pursuit of game animals extremely difficult if not impossible.

Beyond this characterisation of the woodland of Upper Nidderdale, which is largely based upon ecological modelling, references to woodland exist in the medieval charters. For example, in the grant of 1175 in which Roger de Mowbray gave Fountains Abbey the expanse of Upper Nidderdale that became known as Fountains Earth, the only references to woodland are to *the wood of Lofthusum* and *the wood of Popelton* (Lancaster 1915, p.206). The same charter states that Nidderdale was given as recompense for land and wood south of Dacre that was taken back on account of the donor being unable to warrant the grant.

Other specific references to woodland cited in the 12th/13th century Fountains Abbey charters for grants of land, include grants at Masham [Aldburch] (Count Alan), Aldburgh (Turgedius, son of Malger), Sutton (Nigel de Mowbray), Sleningford (Robert de Camvil), *Herleshow* [Fountains Park] and Burton on Ure (Archbishop of York), Pott (Gilbert de Wauton), and a charter in which Edmund Plantagenet, Earl of Cornwall, granted the monks use of his woods in the Forest of Knaresborough.

The woodland included in the grant of land at Aldburgh, by which Roger de Mowbray made over to the monastery: ' . . . whatever belongs to it on that side of the river Jor. in wood, in plain, etc.' represented the greatest concentration of valuable timber trees on the entire monastic estate. In the grant of lands in Burton on Ure, Roger de Mowbray confirmed that the monastery owned 'all the wood (*boscum*) which Count Alan gave the monks which belongs to Masham on that side of the

Jor (River Ure) on which Burton stands, and on the other side of the said water *Rumora* and *Bramlei*' (Roomer, near Masham and Bramley, near Grewelthorpe). Additional woodland at Aldburgh was granted by Turgis, son of Malger: 'eighteen acres of woody land between *Rumore* and *Elrebec*, namely which is contiguous to the land which the monks hold on from him on the other side of the road which is called *Gretgatha*' (Lancaster 1915).

In the vast tracts of Upper Nidderdale, both Byland and Fountains abbeys instituted a system of ranch farming on their estates, centred upon satellite granges staffed by lay brethren. The principal agricultural enterprises pursued in the upper dale by Fountains Abbey were sheep farming, from which it generated large revenues from the sale of wool, and the raising of cattle on vaccary farms, principally to supply the monastery with meat, milk and cheese and draught animals. The predominant land-use was pasture, which dictated the clearance of large areas of woodland for the creation of grazing lands. It is apparent that animals were extensively grazed in woodland, for the wood pasture characteristics of Upper Nidderdale facilitated this. McDonnell notes that:

The Cistercians in particular were well aware of the value of wood pasture and took pains to have grazing rights specified in deeds. Fountains obtained a grant from de Mowbray which detailed rights to dead wood and to grazing in Azerley and Winksley for the working oxen and cattle of Sutton Grange, and included specific licence for the beasts to pasture, when not working, *in our forest day and night* (McDonnell 1992).

There is no doubt that overgrazing suppressed the ability of woods to regenerate naturally, and this led to the rapid attrition of Nidderdale's woodland resources. McDonnell lays blame upon the monks for the loss of woodland, stating that 'the decay of woodland came about through increased grazing in wood pasture' (McDonnell 1992, p.118).

Many of the granges situated in and around the margins of lower Nidderdale and particularly those near the abbey precincts held small stands of woodland that were described as 'woodland pasture'. Michelmores interprets this terminology as coppice woods in which stock were allowed to graze after the first seven years of growth (Michelmores 1981, p.lx), but it is important to note that in the instances of woodland on let land, the management policy of the monastery was one of conservation as opposed to exploitation. This change of emphasis will be discussed in detail later in this chapter.

Transgression in the monastic woodlands and disputes with tenants and adjacent landowners over such matters as stray livestock and illicit hunting was a fairly common feature as early as mid

13th century. Four examples of legal action taken by the Abbot of Fountains against those who committed woodland offences in Nidderdale follow:

AD 1301. The Abbot of Fountains v. Patrick de Brafferton, clerk, for waste done in the houses and woods of Masham (Bailden 1894, vol II, 3).

AD 1372. William, Abbat of Fountains, v. John Deyville, clerk, for making waste in the woods, houses and gardens of Sixford Hagschaghouse in Nidderdale (Bailden 1894, vol I, 45).

AD 1388. The Abbat of Fountains complained of John de Buskeby and Adam Jonservant of Buseby for cutting trees at Potte near Massam to the value of 20 l (Bailden 1894, vol I, 52).

AD. 1378. The Abbat of Fountains v. William Snelle of Kirkeby Malesard for breaking his close at Brameleye, and cutting and taking away his trees to the value of 20 l , and for seizing and impounding his cattle there and detaining them until the Abbot paid a fine of 40 s (Bailden 1894, vol I, 50).

Documentary evidence such as this provides a vivid indication of the need for the Abbey to protect its woodlands against unauthorised cutting. Offences such as ‘making waste’, ‘cutting trees’ and ‘close breaking’ listed in the court rolls demonstrate that the cutting of underwood and timber trees and the breaking and removal of hedges was a constant threat to its woodland resources.

The right to clear woodland to create new agricultural land for grazing or cropping (assarting) was frequently included in the grants of land to the monastery. By this process large numbers of small closes were created from areas of former woodland. The effect of assarting is particularly noticeable in the field patterns to the west of Dacre township, where monastic woodland clearance is thought to have originated in the 12th century (Jennings 1967).

3.2 The hedging of coppices

The survival of a number of important documents has provided an insight into the management of the monastic woodland from the 15th century. Of these documents, the Bursars’ Books of 1456-1458 (Fowler 1918) are of particular relevance to this research in that they contain a wealth of detail regarding the hedging of newly-cut coppices. Prior to the middle of the 15th century Fountains Abbey had moved away from its use of lay brethren in favour of a paid staff. The *Bursars’ Books* (Fowler 1918) record payments made to lay staff for woodland-related works including hedging. The value of this documentary source is very considerable, for it records payments made for hedging and walling works in relation to the abbey woodlands and thereby illustrates the importance placed upon hedging by the monastery and the substantial cost of its provision.

Quite often large sums of money were involved, giving an impression of the large scale of the works. For example, the very significant sum of 41s 8d that was paid for making 300 roods of hedge around the *Wood of Bradley Grange*. The cost of making of a hedge around *Flattwith Spring* (at Nutwith Cote Grange) amounted to 3s 4d. Payment for making of a hedge and undertaking repairs to the park pale at *Brimham Park* amounted to 7s, and hedging work carried out by Richard Beckwith at *Nutwith Cote* and John Lowte at *Braisty Woods*, amounted to 28s 5d and 17s 10d respectively. In the 1458-9 accounting year several entries were made for hedging works around *Kilnsey Spring* (in Wharfedale). These involved payments of 15s, 14d, 2s 8d and 10d respectively. The construction and maintenance of walls at the same location incurred a payment of 6s 8d (Fowler 1918, pp.83; 86).

The hedging of coppices was a fundamental part of woodland management to ensure that the newly-cut stools were protected from grazing animals in the early years of the coppice rotation. In this respect Fountains Abbey was particularly assiduous, insisting upon the exclusion of all types of grazing livestock from its coppiced woods for a minimum period of seven years. At its simplest, a dead hedge might be quickly made from ‘garsell’ (dead branchwood and twigs) interwoven between upright stakes. But whilst a dead hedge could be put in place quite rapidly – a material consideration in the hedging of newly-cut coppices – it was not a durable structure and required regular repair or replacement. In contrast, more permanent (live) hedges could be established with ‘quicksets’. Hawthorn (*Crataegus monogyna*) was the favoured species for making quickset hedges on account of its ability to form a dense and effective stockproof barrier. In the process of establishing a living hedge, the young quicks were often protected by a dead hedge until they were robust enough to repel grazing animals.

It was explained in Chapter 1 that in lowland Britain it was common practice to surround coppice woods with an earthen woodbank and ditch. Additionally, dead hedging or some other sort of fence was erected along the crest of the woodbanks to reinforce the effectiveness of this stockproof barrier. In contrast, it was more usual for coppices in the Yorkshire Dales to be fenced with live hedges rather than earthworks. Fountains Abbey favoured quickset hedges as a means of protecting their coppices. The young plants could either be propagated from the haws (berries) of hawthorn, or from saplings taken from the woods in winter. As an alternative to hawthorn, other thorny species such as blackthorn (*Prunus spinosa*), crab apple (*Malus sylvestris*) or holly (*Ilex aquifolium*) could be used. Occasionally hazel (*Corylus avellana*) saplings might also be used. Again, the records are particularly informative in this respect, for the *Bursar's Book* records a payment of 3s 9d 1457-8 that was made for the collection of young quicksets from a ditch at Marton le Moor (Fowler 1918, p.51). Interestingly, of all the species that could be used for

hedging, blackthorn was the least favoured because it tended to ‘spread into the pastures and tear the sheep’s wool’ (Fowler 1918, p.48).

The significance of this documentary source is that it provides an insight into the use of thorny or spiny vegetation in protecting young coppice woods. This is discussed further in the following chapter with respect to the management of former monastic woodlands in the post-Dissolution era.

3.3 Charcoal-making

In addition to its cattle and sheep ranching enterprises, Fountains Abbey had major interests in the extraction and smelting of iron and lead. In this, the woodland provided the fuel upon which these activities depended. Lead smelting was initially carried out on hillsides exposed to the prevailing wind, (often known as ‘Bale Hills’) where galena (lead ore) was smelted over a brushwood fire. By the 15th century the abbey was smelting lead ore in smelting mills that were fuelled by charcoal. Both brushwood and charcoal were obtained from the monastic coppices underwood. Whilst their prime function was to supply the monastery, on occasions wood was sold to third parties. Besides the heavy demand for charcoal, there was also the need for firewood and faggots to fuel the abbey’s kitchens and for heating the Warming Room and Guesthouses. The coppice system ensured a reliable supply of small wood to meet these needs through the rotational cutting of woodlands. The rotational period was determined by the intended end-use of the coppice poles in terms of diameter at cutting. In order to maintain the level of output to meet these demands (described in reference to coppice woods as the sustainable yield), a very extensive area of woodland was managed as coppice. Most of this woodland was situated on the abbey’s granges. However, the amount of iron and lead that could be smelted was governed by the regeneration capacity of the woodland and, given this limitation, and the fact that so much of the monastic estate took the form of grazing pasture, the monks sought additional woodland resources that could be exploited (rather than managed) for charcoal-making. This was largely met through the granting of additional rights by benevolent landowners. In one example, the monks were given the right to take dead wood from the woods in Swinton, Roomer and Nutwith (near Masham). This right was formalised in a 12th century charter in which Roger de Mowbray and his son, Nigel granted to the monks: ‘dead wood, standing and fallen, whatsoever bears no leaf, in their forest, wheresoever the monks shall wish to take it to make charcoal for their forge’ (Lancaster 1915).

In another example, further to the gift of Dacre township in 1138, which included ‘wood and plain’ (Greenway 1972, p.96), the monks were granted rights on de Mowbray lands in March 1308 for the purpose of charcoal-making for their forge at Dacre:

The Abbot and monks agree to have in the said chace only their forge of Dakre and one other forge at the lodges with two furnaces, transportable from place to place, for making their iron where it is most convenient, but they may burn charcoal within the chace from every kind of wood when and where they choose; they may not sell it but they may give it away if they choose. They may not carry wood to be burned for charcoal except between Michaelmas and Easter . . . they may also fell and give away or sell their wood within the said chace whenever and as much as they choose (Lancaster 1915, p.214).

Fletcher has stated that the granting of such rights gave the monks *carte blanche* to exploit large areas of unmanaged woodland, and that this activity resulted in the destruction of such woodland. One accusation was that ‘the wood of the great forest of Knaresborough had been entirely burned up by the Fountains monks in their smelting-works and forges’ (Fletcher 1919, p.111). In view of the fact that underwood, rather than timber, provides the raw material from which charcoal is made, there may be an element of exaggeration in the above quotation. It is, however, entirely conceivable that the monastery regarded such unmanaged underwood differently from its own woodland resources, which were strictly managed. On many of its grange properties, new coppices were established by the selective management of naturally-growing trees or the propagation of young rootstock to secure a continuous supply of wood (Fletcher 1919, p.150).

In addition to charcoal, firewood and faggots, other outputs from the abbey’s woods included tannery bark and occasional sales of timber. Another important documentary source, *The Memorandum Book of Thomas Swynton, 1446-1458* (Fowler 1918) records a number of woodland-based transactions, together with payments made for the carriage of timber and tannery bark. Timber was carefully conserved for use on the monastic estate and only rarely sold to outside individuals. Just two sales of timber (from the granges of Aldburgh and Sutton) are recorded during the 12 year period covered by the *Memorandum Book*. The carriage of timber from the woodland to the point of demand on the monastic estate is typically mentioned. One example records the payment of 12d for carting timber from Aldburgh to Baldersby Grange (Fowler 1918, p.116). And similarly, Thomas Benson was paid 2s 4d for carting timber to Thrope House Grange in Upper Nidderdale, and a payment of 7d was made for the carriage of tannery bark to the grange at Brimham (Fowler 1918, p.52).

The documentary sources discussed above provide an insight into the status of woodland on the Fountains Abbey estate from its inception in the 12th century. They demonstrate the high profile

afforded to woodland as a critical resource whose sustainable management can be identified from the painstaking protective measures that were bestowed upon it. This is amplified further in the leases that were drawn up when the monastery embarked upon a change of management policy which involved the letting of a number of its granges to tenants. The wording of the clauses illustrates the circumspect manner in which the Abbey regarded its woodland and the lengths it was prepared to go to in order to protect this asset. The leases are an extremely valuable source of information regarding the management of monastic woodland during the 15th/16th centuries. While this has been interpreted in outline by Michelmore (1981), the writer has collated and conceptualised further the references to woodland in the leases to provide an analysis of the Abbey's approach to the management of its woodlands.

3.4 References to woodland in the Fountains Abbey leases of the late-15th/mid-16th centuries

The transcription of the *Fountains Abbey Lease Book*, published as Volume 140 in the Yorkshire Archaeological Society's *Record Series* (Michelmore 1981), contains many references to the abbey's woodland and its management. There are repeated references in the leases to 'sprynges' (spring woods), a term that is generally interpreted as woodland managed by coppicing (Marshall, 1788; Rackham, 1976), and it is clear that such woodland represented an extremely valuable resource upon which many aspects of the monastic economy depended.

The woodland situated on demesne land was directly managed by the monastery, and as such, was protected against theft, wastage and damage. But as rather more of the abbey's woodland was situated on grange properties let to tenants, it was deemed necessary to include restrictive clauses in the leases to protect growing wood and timber. At its simplest, timber and underwood formed no part of any leasehold property, and rights to the woodland enjoyed by the tenants were strictly limited. Of the Nidderdale granges let on tenancies, 21 possessed some standing timber or underwood (see Figure 3.1 below). For ease of reference, the writer has extracted the rights and restrictions explicit in the 21 leases. These are presented in Table 3.1 below.

It has been explained earlier that the regeneration of coppiced woodland was dependent upon the exclusion of grazing animals after the coppice had been cut to prevent the animals from eating the regrowth. An Act, passed by Edward IV in 1482, for 'enclosing of woods in forests, chases and purlieus', stipulated that after felling, a coppice must be surrounded with 'sufficient hedges' to exclude cattle and other grazing animals for a term of seven years. Fountains Abbey, in

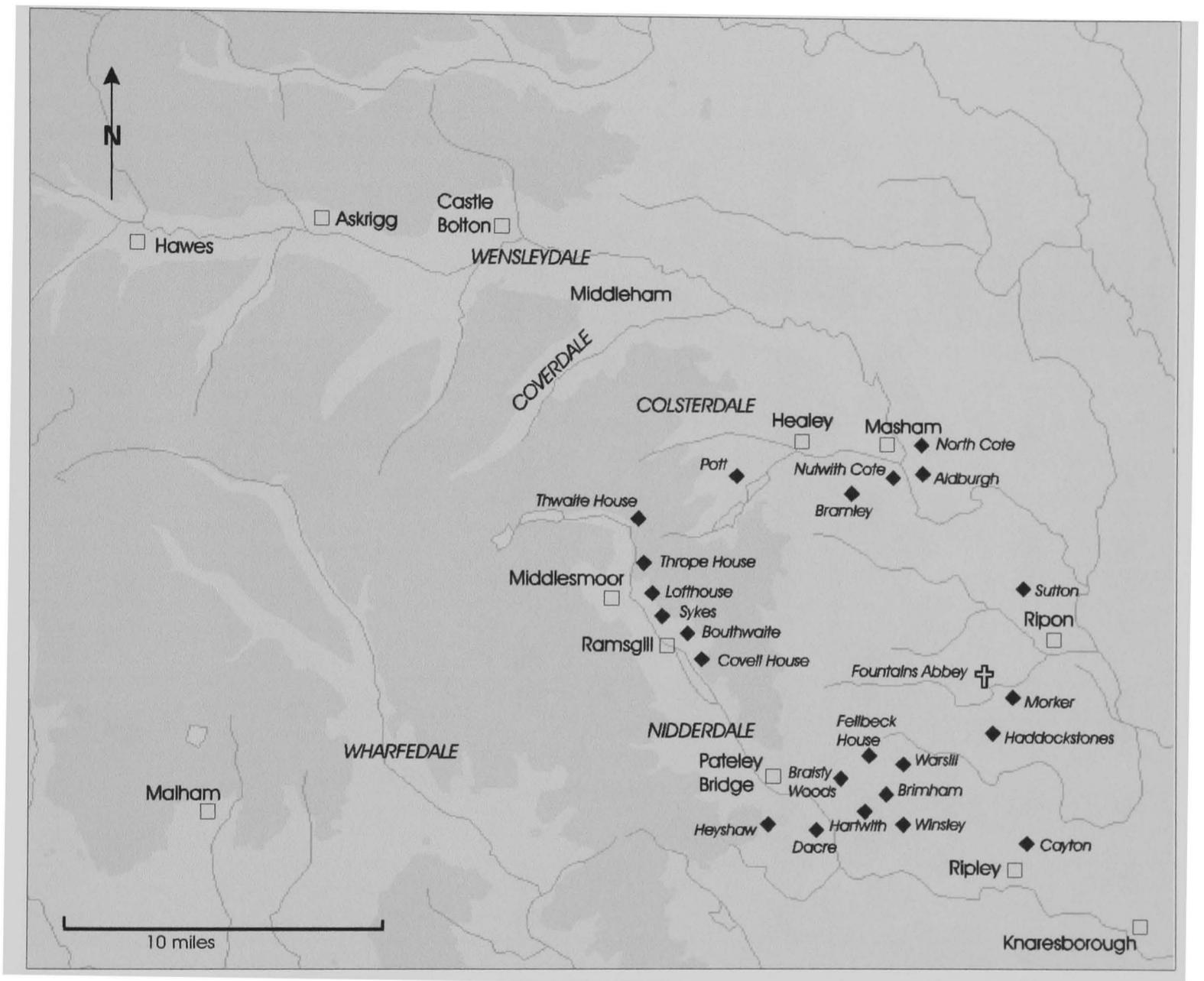


Figure 3.1. Fountains Abbey granges recorded as having woodland in the 16th century. Map drawn by the writer based upon information taken from the *Fountains Abbey Lease Book* (Michelmores 1981)

accordance with the Act, instituted a minimum 'fence time' period of seven years in its leases – a period deemed to be sufficient to allow the regrowth to gain enough height to place it above the reach of grazing animals. The exclusion of livestock necessitated the fencing of newly-cut coppices with dead hedges made of brash or 'garsell', taken from the woods (as opposed to the 'sprynges'). In six of the leases, the responsibility for providing the hedging and maintaining a stock-proof barrier around the coppiced woods was placed upon the tenants, despite the fact that they had no rights to those woods.

Lease Nos	Property	Woodland in coppice regime	7-yr fence time (exclusion)	Tenants responsible for hedging	Tenants forbidden to cut or waste wood	Rights reserved to the Abbot	Tenants given rights to holly	Tenants given rights to firewood	Tenants allowed to take leafy browse
149, 279	Aldburgh	●	●	●	●	●			
156, 257	Nutwith Cote	●		●	●	●			
160, 280	Pott (Low Ash Head)				●		●	●	
216	Bewerley	●			●				●
217, 219	Dacre				●	●	●		●
212	Heyshaw				●			●	●
205, 238	Bouthwaite				●			●	●
206, 277	Lofthouse				●				●
189	Bramley	●				●			
202	Braisty Woods	●	●	●	●	●		●	●
192, 194	Brimham Grange			●	●	●		●	●
197	Brimham Lodge/Park				●				
201	Hartwith				●	●	●	●	●
198, 200	Winsley				●	●			
183	Fell Beck House	●	●	●		●			●
276	Abbey Precincts	●			●				
231	Fountains Park							●	
227, 228, 275	Haddockstones	●							
242	Cayton				●				
160	Pott			●	●		●	●	●
180	Warsill				●				

**Table 3.1. Woodland rights and restrictions explicit in the Fountains Abbey leases.
(Data from Michelmores 1981)**

In the majority of the tenancies, the tenants and their livestock were expressly excluded from the woodland upon pain of forfeiture of their leases, while the abbot was at liberty to use the woodland as he saw fit. Most leases contained a clause which allowed the abbot or convent 'to take, fell, give, sell and carry away wood or 'casualte' from their woods or elsewhere on the

grange or tenement, with free entry and exit at their pleasure, without interruption from the tenants' (Michelmores 1981, 144).

Eight of the let properties had stands of coppiced woodland that was directly managed by the abbey's servants. In these cases the tenants and their livestock were expressly excluded from the woodland upon pain of forfeiture of their leases. At Braisty Woods the abbot and convent assumed responsibility for the coppice during the first seven years of its regrowth following cutting. In seventeen of the leases there was a specific clause that prohibited the tenants from cutting down trees or committing 'wastage' in the woods. In the four leases where this clause was not incorporated (Bramley, Fell Beck House, Fountains Park and Haddockstones) the tenants held the office of 'fostership' or woodward. Their duties consisted of policing the abbey's woodlands and presenting any persons committing offences there at one of the monastic courts. Similarly, the abbey's foresters were empowered to bring miscreants before the courts. On 14 July, 1535 eighteen tenants were presented for felling and carrying away wood at Aldburgh and fined sums ranging between one penny and sixpence. Eight other people found guilty of similar offences were fined one penny or twopence (Michelmores 1981, p.297).

Whilst the coppices mainly provided small wood, fuelwood and charcoal for the abbey's lead-smelting activities, the restrictions on timber-cutting were imposed to preserve the abbey's stock of timber trees. Although the maintenance of buildings and boundaries was a strict condition of all the monastic leases, tenants were not allowed to cut building timber in the grange woodlands. This can be seen in the lease of Thwaite House Grange, in Upper Nidderdale which was let to Richard and Catherine Bekwith in July 1495. In this case the tenants were charged with the maintenance of the houses, hedges and closes in thatch and mortar at their own expense, and at the end of their term were required to leave them in as good condition as they found them, 'without waste to the houses, woods and "sprynge" belonging to the grange and tenement' (Michelmores 1981, p.144). Any timber needed for building repairs was provided from the abbey estate and delivered to the holdings by abbey officials. This can be demonstrated in a lease of 1511 for Thrope House Grange, in Upper Nidderdale, where the tenants Agnes Herdecastell and her son Robert were required to 'repair and maintain all housing and fences belonging to the tenement at their own cost, except for large timber and "slaitstones", which shall be given by the abbot and convent as necessary towards repairing the housing' (Michelmores 1981, p.202).

At eight of the let properties, the tenants were granted the right of firebote, whereby they were permitted to gather dead wood and fallen branches for firewood. Interestingly, this right only applied at one property where active coppicing was taking place – Braisty Woods. It can be

envisaged that the temptation for the tenants to take coppice wood for fuel was so great that they were expressly excluded from all the monastery's coppices.

The cutting of leafy boughs ('brusyng', 'greenhews', 'watterbowes') for foddering domestic livestock (and possibly deer: R. Muir, pers. comm.) was permitted in ten of the leases – just under 50 per cent of the total. As the tenancies invariably involved the husbandry of a specified number of the abbey's cattle, this right could be beneficial to both parties. At Fellbeck House the tenant was granted the right to take 'sufficient brusyng' for his own cattle, and for the animals belonging to the abbot and convent in his care. At Lofthouse Grange, the tenant, Robert Raner, was bound 'not to give, fell or sell any woods growing within the bounds of the lodge', except reasonable 'brusyng' – a term that is interpreted as meaning leafy branches taken from pollarded trees (Michelmores 1981, 200).

Winter fodder sometimes took the form of the thornless growth taken from the tops of holly trees, which were cut and offered to livestock as an alternative or supplement to hay (Spray 1981). At four of the leased properties (Dacre, Hartwith, Pott and Low Ash Head) the tenants were granted the right to cut holly from the woodland for this purpose. In the lease of Hartwith Grange, a parcel of 'hollins' was included as part of the property for an additional annual rent of 12d. As an observation, it may be significant that none of these properties had any coppiced woodland, and furthermore, the tenants were forbidden to take timber from the woods.

Whilst the *Lease Book* is of value in providing an insight into the distribution of the abbey's woodland, it is not sufficiently detailed to enable a computation to be made of the extent of the monastic woodland. It is not until the Dissolution valuation of 1540 that this detail becomes available for study.

3.5 The monastic woodland at the Dissolution

Two valuation surveys of the monastic estate were undertaken by agents of Henry VIII in 1535 – four years prior to the Dissolution – and again in 1540. While transcriptions of these records have been published (Walbran 1863), until now, no attempt has been made to interpret the data in terms of how the monastic woodland was organised. This research has undertaken an interpretation of the data to provide a reconstruction of the mid-16th century woodland.

The woodland described in the valuations was situated on the demesne lands of the abbey and at a number of its satellite granges. Not all the granges are recorded as having woodland, although it is known from the abbey's *Lease Book* that many did (Michelmores 1981). The Nidderdale woodlands mentioned in the 1540 surveys were located in Fountains Park and Brimham Park,

and at the granges of Aldburgh, Brimham, Cayton, Covill House, Dacre, Felbeck House, Haddockstones, Morker, Nutwith Cote, Pott, Sigsworth, Sutton and Warsill.

In all but four cases, the surveys provide the area of the woods. In total, there were 802 acres (324.5ha) of woodland. Analysis of the woodland by descriptions (where they exist) and wood names, e.g. 'sprynge', provides some indication of the extent of the two principal types of woodland management practised by the monastery in the mid-16th century. There were 571 acres (231ha) of coppice woodland and 253 acres (102.4ha) of wood pasture, representing a ratio of 69 per cent coppice : 31 per cent wood pasture. This is similar to the distribution of woodland management regimes in south Yorkshire, where coppice had largely displaced wood pasture as the predominant form of woodland management by the mid-16th century (Jones, 1998). The distribution of coppice and wood pasture is shown in Figure 3.2 below.

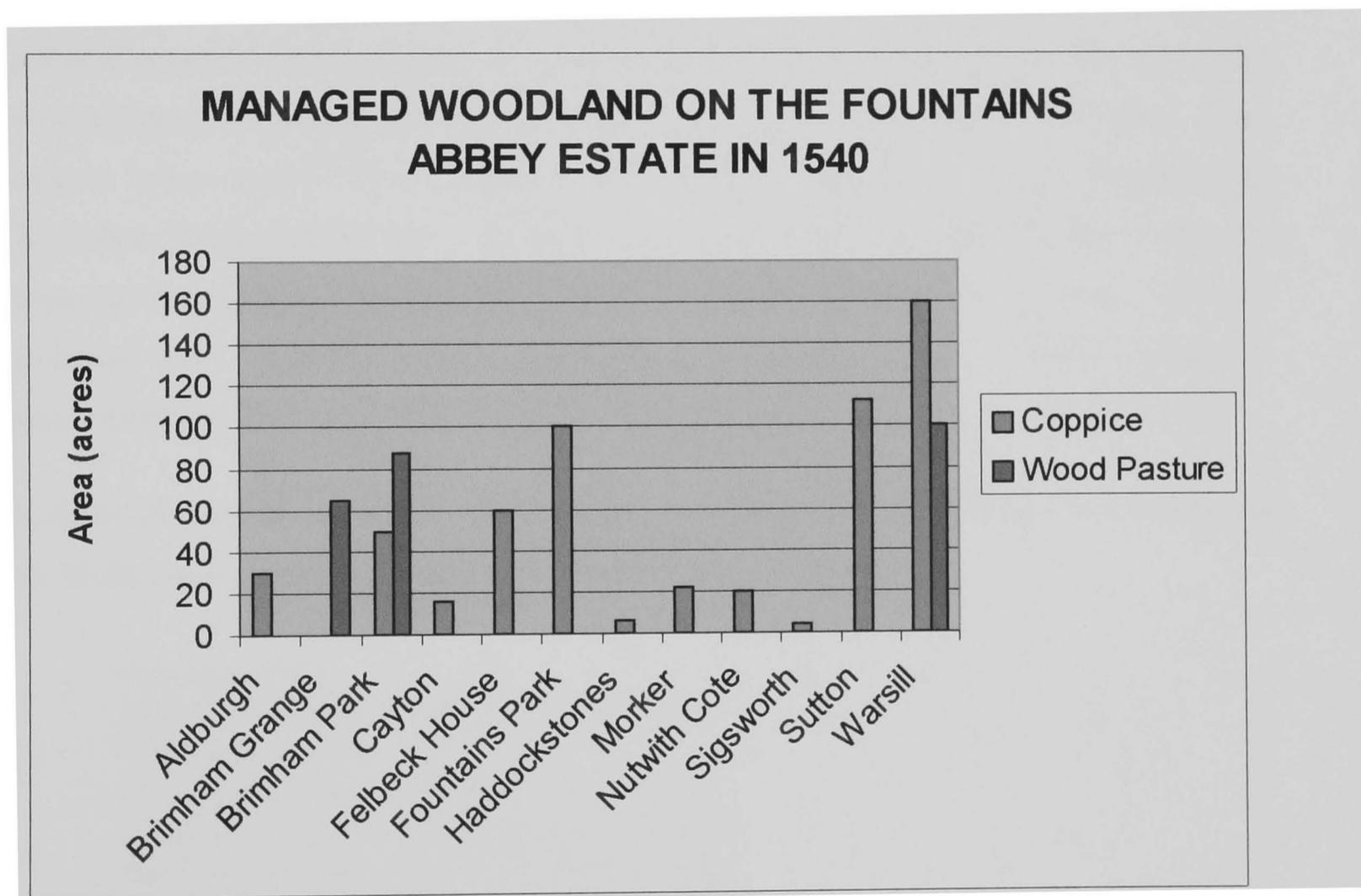


Figure 3.2. Managed woodland on the Fountains Abbey estate in 1540.

Data extracted by the writer from Walbran (1863)

It is particularly significant that at the time of the surveys the area under wood pasture had shrunk markedly, for apart from an unspecified area of woodland at Pott of no given value, which will be discussed later, only three areas of wood pasture were in existence. These were situated at the granges of Warsill and Brimham, and in Brimham Park. The largest area of wood pasture was at Warshall Calf Fall at Warsill Grange. This is described in the 1540 Valuation as 'coarse

pasture, full of wood', covering 100 acres (40.47ha) and valued at 7s. Given its large area and low valuation, the description is interpreted by the writer as wood pasture rather than coppice. The returns for Brimham Grange and Park describe the woodland in the following manner:

Brimham Grange

Cowpastore, 30 acres, value 5s, many oaks therein

Rise Close, 15 acres, value 5s, full of wood

Callfall, 20 acres, value 5s, 15 acres of wood

Brimham Park

Estilwayke, 30 acres, value 10s, most part full of great okes

Old Parke, 24 acres, value 20s, full of wood and carres

Skragfold Leez, 34 acres, value 3s, 30 acres set with grete okes

It is clear that at the time of the Dissolution, the greater part of the abbey's woodland was managed as coppice. Given the huge demand for charcoal, it was vital that the abbey managed its woodland with extreme efficiency to ensure a continuous and sustainable supply. The greatest extent of coppiced woodland lay to the west of Fountains Park at Warsill Grange. Here the woods were arranged in five separate compartments, of which *Abbotwathe Spryng*, at 60 acres (24ha) was the largest. Another block, *Billington Spryng*, extended to 40 acres (16ha). The remainder lay in three 20-acre (8ha) blocks – *Elmore Spring*, *Gillmore Spryng* and *Somerwith Springe*. Of these, *Gillmore Spryng* was recorded as having 'little spring wood therein' and hence received a valuation of nil. Similarly, *Somerwith Spryng* was considered to be worthless, although it appears that there were a number of standard trees there, described as 'many fare tymbre okes'.

Some 16 per cent of the abbey's coppice woods, amounting to 91 acres (37ha), and arranged in six blocks, were situated within Fountains Park. These are described as:

Fountains Park

Low Croke Wood, 25 acres, 14 years' growth

Mikelhaw, 15 acres

Over Croke Wood, 15 acres, 3 years' growth

Abbot Fall Spring, 14 acres, 14 years' growth

Brodwod Spryng, 14 acres, 14 years' growth

Wynford Wood, 8 acres

Of these blocks, *Mikelhaw* was recorded as having 'little underwood therein' and *Wynford Wood* as having 'many fare timbre okes'. No values were placed upon the woods in Fountains Park, presumably due to their situation on demesne land rather than let tenancies.

Sutton Grange held 13 per cent of the coppice woodland, extending to 72 acres (29ha) in three blocks, the largest of which was *Littell Spryng* (40 acres, 7 years' growth). *Calf Gill Spryng* (20 acres, 18 years' growth) appears to have been a coppice-with-standards, described as holding

‘many fare yong okes’. *Hollyn Hedd* (12 acres, 1 year’s growth) may have originated as a hollins (holly wood).

The two spring woods in Brimham Park extended to 50 acres (20ha) and represented 10 per cent of the area of coppice woodland. These two woods were called *Eppett Springe* (40 acres, 12 years’ growth) and *Colthuate Spryng* (10 acres, 17 years’ growth), the latter described as having ‘many fare tymbre okes and other treys’.

At Cayton Grange, near Ripley, the valuation listed another block of coppice woods, consisting of *Caytonfall Spryng* (10 acres), *Craggewood and Highewood Spring* (6 acres), both valued as ‘nil’. Another wood called *Littell Coppice*, with no given size or age, was valued at 66s 8d.

Some significant stands of coppice woodland were attached to the granges of Aldburgh, Covill House, Felbeck House, Haddockstones, Dacre, Nutwith Cote and Sigsworth. Of these, *Aldburghewood* was the largest, extending to 30 acres (12ha) and valued at £20 despite it having ‘little underwood but fare yong okes’. Walbran was of the opinion that this wood, from which much of the large timber used in the construction of the abbey church was sourced, was unplanted. If this were the case, and there is no reason to doubt Walbran’s interpretation, it may be construed that Aldburgh Wood had been converted to a coppice-with-standards from a stand of semi-natural woodland. This was achieved by selecting a number of maiden [uncut] trees that were allowed to grow through several coppice rotations and to ultimate maturity.

Haddockstones Grange, just beyond the perimeter wall of Fountains Park, possessed a wood called *Ashehed* (6 acres, 14 and one years’ growth). This wood was organised into two coupes, of which one had been recently cut. Similarly, Nutwith Cote, near Aldburgh, had 20 acres (8ha) of coppice wood at *Flattwith Spryng*. This, too, was a 14 year-old stand having ‘many fare tymbre treys of oke’. *The Springe*, at Sigsworth Grange, (4 acres, value 16d) was described as a ‘close of pasture with myche shrubby wood’. *Hie Wood* at Felbeck House Grange (60 acres), and valued at 5s was similarly described. Elsewhere, *Brushey Wood* at Covill House Grange was valued at 40s. Of the extensive woodland at Heyshaw and Dacre, only *Okewood Spryng Wood* was mentioned, and in this instance there is no indication of size nor age, but an observation that the wood, under proper management, could be worth £80 – clearly the woodland with the greatest potential as a coppice.

It is apparent from the above valuations that many of the monastic coppices were managed in large blocks rather than small coupes that were cut on short rotations. In situations where the

prime function of the woodland was to provide a source of charcoal for the smelting mills, rotations of around 15-20 years were employed. It is clear that many of the abbey's coppices were also managed to provide a supply of standard trees for constructional timber.

3.6 Pastured woods

At a number of Fountains Abbey granges mentioned in the 1540 valuation some of the underwood and timber trees stood on land that had, to all intents and purposes, been converted to agricultural use for pasturing livestock. Pastured woods were a form of agroforestry where some grazing for livestock could be accommodated within areas of coppice. In order for this to be possible, the stools would have had to be of sufficient maturity – generally a minimum of seven years of age – in order to withstand grazing pressure.

Although normal pasture was valued at one shilling per acre, and meadow at slightly more, depending upon the productivity of the grassland, there appears to have been no attempt to place a value on any of the coincidental woodland. At Bramley Grange two closes were listed as having trees, and this appears to have been the only woodland recorded there:

Bramley Grange

The Ing, 20 acres of meadow, value 25s, sett with shrubby oaks

Cow Close, 14 acres of pasture, value 14s, shrubby wood and hollings

From these descriptions it is interpreted that *The Ing* was a stand of residual wood pasture, and *Cow Close* a coppice with a holly understorey. The holly may have been planted as a nurse for a crop of standard trees.

It is apparent that small parcels of coppice existed within some of the agricultural fields. For example, *Rise Close*, a pasture field of 20 acres at Brimham Grange which contained '10 acres of wood' was valued at 5s. Similarly, at Haddockstones Grange, there was an eight-acre arable field called *Dawbank* which had 'a little spring wood'. At Morker Grange there was an 80-acre arable field called *Great/Less Cow Pasture*, valued at £4 10s, which contained two acres of wood, and 20 acres of pasture valued at 20s called *Shepe Close/Cokefall* 'with one little spring wood'.

A further 208 acres (84ha) of pastured woodland can be identified through the application of field-name analysis to the valuation data. This area of pastured woodland is presented in Table 3.2 below. It is significant that the valuations of the pastured woodland at Dacre and Heyshaw are markedly less, reflecting the low productivity of that moorland locality.

<i>Grange</i>	<i>Field Name</i>	<i>Land-use</i>	<i>Area (acres)</i>	<i>Area (ha)</i>	<i>Value</i>
Aldburgh	Wood Close	Pasture	6	2.42	6s
Dacre	North Wood	Pasture	30	12.14	5s
Haddockstones	Wood Horse Close	Pasture	2	0.80	2s
Heyshaw	Bale Wood	Pasture	60	24.28	20s
Heyshaw	Law Wood	Pasture	60	24.28	20s
Heyshaw	Hie Wood	Pasture	30	12.14	10s
Pott	Netherwood	Pasture	20	8.09	13s4d

Table 3.2. The area of pastured woodland identified from fieldnames given in the 1540 Dissolution valuation (Walbran 1863)

3.7 Fountains Park

The following case study is presented as a reconstruction of one block of monastic woodland described in the 1540 valuation. Fountains Park, the Abbot's home park, was situated to the south-west of the abbey precincts and enclosed within its own boundary wall. Much of the wall, shown on maps as the 'Monk Wall' has survived and can be traced for most of its former extent. Beresford (1984, p.197) comments that the absence of ridge-and-furrow cultivation within the park suggests that it had not encroached upon arable land when it was laid out in the 13th century. It is, therefore, probable that the woodland enclosed within the park boundary was unplanted and may have been ancient semi-natural. All the 91 acres (36.8ha) of woodland mentioned in the 1540 valuation was coppice.

The Monk Wall enclosed an area which extended to 184 acres (74.5ha). Of this, coppice woodland represented 49 per cent of total land-use, with 23 acres (9.3ha) of coppice-with-standards. The remaining area was 15 per cent pasture and 36 per cent meadow. In the west of the park there is a steep-sided narrow valley that holds the monastic fishpond. The fishpond is enclosed by the western park boundary wall which remains at the foot of the slope (Plate 3.1). The park is now entirely in agricultural use, managed as intensive grassland for a dairy enterprise. The woodland, which is managed for shooting purposes by a private syndicate and has all been replanted, is concentrated around the former monastic fishpond and in four smaller blocks.

Three stands of woodland, *Abbot Fall Spring*, *Brodwod Sprynge* and *Wynford Wood* that were described in the 1540 valuation can still be identified in the park. *Abbot Fall Spring* (the abbot's spring wood) remains as Abbey Fall Wood, situated on steeply-rising ground in the north-eastern corner of the park. When this wood was valued in 1540, it extended to 14 acres (5.6ha). The present wood occupies much of the same footprint as the 16th century coppice wood, although its present area of 9.8 acres (4ha), is just over half its original extent. It was included in the

Inventory of Ancient Woodland (NCC 1987) as a replanted ancient wood, having become a plantation of larch and ash with occasional oak and hazel. The wood is bounded on its north and eastern margins by the Monk Wall, and elsewhere by laid hawthorn hedges of apparent antiquity. An impression drawn from the Ordnance Survey 25-inch map and an aerial photograph (Plate 3.2) that the wood formerly extended over an area immediately to the south of its present boundary was confirmed by field observation. A pollarded holly stands adjacent to the Monk Wall at SE 274678.

The large block of woodland that presently surrounds the former fishpond, now known as 'The Dean' can be seen from the First Edition Ordnance Survey map of 1854 to have been two distinct woods: Wynford Wood (to the west of the fishpond) and Broad Oak Wood (*Brodwod Sprynge*) to the east of the pond. Wynford Wood occupies an east-facing steeply sloping site. Visible indications of a former coppice regime are apparent in a number of oak stools that have survived amidst conversion of the wood to a larch plantation. An example is shown in Plate 3.3. Similarly, Broad Oak Wood, occupying an area to the east of the fishpond, is now a plantation. Indications of former charcoal-burning in the wood are apparent from a number of platforms and the presence of charcoal in the topsoil. The two woods were linked by a stone causeway, which crosses the former fishpond at SE 265669.

The Monk Wall can be seen at places to replace an earlier bank and ditch, hedged enclosure. This is particularly apparent at a point on the western side of the park where the Monk Wall turns radially east through 90 degrees. A number of residual pollarded oaks can be seen to be associated with this boundary (Plate 3.4). The ditch was particularly apparent at the time of the field inspection as a feature made more visible by the presence of tall rank grasses in contrast with the surrounding improved grass sward.

The description of woodland in the park in 1540 indicates that there was no wood pasture there at the time. This is quite unusual, in that it was a common feature of parkland for some time after this. The explanation offered is that by this time the abbot had ceased to keep deer in the park and that the need for coppice woodland overrode the desirability of maintaining wood pasture. It has been seen earlier in this chapter that in 1540 wood pasture had largely disappeared from the Fountains Abbey estate, being confined to the Brimham and Warsill properties.



Plate 3.1. Fountains Park - the western boundary wall in woodland



**Plate 3.2. Aerial photograph of Fountains Park showing areas of woodland. Detail overlaid on Meridian Airmaps Ltd (West Riding: Frame 5767033).
© North Yorkshire County Council**



Plate 3.3. Fountains Park - coppiced oak stool in larch plantation



Plate 3.4. Fountains Park - Pollarded oaks on the western park boundary. The original ditch is revealed by yellow grasses

Arrangement of woodland in the park

The 1540 valuation lists six blocks of woodland amounting to 91 acres (36.8ha). Three of these have already been mentioned as still-extant woods, but the other three have been cleared and their sites converted to agricultural land. Of these, there was one very large block of woodland that was arranged in two compartments: *Over Croke Wood* and *Lower Croke Wood* which together covered 40 acres (16ha). The site of this wood is now uncertain as field names do not provide any clues as to its former location. The other wood, *Mikelhaw* of 15 acres (2ha) appears to have been located along the eastern margins of the park in proximity to How Hill where a certain amount of tree cover and pollarded field trees still occurs. Two areas of former holly woods may be postulated from the parcel names *Holling Ing* and *Hellings* given in the 1540 valuation. Together these extended to 23 acres (9.3ha). Their land-use in the valuation is given as meadow. The deer lawns *Laund Close* and *Stople holme laund* represented a large component of land-use, as in other medieval deer parks, extending to 60 acres (24ha). The ratio of woodland to lawn in Fountains Park is calculated as 2.9:1.

In this case study it has been demonstrated that woodland formed just under half the area of this medieval monastic park. It is suggested that by the 16th century Fountains Park had acquired a different woodland management regime from that of other medieval parks, with an emphasis upon productive coppice for fuelwood purposes as opposed to the wood pasture regimes that characterised the lordly parks of Wensleydale at the same period. A comparison between the function of woodland as land-use and its management is offered between this park and that at Middleham in Chapter 6.

3.8 The 1574 Valuation of former Fountains Abbey woodland

The most valuable and detailed impression of the former grange woodland of Fountains Abbey is provided by a document purported to be a *Survey of the Woods and Trees on Certain Estates of the Late Dissolved Monastery of Fountains, taken in or about the year 1574* (Walbran 1863, p.411). As a footnote, Walbran stressed the importance of this valuation, commenting that documents of this date, which give such a detailed ‘picture of the sylvan aspect of this particular part of the country’ are uncommon. He thought that the woodlands described in the valuation were unlikely to have been planted, and that *Aldburch Great Wood*, the Abbey’s largest block of woodland, ‘no doubt sprang from the stocks which had existed at the time of the Norman Conquest’.

Walbran noted that in an earlier valuation, taken in 1540, immediately prior to the purchase of the Fountains estate by Sir Richard Gresham, the value of the entire woodland amounted to just

£380. Interestingly, the corresponding figure provided by the 1574 valuation was £1905 13s, and this did not include the timber trees in Fountains Park which were valued at £519 6s 4d. It appears, therefore, that the earlier valuation was based upon a rough estimate rather than a detailed survey. The clearest picture gained is from the descriptions of three large blocks of woodland at the granges of Aldburgh, Northcote and Bramley. These granges were all situated on the moorland fringe near Masham, on the north-eastern margins of Nidderdale, and their woods formed the monastery's principal resource of large timber, of which the largest, Aldburgh Great Wood, was the source of timbers used in the construction of the abbey church.

It is particularly evident from the 1574 valuation document, which has been analysed by the writer and is summarised in Table 3.3, that great attention was paid to detail. Individual trees were accounted for, rather than the blanket (under)valuation that was employed by the earlier Dissolution surveyors. The impression gained from this wealth of detail is that, some 34 years after the Dissolution, the woodland was being managed more intensively than when it had been in monastic hands. The main body of the valuation is concentrated upon the pricing of individual trees, in effect a 'per piece' valuation. This figure is then multiplied by the number of similar trees to calculate a total figure for a given category. While a transcript of the valuation was published by Walbran (1863), no analysis of the data was undertaken. The writer has interpreted the valuation data to gain a clearer understanding of this important woodland resource by providing an informed reconstruction of the Fountains Abbey woodland in, and on the fringes of Nidderdale.

3.9 Extent of the survey

This valuation of ex-Fountains Abbey woodland, carried out in 1574, some 34 years after the Dissolution, was focused upon twelve former granges, of which only three were included in the previous survey of 1540. Of these granges, eight were located in Upper Nidderdale: Pott, Thwaite House, Thrope House, Lofthouse, Sykehouse, Bouthwaite, Sigsworth and Covill House (with its sub-granges of East and West Holmehouse). The remaining four granges lay in close proximity to the monastery and generally on the north-eastern flank of Nidderdale: Haddockstones, Aldburgh, Northcote and Bramley. An analysis of the 1574 valuation indicates that the main concentration of timber trees was on land attached to these four granges, where a positive correlation between the incidence of high grade, predominantly oak woodland and typical brown earth soils of the 541r Wick 1 soil association can be seen to exist (Soil Survey 1983).

The valuation differentiated between timber trees, standards and underwood, and from the style in which the assessments were presented, it is apparent that the woodland was predominantly

managed as coppice-with-standards. Values were also placed upon ‘young oaks and ashes’, and these were shown separately.

3.10 Standard trees

In the valuation of standard trees, which was only concerned with oaks and ashes, the surveyors employed a hierarchical pricing system, under which oak was placed into three grades and ash into one. Additionally, in just two instances, the categories of ‘worst oaks’ and ‘worst ashes’ was used. These are interpreted by the writer to have been dead, derelict or misshapen trees that could have been old pollards standing in areas of former wood pasture.

In the valuations for the granges of Bramley, near Grewelthorpe and Aldburgh, near Masham, with its sub-grange Northcote, the returns are particularly detailed. The greatest number of timber trees – 360 first grade oaks valued at 13s 4d each – stood in Aldburgh Wood, with a further 360 similar trees valued at 9s 6d each in Flotwood. In both woods there were also significant quantities of second grade oaks (500 @ 6s 8d in Aldburgh Wood and 360 @ 6s 4d in Flotwood). There were also 980 oaks of third grade, of which those in Aldburgh Wood were valued at 3s 4d each compared with 2s each for those in Flotwood. These two stands which, in combination, numbered 2,560 trees, represented the most valuable stock of timber on the former monastic estate. The remaining part of the valuation is concerned with much smaller numbers of standard trees, in some cases as low as two, which may be indicative of hedgerow trees.

The valuation returns were set out on a field by field basis, and it is apparent that only three fields (Sickling Lond, Cow Pasture and Rydinges) had more than 100 trees – 100, 107 and 181 trees respectively. In the case of Sickling Lond, the valuation may be interpreted as referring to an area of remnant wood pasture, for there are no records of young trees growing up alongside the 100 first grade oaks, the 23 first grade ashes, and the 28 ‘worst ashes’ valued at 10d each that may have been old pollards. The same logic would indicate that Cow Pasture and Rydinges, in which large numbers of young trees were recorded accompanying valuable standard trees, were managed as coppice-with-standards.

3.11 Coppice-with-standards

It is evident from the valuation that all of Fountains Abbey’s coppiced woodland was managed as coppice-with-standards, in accordance with the Ordinance for the Preservation of Woods 1543 (Stat 35 Hen VIII, cap 17), which stipulated that in every acre of coppiced woodland, twelve standard trees would be left to mature into timber trees. This Act was introduced as a measure to address the perceived lack of timber for construction and shipbuilding that might result from most

Grange	Close name	1st Oak	1st Oak price	2nd Oak	2nd Oak price	3rd Oak	3rd Oak price	1st Ash	1st Ash Price	Young Oak	Young Oak price	Young Ash	Young Ash price	Worst Oak	Worst Oak price	Worst Ash	Worst Ash price	Shrubbed Oak	Shrubbed Oak price	Shrubbed Ash	Shrubbed Ash price
Aldburch	Flotwoode	360	9s6d	360	6s4d	480	2s			480	8d										
Aldburch	Alburghe woodde	360	13s4d	500	6s8d	500	3s4d	300	3s4d	300	12d										
Aldburch	Cowe Close	75	4s					53	2s	192	12d	227	8d								
Aldburch	Sockling lond	100	4s					23	2s							28	10d				
Aldburch	Lit feasant bushes	60	4s					12	20d	?	14d	17	12d								
Aldburch	Gt feasant bushes	60	4s	43	2s6d			2	15d	69	12d										
Aldburch	Heye & Lowe Lees	46	2s					16	12d	138	12d	26	8d								
Aldburch	Lawe houndes & greves	5	2s					20	2s6d			16	12d								
Aldburch	Biggens	30	2s					31	12d	27	12d	20	8d								
Aldburch	Killegarthe							7	2s8d			4	15d								
Aldburch	Wood Close																	2	2s	2	8d
Aldburch	Stye Garth							2	18d												
Aldburch	Back Close	2	2s					20	2s	2	16d	20	12d								
Aldburch	Stable Inge	8	2s					3	2s	39	14d	28	12d								
Aldburch	Yew Close	8	2s					3	2s	28	14d	25	10d								
Aldburch	Hall Close	6	2s							2	16d	11	12d								
Aldburch	Cow Pasture	107	2s6d					16	16d	273	12d	160	12d								
Aldburch	Cow Close Meadow	51	20d					3	20d	69	12d	3	12d								
Aldburch	Arkehard	12	21d					2	12d	25	12d	6	12d								
Aldburch	Arklewaye	43	2s					7	12d	40	12d	37	8d								
Aldburch	High Nuke	62	2s							77	12d	67	12d								
Aldburch	Roug Close	87	12d					66	12d	100	12d	76	12d								
Aldburch	Rydinges	181	2s6d					22	2s	199	12d	29	12d								
Aldburch	Theaves-gill spring							2	20d	46	16d										
Aldburch	Theaves-gill spring									74	12d	35	12d								
Aldburch	Oxe Close	30	2s					2	20d	70	8d	9	8d								

Grange	Close name	1st Oak	1st Oak price	2nd Oak	2nd Oak price	3rd Oak	3rd Oak price	1st Ash	1st Ash Price	Young Oak	Young Oak price	Young Ash	Young Ash price	Worst Oak	Worst Oak price	Worst Ash	Worst Ash price	Shrubbed Oak	Shrubbed Oak price	Shrubbed Ash	Shrubbed Ash price
Aldburch	Greane Close	2	2s					2	20d	19	8d	13	8d								
Aldburch	Horse Close	40	2s6d					4	16d	65	8d	6	8d								
Aldburch	Calf Lye	6	2s					2	12d	9	8d	2	6d								
Aldburch	Ingelye	2	20d					4	2s	10	8d	4	8d								
Aldburch	Ockehedd	10	16d							103	12d										
Aldburch	Cowclose	3	16d					2	20d	37	8d										
Aldburch	Morefeld	3	20d							30	8d										
Aldburch	Lathe Close	4	16d							?	12d										
Northcote	Broke Close	64	20d					9	16d	52	12d	3	12d								
Northcote	Drie Close Hill							5	12d	21	2s										
Northcote	Drie Close Hill									36	12d										
Northcote	Cowe Close	2	12d					2	12d	4	6d										
Northcote	Cowe Pasture	20	2s4d					10	2s	40	12d	10	8d								
Northcote	Lonyton Inges							3	16d	31	18d	5	8d								
Northcote	Lonyton Inges									26	12d										
Northcote	Break plow bancke	5	16d					7	2s	8	12d	4	8d								
Northcote	Hackeringes	2	16d					16	20d	4	8d	23	6d								
Northcote	Hawbancke	16	20d					2	16d	14	6d	8	4d								
Bramley	Cow Close	160	20d																		
Bramley	New Close	60	4s	60	2s4d	10	20d					20	6d	400	12d						
Bramley	Horse Close	60	4s	60	2s	80	16d	16	16d	400	8d	24	8d								
Bramley	Aldorshewe	6	20d					4	12d	40	8d	8	6d								
Bramley	Westinges	30	16d					10	12d	90	8d	30	6d								
Bramley	Estinges	23	12d	77	6d			10	12d			30	6d								
Bramley	Fulgate Lees	30	12d	90	8d			8	12d			12	8d								
Bramley	Raye Parke Lees	40	13d					6	12d	300	6d	14	6d								

Grange	Close name	1st Oak	1st Oak price	2nd Oak	2nd Oak price	3rd Oak	3rd Oak price	1st Ash	1st Ash Price	Young Oak	Young Oak price	Young Ash	Young Ash price	Worst Oak	Worst Oak price	Worst Ash	Worst Ash price	Shrubbed Oak	Shrubbed Oak price	Shrubbed Ash	Shrubbed Ash price	
Bramley	Little feld	16	2s					4	12d													
Pott	Pott Grange																	120	6d			
Pott	Ashedd Grange																	80	6d			
Thwayt House	Thwayt House																			32	6d	
Trope House	Trope House																			16	8d	
Trope House	Trope House																			16	6d	
Lofthouse	Lofthouse											22	8d									
Sykehouse	Sykehouse																			16	10d	
Bouthwaite	Bouthwaite																	80	12d			
Covill House	Covill House	32	10d																			
Westholmehouse	Westholmehouse	42	12d																			
Estholmehouse	Estholmehouse	42	12d																	20	12d	
Sigsworth	Sigsworth							40	10d									300	12d			

Table 3.3. Analysis of the 1574 woodland valuation, using data taken from Walbran (1863)

of the nation's woodland being managed as coppice. The impact of the Act is apparent in the 1574 valuation entry for Haddockstones Grange, a property which was located near to the south of the abbey precinct. Here, the woodland is described as:

one woodd, contening xxx acr. iij rodes, of xvij yeares groweth, whereof xx acr valewid at xxvjs viijd th'underwoodd thereof th'old standes beinge left (£26 13s 4d) . . . th'other x acr. iij roodes, which is but of x or xij yeares groweth and thyne growen, the underwoodd thereof valewid at xiijs iiijd the acr., (£7 3s 4d) . . . all the okes and ashes that will serve for timber in the said woode are valewid at xxvjs viijd the acr., xxx acr. iij roodes (£41).

An interpretation of this entry shows it to describe a wood of 30 acres 3 roods (12.45ha) in extent that had been divided into two coppice compartments of 17 years and 10-12 years in age. The valuations for the underwood placed a value upon the older compartment of 26s 8d per acre and the younger compartment of 13s 4d per acre – a doubling in net worth over a period of about six years growth, reflecting the greater stem diameter and top height of the older trees. The standards are valued separately at 26s 8d per acre – the same areal value as the older coppice – indicating a net worth of 26.6d (a little over 2s) per tree, given an assumed stocking rate [density] of 12 timber trees per acre.

There is a marked difference in the price of the timber trees in Aldburgh Wood and Flotwood with the rest of the valuation, for here the oaks, valued at between 6s 4d and 13s 4d each were of a far greater degree of quality and maturity. The price of first grade oaks over the remainder of the valuation is in a band ranging from one to four shillings – at most less than half the price of the Flotwood trees. Similarly, first grade ashes, priced at 3s 4d each in Aldburgh Wood, elsewhere fall into a price band ranging from one shilling to two shillings and eight pence. In the sixteen fields having less than ten ash trees, it may be construed that those trees were growing in hedgerows rather than in stands of woodland.

3.12 Young trees

It is possible that some replanting of oaks and ashes may have taken place to produce the considerable stock of young trees. If this was not the case, then the natural regeneration of woodland appears to have resulted in healthy populations of young oak and ash trees, which are described in the valuation as young saplings or spires. In Flotwood the valuation listed 480 young oaks with a unit value of 8d. Another 300 oak saplings in Aldburgh Wood were valued at 12d each. The same wood also held 300 first grade ashes with a unit value of 3s 4d. From the emphases inherent in the valuation structure, it appears that the surveyors ranked first grade ashes and third grade oaks equally.

The relatively large numbers of young trees included in the return for some individual fields appear to indicate small stands of coppice. Furthermore, the fact that discrete stands were given equal value would accord with their being even-aged and therefore attributable to a singular coppicing event. It is useful to examine the pricing structure of individual sapling trees, for this appears to be based upon the length of the coppice rotation and therefore their size. A simple interpretation of the four price bands employed: 8d, 12d, 14d and 16d shows that an incremental value of 1d per year of rotational growth per tree was applied. If this was the case, it follows that 28 per cent of the coppice wood was eight years old, 52 per cent twelve years old, 10 per cent fourteen years old and 10 per cent sixteen years old. If a coppice rotation of 25 years was in operation, most of the woodland would have been in its second rotation following the monastery's Dissolution, or the figures may refer to restocking with maiden trees in their first cycle. As widespread felling was initiated shortly after the transfer of the monastic lands into private hands, the figures indicate that the woodland remained in active management.

The valuation indicates that the extent of the coppiced woods was 428 acres (173ha). All the properties so valued possessed at least 10 acres (4ha) of coppice. Although Pott Grange possessed a rather disproportionate 120 acres (48.5ha) of woodland, it will be demonstrated in Chapter 5 that the greater part took the form of gill woods situated in remote country. The areas of coppice in 1574 are shown in Table 3.4.

Property	Area acres (ha)
Pott Grange	120 (48.56)
Aldburgh Wood	90 (36.42)
Flotwood	50 (20.23)
Bouthwaite Grange	35 (14.16)
Sigsworth Grange	30 (12.14)
Haddockstones Grange	30 (12.14)
Covill House	12 (4.85)
Thrope House	11 (4.45)
Bramley Grange	10 (4.04)
Thwaite House	10 (4.04)
Lofthouse Grange	10 (4.04)
Westholmehouse	10 (4.04)
Eastholmehouse	10 (4.04)
Total	428 (173.21)

Table 3.4. Areas of coppice woodland given in the 1574 valuation (data from Walbran 1863)

The descriptions of the coppice woods, while restricted to thirteen properties, enable some idea of their composition, area and value to be gained. As has been seen in the example of Haddockstones Grange above, the compartmentalisation of woods was a feature of the coppice

regime, albeit in quite large blocks of even-aged growth. The 90-acres (36ha) of underwood in Aldburgh Wood was managed in two compartments of 50 and 40 acres (20 and 16ha). At Thrope House, the eleven acres of coppice was divided into two plots of six and five acres (2.4 and 2ha). Elsewhere, the coppices appear to have been managed as large even-aged stands, as in the case of Bouthwaite: 35 acres (14.1ha) and Sigsworth: 30 acres (12.1ha).

It is possible to calculate the incremental value of coppice cycles from the given valuation figures. The base valuation for coppices with few, if any, standard trees was ten shillings per acre. This figure was applied in seven cases, where coppice growth of 20 years was concerned. Thus it may be construed that in these cases, an increment of sixpence per acre per year of growth was applied by the surveyors to arrive at a valuation of these timber-poor coppices. A somewhat higher value of 13s 4d per acre was applied at Bramley and Lofthouse, which each possessed ten-acre (4.01ha) stands that probably included a quantity of oak standards. In the case of the higher-valued woodland, the incremental price rose from sixpence to 1s 4d per acre per year of growth. This same factor can be seen to apply in the examples of Aldburgh Wood, with 50 acres of underwood at 26s 8d per acre, and 40 acres of underwood at 13s 4d per acre. By using this incremental figure, it becomes evident that the 50 acre stand was 20 years old and the 40 acre stand ten years old. Also, the same figure is applicable to the 50 acres of 17-year-old underwood in Flotwood, valued at 23s 4d per acre. An explanation for the higher valuations might result from better woodland sites affording more vigorous growth, perhaps with a higher volume of oak as underwood.

A particularly interesting aspect of these valuations is the repeated reference to replenishment (or beating-up) with three principal taxa: hazel, holly and alder. This took place in all cases apart from Flotwood, Aldburgh and Bramley, which were particularly valuable oakwoods. At Pott Grange, there was the additional inclusion of birch. The choice of replenishment taxa appears to have been based upon their adaptability [hardiness] to the adverse climate of Upper Nidderdale and their suitability for a range of end-uses, including charcoal-making (hazel and alder) and for foddering livestock (holly).

3.13 Shredded trees

The category of 'shurb'd' [shrubbed] trees given in the 1574 woodland valuations for nine former Fountains Abbey granges is thought by the writer to indicate the presence of a tree shredding tradition on the Fountains Abbey estate. During the medieval period, the practice of shredding, which involved the systematic removal of the epicormic (lateral) branches of broadleaved trees, was widely practised in Wales and the Lake District, two upland regions comparable with the

Yorkshire Dales. In a parallel drawn from the 16th century woodland records of the Cistercian Abbey of Cwm-hir in Mid Wales, Linnard (2000, p.63) remarks that the practice of shredding, also known as ‘shrouding’ or ‘shrubbing’, involved the lopping-off of branches, often to a considerable height on the stem, for the purpose of providing winter fodder for livestock. The same writer describes a 60-acre block of coppice-with-standards in the Forest of Coyd Kyrye ap heren which included ten acres of ten-year-old coppice with short shrubbed oak standards 60 years old.

Shredding (‘shreddynges’), as distinct from pollarding (‘croppynges’) is known to have been practised in the Lake District, especially upon ash trees, whose foliage is particularly palatable to sheep. Denyer (1991, p.83) notes that the 16th century records of Furness Abbey similarly show the customary use of leaves for fodder. It was common practice for the cut branches to be laid out on the ground and offered to livestock. When the animals had eaten the leaves and other palatable parts, the residual twigs and branches were retrieved and used for firewood. Wordsworth’s observation (1810) on the ‘sylvan appearance . . . heightened by the number of ash-trees planted in rows along the quick fences and walls for the purpose of browsing . . .’ provides a snapshot of the appearance of shredded trees.

A similar-sounding term, ‘shrubby’ occasionally occurs in the woodland records of some lowland areas. Woodland historians consider this term to be descriptive of prolific leafy regrowth from coppice stools, stimulated by light grazing in the early years of a rotation (N. Bannister, pers. comm.). In an example drawn from Sussex in 1766, the antiquarian, John Elliot, observed that after all the timber had been felled on a piece of commonland, the area resembled ‘a large waste thinly scattered with shrubby oaks of little value with little or no underwood’ This example appears to describe the appearance of recently cut stools that had been subjected to light browsing in an area where animals could not be excluded on account of the legal restrictions on fencing commonland. It is difficult to establish a parallel between these ‘shrubby’ trees and the ‘shrubbed’ trees on the Fountains Abbey estate in view of the fundamental differences in land tenure and the stringent measures taken by Fountains to exclude all forms of grazing livestock from their newly-cut coppices for a minimum period of seven years.

On the former Fountains Abbey estate, the shrubbed trees were valued individually at between sixpence and one shilling, and, apart from the two shrubbed oaks in Wood Close, Aldburgh, which were valued at two shillings each, there appears to have been little significant difference between the values placed upon oak and ash. The larger numbers of shrubbed trees recorded at Pott Grange, Sykes and Eastholmehouse (120, 80 and 300) could have been standards in

coppiced woods, whereas the returns recording substantially fewer trees (i.e. 16-32) at one location could refer to shrubbed standards growing in hedgerows.

Shredded trees are described in the valuation returns for eight granges as follows:

Pott Graung [Pott Grange]: Item, more in the said growndes vjxx shurbd okes, valewid at vjd. a pice

Item, more in *Ashedd Grange* [Ash Head Grange] iiijxx shurbd okes, at vjd. a pice

Thweat howse grange [Thwaite House Grange]: Item, more in the same ground xxxij shurbd ashes, valewid at vjd a pice

Trope howse Graunge [Thrope House Grange]: Item, in the same grange is xvj ashes, which be shurbd, at viijd a pice

Item, more in the said grange, other xvj shurbd ashes at vjd. a pice

Sykehowse graunge [Sykehouse Grange]: Item, in the same graung xvj shurbd ashes, at xd. a pice

Burtheweat grang [Burthwaite Grange]: Item, more in the said graung, iiijxx shurbd okes at xijd. a pice

Easthomehowse grang [East Holme House Grange]: Item, shurbd ashes xx, at xijd a pice

Sykesworth Graung [Sigsworth Grange]: Item, of smale shurbed okes iijc, at xijd. a tree (Walbran 1863, p.416)

It is evident from the above returns that the price of shredded trees ranged from sixpence to one shilling each. Of particular note is the large number (300) of small shredded oaks listed at Sigsworth Grange. One can only conjecture what form this woodland took. In view of the return for Sigsworth in the 1540 valuation, which showed only a small amount of wood pasture, an interpretation offered is that these were standard trees in a young coppice wood. If the planting had taken place soon after 1540, it follows that by the time of the latter valuation the trees were approaching 40 years of age. It is possible to gain some impression of the appearance of these trees by the use of forestry yield class curves (Rollinson 1992) which provide a calibration curve for age, yield class and height. Conservatively assuming the oak to be in the lowest yield class (YC4), a 35-40 year old tree would have attained a top height of 6m. But given the knowledge that pollarding suppresses the growth of trees by removing much of the leaf-bearing branchwood, and thus reducing the capacity of a tree to photosynthesise (E. Green pers. comm.), it is probable that shredding would have a similar effect upon growth rate. Accordingly, the height of the shredded trees would be less than those whose growth pattern was unimpeded by the removal of epicormic branches. To give a conservative estimate, the height of the trees might be reduced by as much as one-quarter. However, it is unlikely that shredding would have been attempted before the trees had gained a degree of maturity, say a height of 4m, representing 15 years' growth. Continental European practice is for lateral branches to be removed at intervals of four to five years, with the maintenance of a small crown on trees. Austad (1988) explains the technique,

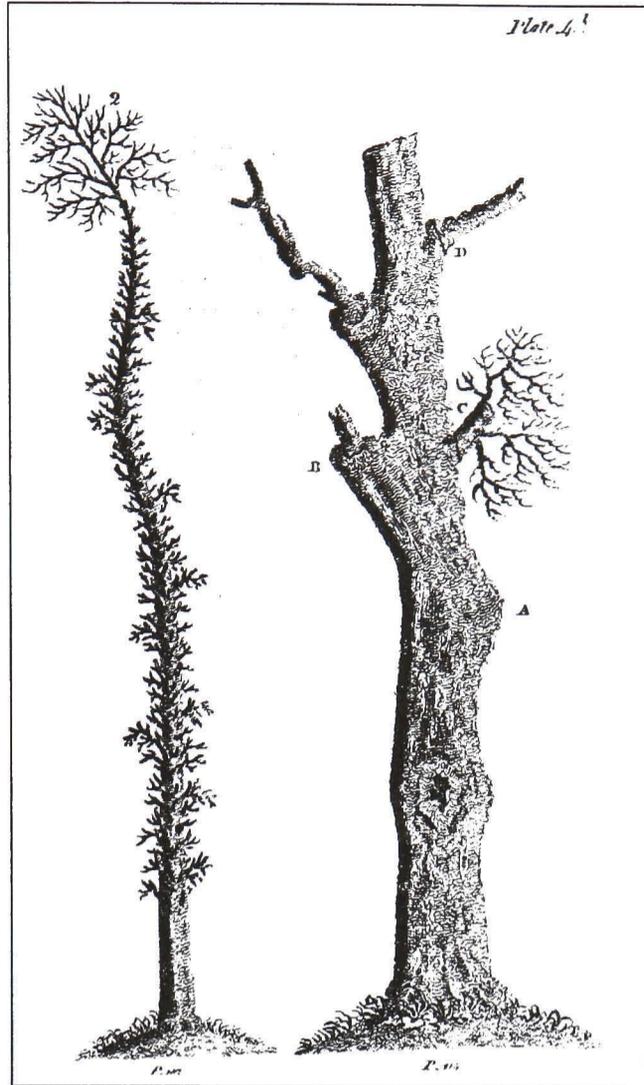


Plate 3.5. An impression of a shredded tree (Source: *Pontey's Pruner*, 1810)



Plate 3.6. Shredded poplars in the contemporary landscape, mid Spain
(photo: Ted Green)

drawing upon contemporary examples from Norway where high pollarding/shredding was practised from the Iron Age until the Second World War (1988, p.28). It is envisaged that the Fountains Abbey trees would have had minute crowns and few lateral branches. An impression of a shredded tree may be gained from an illustration taken from *Pontey's Pruner* (1810) shown here as Plate 3.5 and a present-day example in Plate 3.6.

Although evidence of shredding can sometimes be recognised in crowns of relict trees, there were no visible indications of the practice observed in the course of the writer's fieldwork in former Fountains Abbey woodlands, principally due to the widespread removal of standard trees that might have been so managed. In view of this, it may only be possible to detect the presence of shredding from documentary sources. This is an area that warrants further research beyond the scope of this project.

3.14 The field evidence for former grange woodlands

It has been explained that identification of the abbey's managed woodlands is largely limited to documentary sources, some of which have been discussed and interpreted earlier in this chapter. The field evidence for much of this woodland is now obliterated by replanting, especially upon wartime felling sites that were restocked with coniferous trees by the Forestry Commission during the 1950s-60s. This was in accordance with the Government's home-produced timber policy, which resulted in the conversion of many former broadleaved woods into plantations of fast-growing softwoods. Regrettably, this had serious repercussions for parts of Nidderdale, and the visual landscape character of the Dale has been diminished by the loss of much of its broadleaved woodland, a great deal of which was in the form of old coppices. While the coniferisation of these woods has greatly reduced the amount of former Fountains Abbey woodland that survives in anything like its post-medieval form, the writer has identified some relict woodlands that were mentioned in the 1574 post-Dissolution valuation discussed above. The recognition of this woodland was achieved through a study of cartographic, aerial photographic and documentary sources, together with supporting confirmatory fieldwork.

The two granges of Thrope House and Thwaite House, whose woods were specifically mentioned in the 1574 Dissolution valuation, belonged to a group of four vaccaries established by Fountains Abbey in Upper Nidderdale to exploit the grazing opportunities for large herds of cattle in the wood pastures and moorland there. The two granges were connected to the wider monastic estate by stone-flagged packhorse tracks, many of which remain *in situ*. The location of these granges and their woodlands is shown in Figure 3.2. Present knowledge of the woodland attached to these

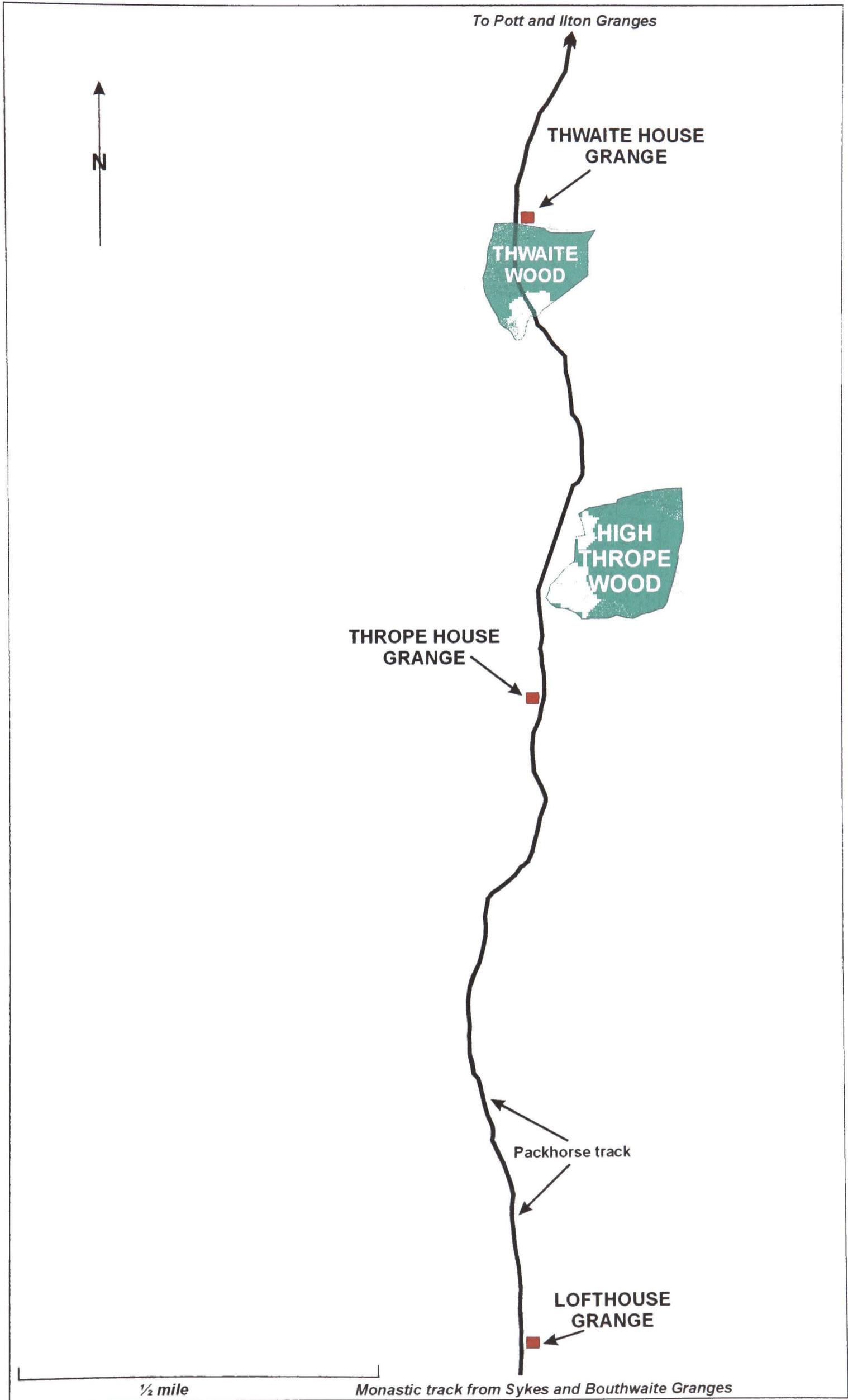


Figure 3.3. Location of Upper Nidderdale Fountains Abbey granges. Annotations superimposed upon scan of Ordnance Survey First Edition 6-inch map (1896)

granges is principally derived from the *Fountains Abbey Lease Book* (Michelmores 1981), the 16th century Dissolution valuation documents described above, and from fieldwork undertaken by the writer. The Upper Nidderdale granges were selected as a case study for fieldwork because it was thought that there might still be identifiable vestiges of their former woodlands, given that tree clearance for agriculture had not been pursued as vigorously in that part of Nidderdale as elsewhere.

The two granges were situated on the eastern side of the valley on a shelf above the flood level of the river. They occupied relatively elevated sites, with Thrope House at 210m OD and Thwaite House at 280m OD. It is hypothesised that the semi-natural woodland in that part of the upper dale would have been formed of alder and sessile oak in the valley bottom, and oak up as far as the 350m contour. Above this level the woodland would have been composed of less demanding species, such as hazel, birch and rowan. Woodland clearance took place in the valley bottoms and on the lower fellsides to permit the creation of inbye land. As a consequence, the remaining woodland, which probably took the form of stunted oak, birch, hazel, and woody shrubs, was restricted to the middle and upper fellsides, where the growth of broadleaved species would have been quite severely handicapped by exposure and poor soils. This would accord with the 1574 valuation return which described the grange woodlands as being principally composed of hazel, alder, holly and a few ash standards. The presence of scattered bluebells (*Hyacinthoides non-scripta*) observed in the inbye fields near Thrope House Farm endorsed the valley bottom woodland clearance theory offered above.

Access to the fellside woodland was gained from the flagged packhorse 'trode' which traversed a route leading north-west from Lofthouse. It is suggested that the drystone walls which flank the packhorse trode and form the field boundaries that are regarded as characteristic of the upper Dale may have replaced an earlier landscape of hedged field boundaries. In places, there is an absence of field walls and boundaries are formed by hedge banks which bear old coppiced hawthorns. These are the remnants of a once-extensive network of quickset hedges. Within 50m of Thrope House Farm a field wall was observed to incorporate a sharp deviation around the stump of a large sycamore which appears to have stood in a former hedgerow.

In the 1574 valuation the two granges were recorded as each having about ten acres of coppice woods. An ancient semi-natural woodland site covering 9.88 acres (4ha), today known as 'High Thrope Wood' (NCC 1987), situated on the eastern fellside to the west of Thrope House Farm (see Figure 3.2), is identified by the writer as the woodland described in the valuation return:

Thrope House Grange – six acres of ground replenished with hazel and holly of 20 years growth, valued at 10s/acre; 16 shurb'd ashes @ 8d each. Sum of value £3 10s 8d. Also five acres of hazel, holly, alder @ 10s/acre; 16 shurb'd ashes @ 6d each. Sum of value 58s (Walbran 1863, p.417).

The term 'shurb'd' [shrubbed], interpreted as 'shredding' or 'shrouding', has been discussed earlier in this chapter.

High Thrope Wood today extends three-quarters up the fellside, with the upper margins bearing the visible indications of former mining activity. Mine tailings have affected about 20 per cent of the wood resulting in large areas devoid of trees, through toxification of the substrate. A number of linear earthworks are clearly visible on aerial photographs and also at field level within the wood. These are interpreted as the boundaries of coppice compartments rather than peripheral boundary woodbanks. In a parallel with many other Nidderdale woods, watercourses form the northern and southern boundaries of the wood. A trackway which runs from the upper levels of Thrope Edge to a crossing of the river Nidd at Dry Wath, respects the northern boundary of the wood. The upper (eastern) boundary of the wood is composed of a drystone wall. Similarly, the lower (western) boundary is walled, although the line of the wall can be seen to truncate the wood and it may therefore represent a later modification to the original boundary line. High Thrope Wood is today a typical 'Dales wood' – grazed, open in form, having no understorey, but retaining copious visible indications of its former status as a coppice wood, both in ecological terms, with a characteristic community of relict indicator species, and in silvicultural terms, with the majority of the trees having regrown from coppice stools (Plate 3.7).

Thwaite House grange, situated 1.2km north of Thrope House, also possessed an area of woodland, described in the 1574 valuation document as:

Thwaite House Grange: 10 acres of hazel, alder and holly of 20 years growth, valued at 10s/acre. Also 32 shurb'd ashes @ 6d each. Sum of value £5 16s (Walbran 1863, p.417).

This wood, which was also situated on the fellside, would have been similar in composition to the Thrope House woodland. Furthermore, its boundaries were similarly composed of a mixture of watercourses and drystone walls. It is apparent from aerial photographs and the Ordnance Survey First Edition 6-inch map that the pre-Enclosure walls (which respect the sinuous outline of the wood) were aligned upon earlier boundaries. Rather less woodland remains than at Thrope in the form of old coppice stools, having suffered from mining depredation and grazing, but the former



Plate 3.7. High Thrope Wood



Plate 3.8. Alder pollards near Kelds, Nidderdale

coppice divisions are still discernible as faint earthworks. Some indication of a possible former wood pasture tradition was found in a group of ten alder pollards near the waterfall at Kelds (SE 105767), 0.6km north-east of Thwaite House. These trees are illustrated in Plate 3.8. The form and bolling diameters of the trees (101cm mean dbh) closely resembled the group of alder pollards identified at Arnagill (see Chapter 5). Field evidence, such as this, is regrettably sparse but has the potential to demonstrate a typical situation of grange woodland upon steep and infertile land.

3.15 Conclusion

This chapter has shown that the monastic woodland was assiduously managed in order to obtain the maximum sustainable output, in order to maintain a constant supply of woodfuel, charcoal, small wood and timber, upon which Fountains Abbey's domestic and industrial infrastructure was totally reliant. By the fifteenth century the increasing level of demand placed upon these woodland resources was starting to outstrip the capacity of the woodland to meet the monastery's needs. This forced a switch from the pollarding of trees in wood pasture, with its inherent management complications and low productivity, to a more intensive form of management in coppicing. The higher productivity obtainable under coppicing was principally due to the greater density of trees per unit area made possible by the exclusion of grazing animals (at least for the first seven years of coppice growth). Under the coppice system, a form of sustainable management could be achieved by dividing a wood up into compartments which were then cut in rotation. By this means it was possible to achieve an almost constant level of output. It should be appreciated, however, that much of the abbey's woodland was situated on marginal land and in an upland environment, where the combination of a harsh climate and poor soils inhibited the growth rate of trees. This necessitated the adoption of relatively long coppice rotations of 20 years or more, rather than the more usual 10-12 year cycles associated with lowland coppice woods.

Given that woodland was slow to regenerate in Nidderdale, it was highly valued and carefully managed in order to minimise waste. Such was the abbey's concern that its woodland resources should not be compromised by its decision to let the satellite granges to lay tenants that it retained direct responsibility for the management of all its woodlands. In a synopsis of information collated by the author from the *Fountains Abbey Lease Book* (Table 3.1), this chapter has demonstrated that the firm hand of the Abbey was ever present in regard to woodland in the wording of its leases. Punitive clauses provide an essence of the measures that could be instituted against tenants who failed to maintain stockproof barriers, allowed livestock to gain access to young coppices, or cut any wood from living trees. Beyond taking fallen dead wood for fuel or

leaf fodder ('brusyng') from old pollards, the abbey's tenants had few rights to the woodlands on their holdings in comparison with the tenants of secular estates.

It is particularly significant that a previously unrecognised tradition of tree-shredding in Upper Nidderdale is apparent in the post-Dissolution valuation records of 1574. Whilst there is no evidence apart from this documentary source to indicate that shredding had been practised in Fountains Abbey woodlands prior to the Dissolution, its introduction after the early sixteenth century seems unlikely in view that the technique was a frequently practised form of woodland management in medieval Britain (Rackham 1976, p.8). It is entirely possible, therefore, that shredding had been actively practised as part of the abbey's woodland management, particularly with regard to standard trees. This is amplified further by Linnard's study of Welsh woods, in which shredding was found to have been practised by the Cistercians at the monastery of Abbey Cwm-hir in Mid-Wales (Linnard 2000, p.62). Where there was a requirement for winter fodder for domestic livestock, this form of 'high pollarding' extended the utility of the woodland beyond that of simply growing timber and underwood. In this, it may be envisaged that shredding and coppicing were two different forms of management that could be undertaken within the same woodlands.

As has been mentioned earlier in this chapter, a further parallel for this practice exists in the Lake District, where, for example, pollarding and tree-shredding are long-established traditions of woodland management in Borrowdale. Here, the presence of Fountains Abbey grange properties at Ashness, Stonethwaite and Watendlath in Borrowdale may provide a tenorial link between two upland areas where the practice of tree-shredding is known to have existed. In view of the French origins of the Order, and its active dialogue with sister houses in Continental Europe, it may be envisaged that tree-shredding, which is still widely practised in several European countries (see Plate 3.6), may have been introduced into the Lake District and the Yorkshire Dales by the Cistercians.

One aspect of coppice management under the Cistercians that is worthy of further research is that of tree-planting. Whilst it is assumed that the monastic coppicing regime was initially exercised upon naturally regenerating rather than planted woodland (Walbran 1863, p.411), there are indications in the *Lease Book* (Michelmores 1981, p.192) that establishment of new coppice woods was actively pursued by the monks. Here, it may be surmised that the young trees destined to become future coppice stools were taken from the wild, rather than cultivated in nurseries, and planted to 'replenish' stands of semi-natural woodland.

In this study of woodland under monastic management, the essential theme that emerges is that of the high value placed upon woodlands by the religious houses. This factor, above all, instigated the practice of sustainable woodland management – a necessity upon which many important facets of the monastic economy were entirely dependent. The level of demand for woodfuel and wood derivatives necessitated the intensive management of a large and valuable woodland resource which was to become a critical component of the Abbey's estate portfolio. It has been mentioned that, following the Dissolution, many woods were felled to generate instant funds for the purchasers of former monastic estates. However, there is no evidence to confirm or deny that this took place in Nidderdale, and in this respect the Dale may have fared better than other areas, as by the time of the Dissolution, the strong tradition of woodland management established by Fountains Abbey in Nidderdale had secured the continuation of extensive woodlands there. In the next chapter, it will be shown that, after the Dissolution, this tradition of careful woodland management was perpetuated a major landowner who acquired the former monastic properties in Nidderdale, and that this tradition has been directly responsible for the distinctive woodlands that characterise the Dale in the present day.

4. WOODLAND MANAGEMENT ON THE INGILBY ESTATE, FROM THE 15th-19th CENTURIES

This chapter examines the continuity of woodland management in Dacre and Ripley, two Nidderdale townships, following the transfer of former Fountains Abbey lands into secular hands, utilising the documentary records, together with cartographic studies and fieldwork. It will show that after the Dissolution of Fountains Abbey in 1539 there was an initial phase of ‘asset-stripping’, where the new owners of monastic land sought to recoup their financial outlay by clearing woodland and selling timber. However, following the acquisition of land by the Ingilby family, there was a return to the sound woodland management practices initiated by the monastery. Indeed, it is largely due to the influence of one major landowner that Nidderdale still possesses a rich woodland heritage.

The Ingilbys have been major landowners in Nidderdale since the mid-14th century when Thomas de Ingleby, a justice of the King’s Bench, married Edeline Thweng, an heiress, through whom the Ripley estates passed to the Ingilby family. During the reign of Elizabeth I Sir William Ingilby disposed of some of the family’s property in the North Riding and thereafter the family acquired the West Riding estates which are documented in the Ingilby Manuscripts, held by West Yorkshire Archive Service at Sheepscar Library, Leeds.

Following the Reformation, the Fountains Abbey estate was sold to Sir Richard Gresham, a London merchant, for £10,122 18s 4d, a figure arrived at by multiplying the 1540 rental valuation by a factor of twenty (Raistrick 1968). Within a very short period, Gresham recouped much of his outlay by selling the townships of Brimham, Winsley, Warsill, Hartwith, Dacre and Beverley to Sir Arthur Darcy. Importantly, these townships held the principal areas of managed woodland in Nidderdale, whose extent is given in a transfer document thus:

Final concord between Arthur Darcy, knight, querent, and John Gresham, junior, esq., deforciant, of the manor of Brimham, 100 messuages, 10 mills, 6 dovecotes, 100 gardens, 1,300 acres land, 80 acres meadow, 1,080 acres pasture, 300 acres wood, 3,300 acres moor and £6 rent in Brimham, Dacre, Heyshaw, Newhouse, Banger Houses, Summerbridge, Braisty Woods, Fell Beck, North Pasture House, Bollershaw, Hartwith, Winsley, Warsell, Nidderdale, Beverley, Ripon and Kirkby Malzeard (Ingilby MSS 436).

Darcy retained these townships for 20 years, and then sold Beverley to a purchaser from Westmorland, and a proportion of Hartwith and Winsley to a number of tenants who were in a position to purchase their leasehold lands. The remaining parts of Hartwith and Winsley,

together with Dacre township, were acquired in 1552 by the Ingilbys of Ripley who similarly recouped their financial outlay by selling seven farms to their occupants (Jennings 1967).

4.1 Dacre township in the hands of Fountains Abbey

The township of Dacre passed into the hands of Fountains Abbey in August 1145, under a grant of land from Roger de Mowbray:

to God and the church of St Mary of Fountains a certain part of my forest of Nidderdale, i.e. all that is contained on the west side of the River Nidd from their grange of Dacre downwards to Killinghall and from the same grange upwards to the stream which descends into the Nidd next to the wood of Bewerley and then up to the head of Guisecliff between the two rocks which overhang Bewerley; from Guisecliff to Forsegillebec where the road which comes from Dacre crosses Forsegillebec and thus by the footpath to Rudelez (Greenway 1972).

By the 13th century the monastery had established seven lodges within the township (Foldshaw, Deer Ing, Newhouse, Banger Houses, Oxen Close, Heyshaw, Dacre Grange) whose purpose was principally cattle rearing and dairy farming. As only three of these lodges were let on half-tenancies (moieties) with the others retained in demesne, our knowledge of woodland is limited to Heyshaw, Newhouse and Dacre Grange.

In Nidderdale, monastic tenancies were let against a tradition of partible inheritance, whereby farmsteads were subdivided into smaller units to facilitate their division between a number of heirs. This differs from primogeniture, in which a property would pass entire to the eldest son upon the death of the head tenant. The existence of partible inheritance is apparent in the granting of moieties by Fountains Abbey.

Heyshaw was a 'derehouse' [a dairyhouse] of Fountains Abbey, a moiety of which was let in 1524 to Walter and John Gyll. Under the terms of the lease the tenants were prohibited from felling, selling or gifting any woods on the grange, or making waste [wilfully cutting down trees] apart from 'brusyng' [browse] for cattle, for hedge-making and for firewood (Michelmore 1981, p.204). A moiety of Newhouse lodge, whose precise location is currently unknown, was leased to William Ingilby in November 1521. Under the terms of the lease William similarly agreed 'not to waste the woods or underwoods growing on the moiety and its appurtenances', and furthermore, the abbot and convent retained the right 'to take to their own use or give or sell any wood or underwood within the moiety and its appurtenances, with freedom of entry and exit to cut down and carry it away without opposition from William or anyone acting in his name' (Michelmore 1981, p.204).

A quarter of the 'lodge and grange of Dacre' was let to Robert and William Hardcastle in 1516. It is apparent that woodland formed a part of the holding, for under the terms of their lease, they were obliged to maintain and repair all houses, hedges and other fences at their own cost, despite the fact that they were prohibited from taking any of the monastery's wood without special licence from the abbot. Any large timbers needed for repairing buildings, 'sufficient timber' and the 'carpent werke' was to be provided by the monastery at its own cost. Although access to the woodland was strictly regulated, the Hardcastles were permitted to take small quantities of holly boughs and leafy branches from oak trees for foddering their livestock: 'lawful brusynge in the felling of holly boughs, other brushwood and watter bowes of oak at seasonable times without any waste, on pain of forfeiture' (Michelmore 1981, p.215). The wording of this lease suggests that the grange woodland was wood pasture, for the phrase 'watter bowes of oak' is interpreted by Muir as 'water boughs' of oak – 'soft, leafy branches, perhaps from oak pollards' (Muir 2000a).

The Dacre woodlands provide an excellent topic for research into the woodland management techniques of the 17th-19th centuries, not least because of the extant archaeological features, but also because of the rich archival record contained in the Ingilby Manuscripts. In combination, these resources provide a vivid insight into the means by which a large landowning family managed its estate woodlands. The continuity of sustainable woodland management under the Ingilbys can be traced back at least as far as the early 15th century. Expertise in woodland management appears to have been a trait passed down through successive generations of Ingilbys. In 1608 Sir William Ingilby was 'joined in commission with Sir Thomas Lascelles, Sir Richard Musgrave, Sir Thomas Metcalfe and others for surveying the wood in all his majesties forests chaces parks and lands within the county of York' (Ingilby MSS 3718).

4.2 The extent of woodlands in Dacre

Whilst there is scant information concerning Nidderdale in Domesday Book, with only fourteen villis mentioned in an area described as largely waste, a significant block of woodland, whose extent is given as three miles in length and three miles in width, was recorded at Beverley and Dacre (Jennings 1967, p.29). However, Jennings is of the opinion that it is reasonable to assume that the Domesday record is incomplete, and therefore the given area of woodland is probably an under-estimate. In consequence the total extent of woodland in Dacre at the time of the monastic grant, some 60 years after Domesday, is unknown. Furthermore, the amount of woodland in existence at the end of the monastic era is questionable, for, as Turner (1995, p.21) points out, no large areas of woodland, as distinct from wood pasture (and very little enclosure of the common), are indicated at Dacre or Heyshaw in the Dissolution surveys.

Analysis of the field boundaries provides some indication of the extent of woodlands cleared in accordance with the de Mowbray grant, under whose terms the monastery was given leave to clear woodland and create new enclosures. The earliest stone walls in Dacre parish, which are thought to date from the initial monastic clearance phase, were constructed with a low profile, in accordance with a proviso in the grant, that any enclosures made by the monks would not compromise the free passage of hunted wild animals (Jennings 1967; Cale 1998). A cluster of irregularly-shaped closes, depicted on the Ordnance Survey First Edition 6-inch map and now extant in a much simplified form, may correspond with large areas of assarted woodland. It is suggested that the initial phase of monastic clearance took place within the woodland to the north of Heyshaw, where the enclosure pattern of small closes (mean size 0.93ha) is diagnostic of woodland clearance. It is apparent from a computation of field areas, taken from the Dacre tithe map award of 1849, that a stand of woodland extending to 87 acres (35ha) was cleared to create 38 small closes. A further phase of monastic clearance is identifiable in another cluster of small closes to the east of Hag Pits and North Wood extending to 27.8 acres (11.26ha). The mean size of the closes was 2 acres (0.80ha). Figure 4.1 offers the present writer's interpretation of the phasing of woodland clearance.

Figure 4.2 shows pasture as the largest area of single land-use within Dacre township in 1600. This comprised Heyshaw and Braithwaite Moors to the west, and Dacre Pasture to the south-east. Woodland covered a significant area, principally to the north-east, around Harewell, where Guisecliff Wood (Plate 4.1), Great Wood and North Wood formed a large and continuous block, extending from Bewerley, on the southern bank of the River Nidd, to Dacre Banks, near Summerbridge, a distance of almost 4½ miles (7.25km), and another smaller block called Low Hall Wood, situated towards the eastern township boundary.

An impression of the situation and organisational arrangement of the Dacre woodlands in the hands of the Ingilbys is provided by a map drawn by Robert Wray for Sir William Ingilby in 1611 (Ingilby MSS 2499). A version of this *'trewe plot of Harewell lying neare to Sumer Bridge'*, redrawn by the writer for clarity, is shown in this thesis as Figure 4.3. When Wray's map was originally drawn, the woodland around Harewell was organised into three compartments, with *The Great Wood*, 151 acres, 35 perches (61.22ha) forming the largest. This compartment was attached on its eastern side to another area of woodland called *Gouthwit Wood*, extending to 81 acres, 3 rods and 11 perches (34.06ha). The two woods were similarly bounded on their southern margins by a watercourse called Loftshaw Gill. A compartment of *Guys Cliff Wood* [Guisecliff Wood], extending to 114 acres, 28 perches (46.22ha), lay to the north-west of *The Great Wood*. The scree and boulders that still litter the floor of Guisecliff

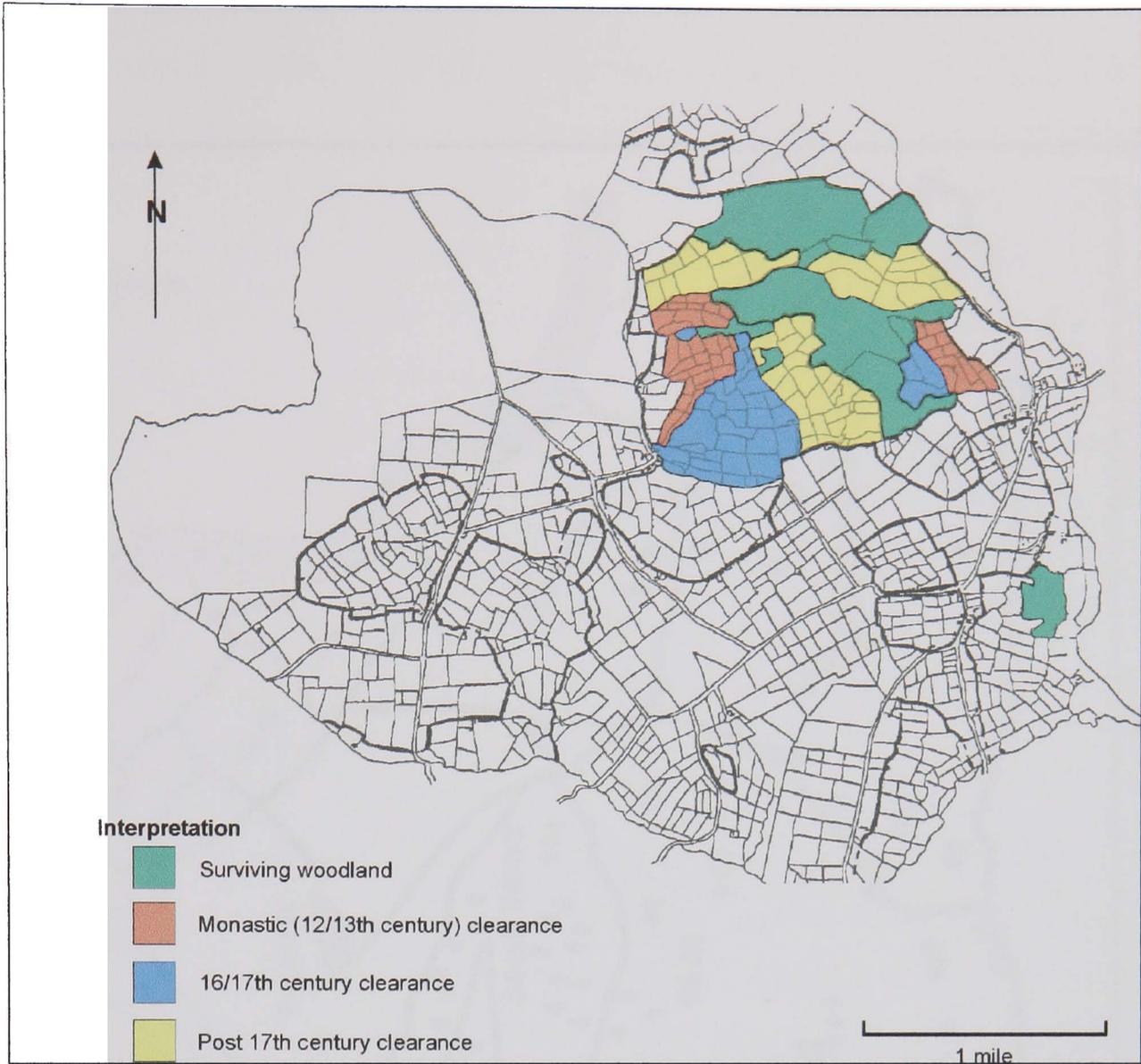


Figure 4.1. Dacre township - woodland clearance phases overlaid upon modern field boundaries. Redrawn from Ordnance Survey First Edition 6-inch map, 1854

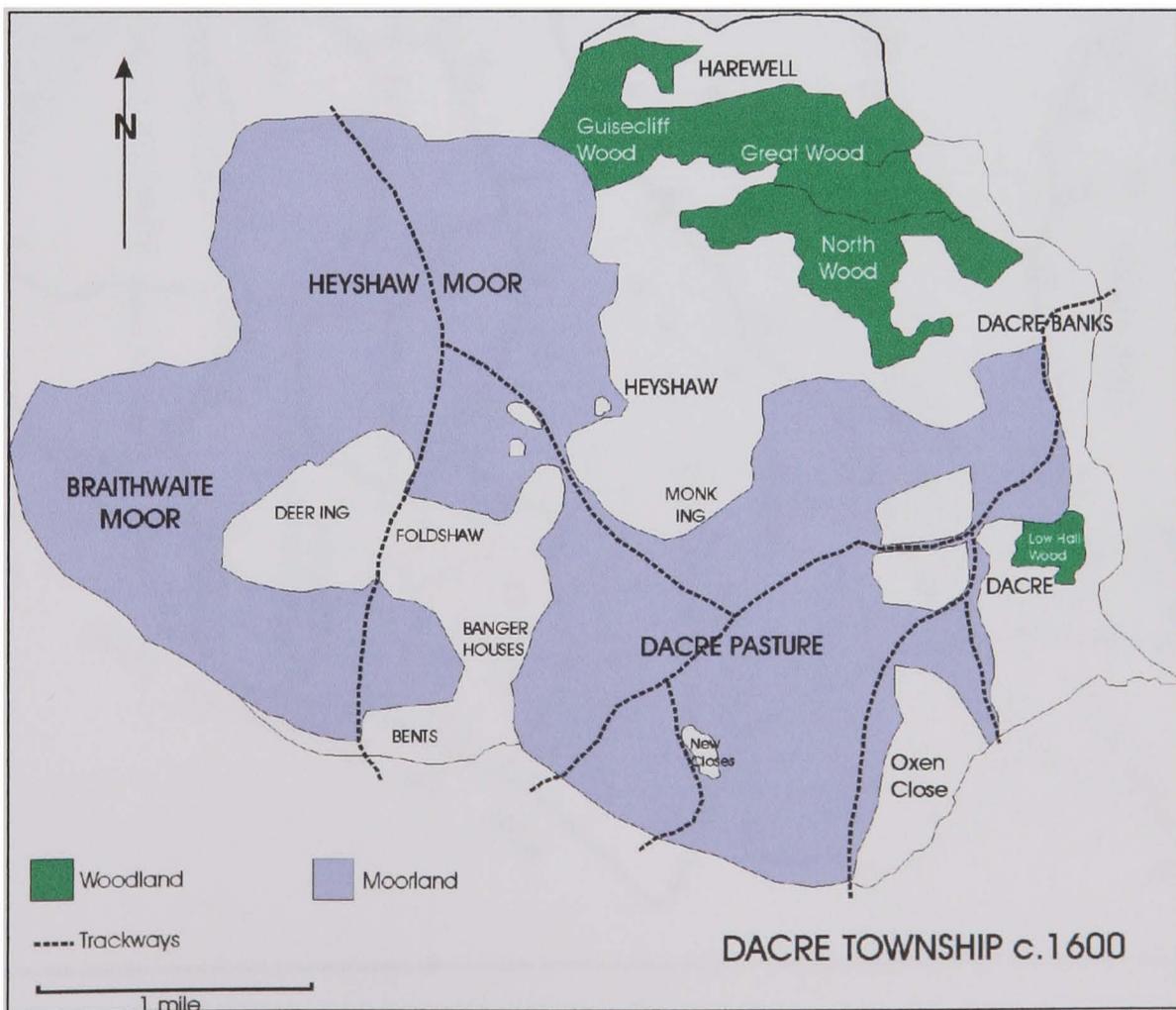


Figure 4.2. Dacre township c.1600. Redrawn by the writer, based upon 'Dacre, old survey' (Ingilby MSS 2501)

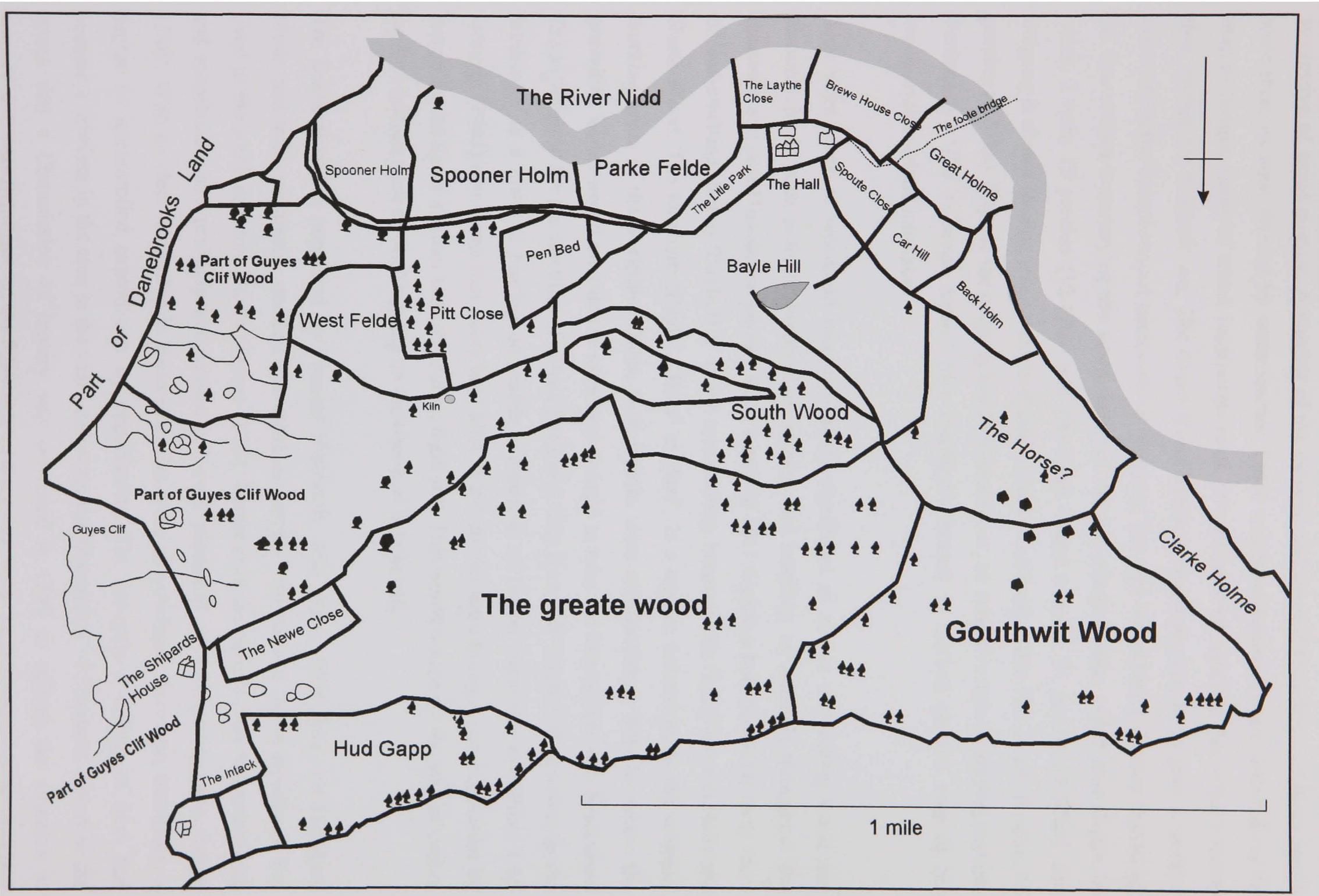


Figure 4.3. Wray's map of Harewell (1611) redrawn by the writer from Ingilby MSS 2499

Wood are depicted in graphic form, and the portrayal of solitary trees and groups of trees is suggestive of wood pasture. A number of the external and internal boundaries of these woods were then, as now, formed by watercourses. Other woodland boundaries are depicted on the map as hedges, many of which incorporate trees. Of particular relevance to the writer's theory that, during the monastic era, *The Great Wood* had been wood pasture, or at least a wooded common, is the funnel-shaped enclosure, or 'outgang' [an area for gathering grazing livestock], on the western boundary of the wood, between the two compartments called *Hud Gapp*: 28 acres, 2 rods, 12 perches (12.17ha) and *The Newe Close*: 6 acres, 31 perches (2.50ha). The outgoing is shown leading into a moorland intake [reclaimed land] called *The Intack*: 6 acres, 32 perches (2.51ha). Beyond the outgoing lies Heyshaw Moor, an extensive area of grazing pasture. Pertinently, '*The shipards house*' [the shepherd's house] is marked on the map at the woodland/moorland interface.

This large block of woodland was particularly significant as source of kindling wood and charcoal in an area actively involved in mining and smelting of minerals throughout the monastic and post-Dissolution period. Wray's map of 1611 depicts a bole hearth [an early form of lead-smelting site] as 'Bayle Hill' in the area midway between *The Hall* [Harewell Hall] and *South Wood*. The toponym 'Bayle', 'Bale' or 'Baal', is a regular occurrence in the mineral-working areas of the Yorkshire Dales. Bole hearths were constructed on hillsides where the prevailing winds would provide the necessary draught to raise the temperature of a brushwood fire sufficiently for the smelting of galena [lead ore]. The Harewell 'Bayle Hill' survives in the landscape as a low hill bearing no visible indications of former industrial use (Plate 4.2). Grainge (1863) comments that many bale hills in the district were brought into cultivation by removing the upper stratum and substituting fresh soil. This would accord for the lack of visible surface detritus such as smelting slag on the Harewell bole hearth.

The Dacre area was populated by itinerant shepherds, who grazed their flocks on Heyshaw Moor, and iron-ore miners, smelters and charcoal burners who worked in the woodlands but lived to the south at Dacre Banks (Turner 1995). Turner is of the opinion that 'the woodlands and moorlands were probably uncolonised and only populated on a temporary basis before 1540'. With no clear ownership to these extensive areas of woodland, there was, inevitably, a degree of uncontrolled exploitation by opportunists. The unregulated felling of trees had become a problem in the area in the years following the Dissolution of Fountains Abbey to the extent that a Commission of Inquiry was convened in 1599 to address the situation at Somerwood, near Brimham, on the other side of the River Nidd. The Commission reported that unlicensed felling of timber trees had taken place there for charcoal burning (PRO E178, 2705).



Plate 4.1. Guisecliff Wood, from Wilsill



Plate 4.2. The Harewell bale hill

Turner comments that a group of contractors responsible for the felling had been witnessed by a local man whose occupation was described as a ‘collyer’, i.e. a charcoal-burner, and that unlicensed tree-cutting had also taken place at Dacre Pasture and Heyshaw. This situation changed dramatically following the acquisition by the Ingilbys of every tenement in the township by 1576, and the leasing of tenements to their occupiers by 1604 (Turner 1995, p.21).

Around this time the Ingilbys began to lease blocks of woodland in Dacre to rural workers engaged in a number of wood-based trades, principally tanning and charcoal-burning. Two examples are provided by leases for the former Fountains Abbey granges of Banger Houses and Monk Ing (the location of which is shown in Figure 4.2):

21 October 1603 – Lease from Sir William Ingilbee of Ripley, knight, to John Benson of Banger Houses, tanner, of a messuage and land in Banger Houses and Dacre Pasture for 1300 years at 18s 4d annual rent (Ingilby MSS 455).

3 February 1604 – Lease from Sir William Ingilbee of Ripley, knight, to Miles Dowgill of Brackanbaras, tanner, of a messuage called Monk Ings in Dacre with lands for 1300 years at 20 shillings annual rent (Ingilby MSS 464).

A messuage in Dacre Pasture was leased to Robert Dowgill, another tanner, in 1612 (Ingilby MSS 483). Another outlet for the woodland was brushwood for bearing millstones from the quarry. This can be seen in a deed, drawn up in the 16th century, between the Ingilbys and Thomas Scaife which enabled Scaife to take birk and eller [birch and alder] brushwood from the woodland for use in the quarry (Ingilby MSS 2656).

The writer’s fieldwork and cartographic studies have identified the extent of the 17th century ‘Great Wood’ and ‘Gouthwit Wood’, still preserved as field boundaries and watercourses. A fragment of Gouthwit Wood has been identified as a small block of old coppiced woodland situated immediately to the north of a private drive to Harewell House at SE 192628 (see Plates 4.3 and 4.4. By the advent of the Dacre tithe map (1849) Harewell Great Wood and Gouthwit Wood had together disappeared to become 32 pasture closes, covering an area of 134 acres (54ha). Clearance of this former wood is evident in the present arrangement of fields and from the subdivisions shown on the Ordnance Survey First Edition 6-inch map. A reproduction of the modern 1:25,000 map, showing the location of the former woodland, is provided in Figure 4.4.

Today the Dacre woodlands comprise eight main compartments, of which Guisecliff Wood (31ha), Hawkshaw Gill Wood (40ha) and Clark’s Carr/North Wood (54ha) are the largest. The Inventory of Ancient Woodland (NCC 1987) describes Guisecliff Wood as being the least

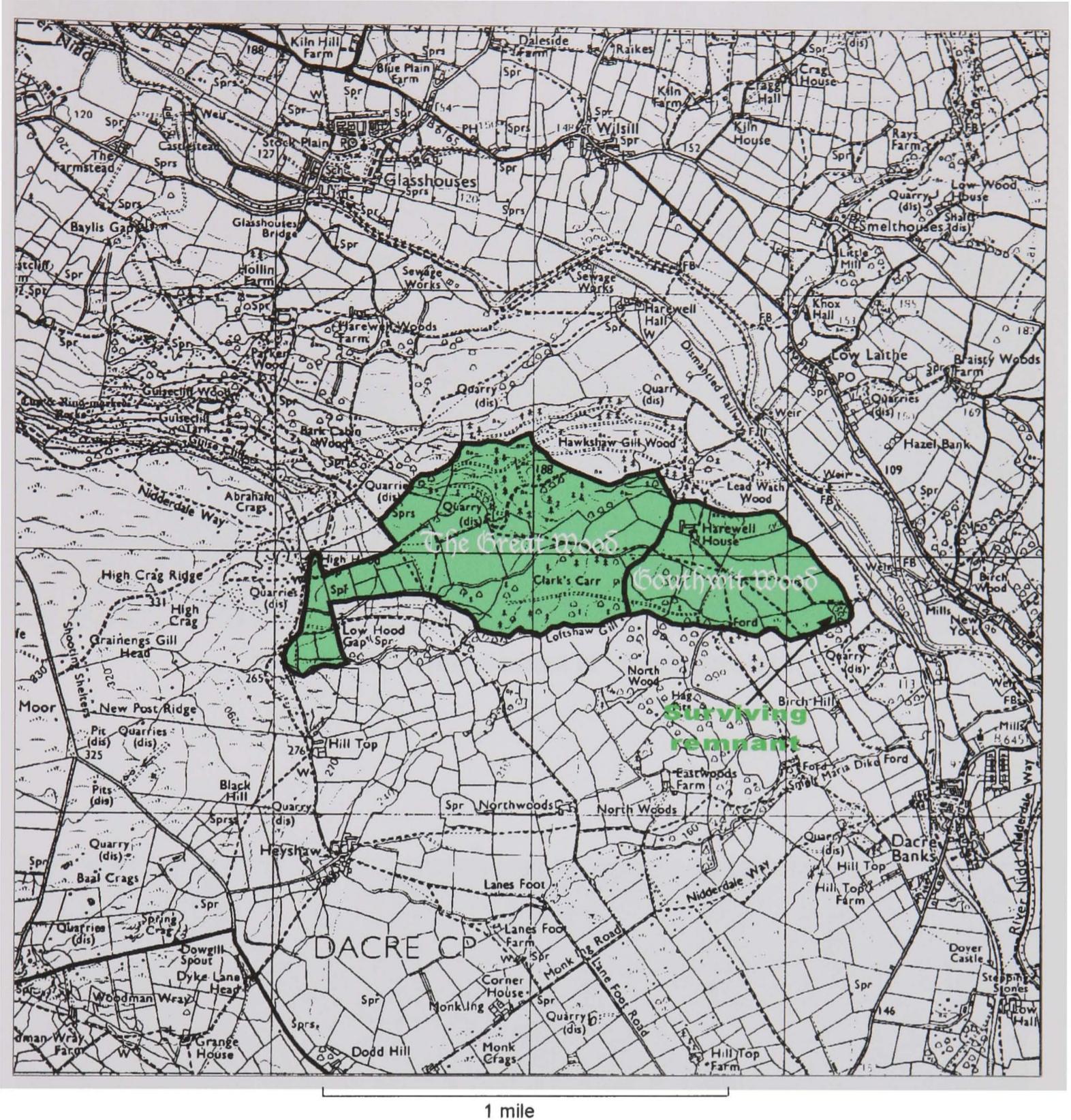


Figure 4.4. Landscape reconstruction - location of Harewell Great Wood and Gouthwit Wood superimposed on current Ordnance Survey 1:25,000 map. (North at head of map)



Plate 4.3. Surviving remnant of ‘Gouthwit Wood’



Plate 4.4. Coppice stool in remnant of ‘Gouthwit Wood’

altered and characteristic of ancient semi-natural woodland, having never been replanted. The other compartments now carry stands of coniferous species. The situation of the wood, on a north-facing, steeply-sloping site together with the presence of large boulders strewn across the woodland floor, provides a reasonable degree of confidence in the assumption that Guisecliff Wood has never been cleared for cultivation. It is envisaged that, at time of the monastic grant in the 12th century, the woodland was composed of oak, birch, alder and holly – a typical community of upland species. In due course, this unplanted woodland was brought under a coppicing regime, whose visual indications still remain in the form of old and distorted coppice stools.

There are also copious indications within the woodland of former industrial activity, in the form of trackways, stacking platforms and numerous sites of elling hearths – bowl-shaped depressions – whose original purpose for the preparation of chopwood for use in the lead-smelting process is discussed further in Chapter 8.

4.3 The clearance of wood pasture

In Nidderdale the extractive and ore-smelting industry generated an enormous demand for fuelwood and timber that could not have been met by woodland managed as wood pasture. It is apparent from Ingilby records that by the 17th century the wood pasture regime in Nidderdale had largely been superseded by coppicing. This development was mirrored in south Yorkshire, where the greater productivity of coppice was adopted in order to meet the woodfuel needs of industry (Jones 1998, p.61). Wood pasture was far less productive than coppicing, principally on account of the lesser number of trees per unit area. It was also a labour-intensive and potentially hazardous technique, because of the need to climb the trees in order to cut the polewood. Areas of redundant wood pasture were either converted into coppices or completely cleared of trees and turned over to arable or pasture land. This process can be seen to have been taking place during the early years of the 18th century, as witnessed by a number of bargain and sale agreements in the Ingilby archive, which in some instances concerned large numbers of timber trees that were probably old pollards. Two examples, taken from the estate papers, illustrate this process at work.

In 1704, Edward Ridsdale, the steward of Sir John Ingilby, drew up an agreement for the sale of 200 oak and 134 ash trees on tenanted farms at North Deighton and 334 trees in a wood at Pickhill to Peter Ingham and William Jackson. Under the terms of the agreement, the purchasers were required to cut down and cart the trees away within a strictly specified time period of four years. Clearly, there was some concern that the felling and clearing of the trees would not compromise field operations such as ploughing, nor cause degradation of agricultural land. As a

consequence, the purchasers were required to stack the lop and top from the felled trees in 'convenient places for plowing the Ground Corne Grass & Soyle there from being as little dampnified or made worse as possible for or may be till the same can or may be carried away'. There was also concern that draught animals might cause damage to crops, and therefore the purchasers were not to:

sett loose or vacuate any of the horses or cattle from any carts or carriages which shall be brought into the said lands & grounds for carreing away any of the said wood timber or barke arising out of the said trees or any of them but shall as much as in them the endevaour to preserve the grasse hay and corne growing and being upon the same grounds from spoile or losse (Ingilby MSS 2826).

4.4 The sale of coppice rights in Harewell and Guisecliff Woods

In another agreement, drawn up in 1733, 160 oak trees at Dacre Banks were offered for sale for £350. This similarly appears to describe former wood pasture, with 130 oak trees set out in 13 parcels 'standing or growing and being upon or within the Pasture belonging to the farm at Banks', and a further 30 oak trees set out in three parcels 'standing growing and being in upon or within one plowing close and pasture' (Ingilby MSS 2831). Of particular interest is a reference within this agreement to tannery bark in which the purchaser, Ambrose Edwards, was given permission to 'erect bark cabins' in which to chop the bark and instructions pertaining to the proper setting and stacking of bark (Ingilby MSS 2831). It is impossible to identify this location now within the Dacre Banks woodland, but it a possible site may be the compartment marked 'Bark Cabin Wood' on the 1856 Ordnance Survey First Edition 6-inch map. This area was divided from the easternmost extent of Guisecliff Wood by a walled boundary between the Yorke and Ingilby estates and marked as '*part of Guyes Cliff Wood*' on the 1611 Wray map of Harewell. Disappointingly, this area is now completely cleared of trees and there are no visible remains of any structures. This is not unexpected, for bark cabins were probably ephemeral structures constructed from branches and underwood in a similar manner to charcoal-burners' huts.

Sales of wood and timber have provided a useful source of income to the Ingilby estate for many centuries. Indeed, it is clear that successive generations of the family have instituted the careful management of the estate's woodland resources in order to perpetuate their capacity to provide a cash crop. Following the transition from wood pasture to coppicing, the Ingilbys, in common with many other landowning families, preferred to sell the coppice rights by bargain and sale to the highest bidder rather than undertaking the coppicing work themselves. This can be seen a draft agreement drawn up in December 1686 for the sale of wood at Harewell (Ingilby MSS 2825). In this document Guisecliff Wood is described as a 'springe' [a coppice]. If the status of Guisecliff Wood as an ancient semi-natural wood in the Inventory of Ancient

Woodland (NCC 1987) is correct, there is an inference that the wood was unplanted and had arisen from native stocks. In consequence, coppicing would have been exercised upon whatever trees were naturally present in the woodland. It is, however, possible that the wood may have been ‘replenished’ with young trees as a means of creating more coppice stools, but the field evidence for this is inconclusive.

The 1686 document describes the oak wood and underwood that had been ‘marked or sett forth or hereafter to be marked and sett forth by Sir John’s servants or Agents’ standing growing on several tenanted farms. In addition, the sale was to include ‘all oakewood and ashe trees, Elms crabtrees Hollings and Hedgerows, but birch and alders standing and growing in the said hedgerows which are fitt and useful for Grove timber’ [wood for use in the mines]. However, we see in this document that provision was made for sufficient wood to be left for the tenants to benefit from their right of estovers: to ‘gett and take wood for stovers [stoves] and yeats and wands for widdies and ffeure wood [firewood] yearly’. Also included in the sale were ‘all woods and trees whatsoever standing and growing in or upon the Garth calld *the Parke*’ and in the garths and gardens of Harewell Hall, and ‘all the woods standing and growing in a certaine place or springe calld *Gus Cliffe*’.

An indication of the estate’s concern with the sustainable management of its coppice woods is that in this instance the purchasers were required to maintain stockproof boundaries around the cut coppices: ‘every 3 yeare to hedge and fence of the said growing for the necessary springing of the younge wood’.

The quantity of wood involved in this sale was considerable, for the agreed price was £1550, to be paid in instalments between 1687 and 1693. The three men who bought the coppice rights were engaged in the business of making ‘white coal’ [chopwood] – kiln-dried wood for use as a fuel in ore smelting. The legal agreement granted the buyers permission to ‘fell or cutt down the oak trees . . . when they are in sapp and the season proper’ and also ‘free libertie during the said terme of tenne years to make kilns or pitts in convenient places in the said ground to dry the chopp wood’. Interestingly, the purchasers appear to have been singularly concerned with cutting the coppice for chop wood, for they agreed to forgo a potentially lucrative by-product in the oak bark, in agreeing that Sir John Ingilby would have ‘receipt to himselfe and his owne disposall all the barke of the oake woods and trees hereby bargained and sold by these present Articles’ (Ingilby MSS 2825).

After the coppice was cut, it was essential that grazing animals were not allowed to gain access to the wood and browse off the regrowth. Fencing was therefore of the highest priority, and it

appears to have been the responsibility of the seller, rather than the purchaser to ensure that the new 'spring' was adequately protected: 'that soe often as there shall be any wood or underwood cutt and carried away during the said terme the said Sir John his servants or Agents shall and may hedge and fence the said grounds soe cutt for the necessary springing of the young wood' (Ingilby MSS 2825). If the cutting and extraction of hedgerow trees resulted in the creation of gaps in the hedgerows, the purchasers were required to repair and make them good immediately.

Sale and bargain agreements not infrequently contained clauses that placed purchasers under an obligation to ensure that cutting of coppice did not compromise the long-term health of the trees and consequently the ability of the coppice to regenerate. There was clearly some anxiety that poor cutting technique could result in the loss of bark or cause disturbance to the roots and thus harm the stools. In an agreement drawn up in May 1708 for the sale and purchase of 70 oak and ash trees for £70 in Harewell Woods, the agreement stipulated that neither the purchasers nor their workmen were to 'loose hurt or pill [peel] the roots of the said trees too weak but leave the same fairly pilled and cutt in proper manner for the due and right springing again and as is usuall and accustomed and to doe the least damage and harme they can against the springing and the young growth of wood there for future times' (Ingilby MSS 2827).

This same document additionally provides an insight into the fuel used for firing the chop kilns. These used a low fire of peat or brushwood to drive off the water from the freshly-cut green underwood. Deposits of peat in a convenient situation to the woods were occasionally sought, and in some sale agreements the purchasers were permitted to take their fuel from the woods in which they were working, or from nearby moorland. In the above agreement, the purchasers were 'to have liberty to make a Chop Kiln in some proper place in Harewell Grounds and to gett sodds there for the benefitt of the said kilns and drying the chops there'. The accepted interpretation of the term 'sodds' is peat, and in this instance the peat may have been taken from Heyshaw Moor, an area of moorland situated to the south of Harewell Woods.

In February 1730 the rights to coppice 295 oak and ash trees in Guisecliff Wood were secured by Edward Elliot and James Fryer of Swaledale. Normally the Ingilbys' agent would set out the trees to be cut by marking and numbering them with an implement called a scribing iron. On this occasion, the setting-out was done by the agent, Thomas Chippendale of Birthwaite. The sale agreement covered not just the numbered trees, but also the surrounding underwood. There was a proviso that all the unmarked trees were excluded from the sale. These trees included some oak, elm, ash, holly, hawthorn and crabtree, that had either been set aside as potential 'standards' [timber trees] or for their utility as nurse shrubs [prickly shrubs that would repel grazing animals from young trees] to the young standards. The sale also included another 92

ashes, similarly marked and numbered, on a parcel of ground near Leadwath, excepting some specified 'oak, elm, holly, hawthorn, crabtree and ash trees abutting the River Nidd and opposite a fence dividing the wood for sale from a meadow called Clark Holmes', and further to 'two of the ashes markt eighty four and eighty five adjoining a cartway leading from Richard Pulleins into the said woods, and then bounded on the west side by the said cartway to the next runner of water to a birch tree marked with a cross' and back along the banks of the Nidd to where the perambulation had started. This area can be identified on Wray's map of Harewell (see Figure 4.3) as a parcel of ground immediately to the north of *Gouthwit Wood*. Another parcel of underwood is mentioned at Collyer Farm (a name that suggests charcoal working), with similar exclusion of certain species as above. That charcoal was the intended end-use of the coppiced wood is apparent from the final sentence of the second paragraph of the agreement: '. . . and liberty to make saw pitts and charcoal pits for the working up the said wood in Guiscliff and liberty to carry the same away in such manners is hereafter mentioned' (Ingilby MSS 2828).

The agreed price for the marked trees and underwood was £300, with the rider that Sir John Ingilby was entitled to take 'garsell for fencing the springs other than stakes' from the parcels concerned. The term 'garsell' is interpreted by Michelmores (1981, p.lviii) as brushwood suitable for making the dead hedges that would surround the newly-cut coppice compartments, but not the polewood from which the supporting stakes would be cut. In this instance, the purchasers agreed to fell and carry away the ashes and underwood 'according to the usual manner of fall for springing' from Collyer Farm and Leadwath before Martinmas 1731 and from the Guiscliff compartment before Christmas 1734. Failure to comply with this obligation would have entitled Sir John Ingilby, the landowner, to avail himself of the bargained trees and underwood as he pleased.

In 1744 Sir John Ingilby entered into an agreement with Edward Elliot for the sale of underwood at Dacre Banks. The underwood formed an area of woody pasture adjacent to a wood called Thatch Pits. This wood is depicted on modern maps as 'Hag Pits', an area of ancient semi-natural woodland, situated immediately south of the site of the medieval *Great Wood*, and bounded by the Loftshaw Gill. The agreed price for the underwood was £85, with the purchaser being given leave to strip the bark, cut and remove the underwood: 'pill fill cut downe saw and carry away or otherwise convert to and for his and their own proper use and uses all the underwood situate and being in the pasture joyning unto Thatch Pits in John Pullan's farm at Banks' (Ingilby MSS 2833). Thomas Chippendale, Sir John Ingilby's agent, set out the underwood concerned with the exception of 'Holly Crabb and Thorn'.

This document is particularly interesting for its reference of the precautions taken to prevent the purchaser's horses from browsing the adjoining woodland. Here, the purchaser was required to 'mussle [muzzle] all the horses that shall be employed in leading and carrying away the said underwood and prevent them from eating and depasturing on any part of the said ground upon which the underwood now stands or the grounds thereto adjoining and from cropping and destroying any of the young trees growing thereon'. It will be seen that the muzzling of draught animals similarly features in other 18th century Ingilby estate bargain and sale documents. Pertinently, this is not a commonly observed requirement in similar legal documents for woodland transactions elsewhere (M. Jones, pers. comm.).

4.5 Hawkshaw Gill Wood

Hawkshaw Gill Wood (also known as Oxshaw, or Oakshaw) lies partly within the northern margins of the medieval *Great Wood* and currently extends into the area depicted on the Wray map as *South Wood*. In 1734 the coppice rights were sold to Peter Hammond and James Close: '... all the springs of wood underwood and trees standing growing and being in upon or within the woods and underwoods . . . of the said Sir John Ingilby called or known by the name of Oxshaw Gill at the North and Low end thereof' (Ingilby MSS 2830). The agreement was restricted to a clearly defined compartment of the coppice woodland: 'distinguished from the other woods of the said Sir John Ingilby standing on the south and west thereof in the same place called Oxshaw Gill'. The sale included all the trees that had been marked and set out, but again, did not include any oak, elm or crab apple trees. The time of cutting was specified as being between November and March, over a period of two years.

When coppicing rights were sold in a compartmented wood such as Hawkshaw Gill, it was important to ensure that the compartments with growing young coppice were not damaged by the cutting and extraction of underwood from adjoining compartments. To this end, the sale agreement contained a particularly stringent clause which stipulated that:

all the horses that shall be used or employed in leading and carrying away the said bargained and sold premises or any part thereof shall be so musseld or netted whilst they are in the said Oxshaw Gill that they cannott crop or hurt any of the spring or other woods there growing with their mouths (Ingilby MSS 2830).

In 1744, ten years after this agreement was concluded, another agreement was drawn up for 'all the ash wood and underwood being in North Oakshawgill within the township of Dacre with Bewerley'. The purchaser was Charles Bathurst, a name commonly associated with the Arkengarthdale lead mining industry (Raistrick 1972). The agreement was for the felling and removal of ash and underwood, for the sum of £105. This document is important because it refers to the use of existing extraction tracks. This, again, is evidence of careful woodland

management, designed to protect growing coppice from damage caused by the careless removal of cut underwood.

Under the terms of the agreement Bathurst and his agents were required to extract the cut wood along established trackways, by taking 'the said trees and underwoods . . . so as they keep the ancient and accustom'd ways to and from the places where the said severall trees now stand so as all the trees and underwood be carryed away and clear'd from the said grounds' (Ingilby MSS 2832). Again, Sir John Ingilby reserved all the holly, crabapple and thorn trees from the sale, presumably because they would be required for reinstating the hedging around the coppice compartment upon completion of cutting. It was stipulated that any damage to trees standing in adjoining compartments was to be made good, and again there was a requirement that the purchaser

mussle all the horses that shall be employ'd in leading and carrying away the said ash wood and underwood and prevent them from eating and depasturing on any part of the said North Oakshawgill or the grounds thereto adjoining and from cropping and destroying any of the young trees growing thereon or doing any other wilfull damage

to the landowner's or his tenants' property. A swingeing penalty clause of £200 was imposed to secure the purchaser's compliance with the conditions.

The next mention of Oxshaw Gill in the estate papers occurs in a bargain and sale agreement drawn up in March 1802 between Sir John Ingilby and Thomas Lupton and Thomas Pullan, two Pateley Bridge woodmongers. The bargain was specific to 416 oaks and 66 ashes and surrounding underwood, for an agreed price of £1400. This agreement involved timber trees, and appears to be an attempt to create a new area of coppice from a stand of mature oak/ash woodland. The document makes specific reference to 'the tops branches and bark of and belonging to the said trees and cyphers' (Ingilby MSS 2844). The trees to be cut had been marked with scrieving irons by the Ingilbys' agent. The purchasers were to strip the bark, then fell the trees, square up the stems and place the cut wood into stacks for drying on site: 'peel fell cut down hew square dry and carry away the said trees wood cyphers and underwood'. They were also given leave to either sell the underwood, cyphers and the lop and top, or to convert this material into charcoal by burning it in the woodland, using peat dug from the site: 'sell and dispose or burn into charcoal in or upon some convenient part or parts of the said wood the tops and branches of the said trees cyphers and underwood and to get sods for that purpose'.

The purchasers agreed 'to spring fell all the said bargained and sold trees wood and underwood in the best and most approved manner so as to encourage the springing thereof again and also peel fell and lead the same at proper and seasonable times of the year and not otherwise'. It was

established practice to remove the bark from standing trees prior to cutting. To guard against the purchasers killing the cut stools by removing the bark from the rootplate, they were instructed not to ‘peel the bark of or from all or any of the roots of the said oak trees below the felling or surface of the roots thereof . . . or suffer to be done any act or deed whatsoever which shall in any manner be prejudicial or injurious to or prevent the springing thereof’. It was further stipulated that no underwood was to stand over one year after the trees and wood had been cut and cleared away and that operations carried out in the woodland should not ‘permit or suffer to be done any waste hurt or spoil to the ground and soil thereof or the hedges or fences thereof’.

This document sketches a vivid impression of the activity employed in managing woodland at the turn of the 18th-19th centuries. It is suggested that the coppice compartment sold to Lupton and Pullan had been left uncut for a substantial period, and consequently the stored coppice contained large stems of a size and standard trees that would be of interest to timber merchants. It is also apparent that the conversion to coppice was restricted to oaks, for there was no proposal to coppice the ashes. This important document illustrates five aspects of woodland management: the removal of bark for tanning prior to the trees being felled; the cutting of the coppice; the preparation of the felled stems of timber by hewing and squaring; the building of stacks for drying the timber; and the disposal of the underwood, cyphers and branches through sale or conversion to charcoal.

4.6 Clarks Carr/North Wood

The 133 acre (54ha) wood known as Clarks Carr is classified as ‘replanted ancient woodland’ in the Inventory of Ancient Woodland (NCC 1987). Clarks Carr forms about one-third of the extent of the medieval *Great Wood*, bounded on its southern margin by the Loftshaw Gill, a watercourse that flows into the River Nidd near New York Mills. The ‘Carr’ element of the woodland name is usually diagnostic of wet conditions, where the woodland is characteristically dominated by species such as alder and willow. Carr woodland can also be part of a more heterogeneous woodland community, with species mixtures reflecting variations in local hydrology. Typically, this would result in the presence of alder in the wettest parts, with a transition through birch, into oak woodland on the damper, as opposed to waterlogged, soils. When the Wray map of Harewell was drawn in 1611, the *Great Wood* may have still been a wood pasture. A century later, it is apparent that some planting had been carried out to establish a coppice, perhaps infilling the open areas between the old pollarded trees that remained on the site from the redundant wood pasture.

A transcript of a letter from Edward Ridsdale to Sir John Ingilby, dated 24 November 1710, sketches an impression of the conditions at Clarks Carr. Because the wood was so wet, the [planted?] ash trees had not thrived:

Wee went to Harewell & Clarke Carr as appointed . . . but it was a very wet stormy day . . . its a sad reet boggy place & by that has much hindered or starved ye growth of ye wood & not much there are a great number of very small starved ashes which cannot well be counted but in a frost might be screved or marked & they are scarce worth it: and I hope the underwood there with those ashes will give near 100s there are some old okes dyeing ye tops & some pritty good worth abt 3d a tree but those are best left to be viewed & valued, your most humble faithful servant Edward Ridsdale (Ingilby MSS 1714).

Clearly, the wet conditions made access extremely difficult, and marking or scribing of the trees could only be carried out when the ground was frozen hard. The 'old okes' with dying tops may have been the last vestiges of a defunct wood pasture.

In 1748 an agreement was drawn up for cutting the underwood in Clarks Carr. The coppice rights were sold to William Bell, of Bewerley, for £100. This agreement gives a fascinating insight into the way in which coppice was sold and the cutting sequence stipulated by the landowner. We are told that William Bell was to:

spring fall in a workmanlike maner all that parcel of underwood saw and carry away or otherwise convert to and for his and their own proper use and uses which is standing and being in a pasture called Clark Carr in William Bucks farm in the Township of Dacre Banks set out and markt by Robert Wetherill and William Chipendale (Holly Crab Thorne and wood for fencing the said spring called Clark Carr excepted reserved out of the said underwood) All which said parcels of underwood shall be cutt down in a proper season of the year for new springing the same again (That is to say) to have liberty to spring fall the said underwood from this day until Lady Day next which will be in the year of our Lord one thousand seven hundred and forty nine and spring all the other part of the said underwood untill Lady Day 1750 and the third part of the said underwood to begin at freehall was 1750 to cutt down and spring fall untill Lady Day one thousand seven hundred and fifty one and the fourth part of the said underwood to begin to cutt downe and spring fall the same at Michaelmas 1751 until Lady Day one thousand seven hundred and fifty two. And all the said parcels of underwood shall be clear'd and carryed away of and out of the said springs on or before the twenty ninth day September in the year of our Lord 1752 allso it is further agreed betwixt the said partys that the said William Bell shall begin at the west end of the said spring to Fall and Cutt Down the first fall of underwood and so to clear and take it before them every year in a workmanlike manner and to pay unto the Tenant or Tenants of the said Sir John Ingilby all such extraordinary damages as shall be occationed by the said wood carrying off the premises and further if failure be made in payment of the above named sum on the day above mentioned it shall and mat be lawfull to and for the said Sir John Ingilby to enter into and upon the woody grounds and premises and to seize and detain and repossess all wood there found standing or felled and the same after twenty days to sell and dispose of at his and their wills and pleasures (Ingilby MSS 2834).

The agreement also stipulated that draught animals should be prevented from browsing the young coppice, to the extent that William Bell was to ‘mussie all the horses that shall be employed in leeding and carrying away the said woods and prevent them from eating and depasturing on any part of the said grounds thereto adjoining and from cropping any of the young trees or shoots of trees growing thereon or do any other willfull damage to the said Sir John Ingilby or his Tenants’. The intended end-use of the coppiced underwood is not clear from this agreement, for there is no mention of chop kilns, saw pits or charcoal-making, but there is an interesting reference to the exception of holly, crab apple and hawthorn from the bargain, as it was probably needed for re-fencing the coppice. The use of these species for dead-hedging was favoured because they are all prickly and would present a barrier to grazing animals.

4.7 Tannery bark

The bark of oak trees, an extremely important by-product of coppicing, was the fundamental feedstock for the tanning industry. Oak was preferred by tanners because of its high tannin content compared with other species. By the 16th century, tanning had developed into a major industry and, as the supply of bark was highly variable, being wholly dependent upon coppice rotations, it invariably commanded high prices (Clarkson 1974). During the Civil War large quantities of bark were needed to prepare leather for military use. References to tannery bark occur as early as 1416 in the Ingilby archives, in a document giving permission to take oak bark from Thornton Wood, in Bishop Thornton:

Defeasance of a bond from Richard Award of Ripon, chaplain, and Robert Barbour of Ripley to John Wallerthwate of Ripon, barker, and Robert Wallerthwate of the same in 24 marks, if John and Robert can use the barks of oaks in Thornton Wode in the place called Voley which Thomas Ingleby bought from the Archbishop of York, and carry them away, during the time that Ingleby holds the licence, provided that they do not cut down any trees except in the season which is best for the craft of tanning (Ingilby MSS 6).

In a lease dated August 1421, the rector of Ripley granted a watermill and an adjoining close called ‘*Milneclos*’ to John Robynson of Ripley with permission for ‘John to build and maintain a bark kiln there’ (Ingilby MSS 210). In September 1523 William Ingilby leased a parcel of ground ‘between the mill beck and the park named *Barkhowsegarth*’ to the parson of Ripley church, Thomas Skawesby (Ingilby MSS 1064). This appears to be the same plot mentioned in the lease of 1421, confirming the presence of a tannery in Ripley in the 15th century. The proximity of copious quantities of oak nearby adds weight to this possibility.

References to tanners in the Dacre area occur in two early 17th century leases of former Fountains Abbey properties. In the first lease, dated October 1603, Sir William Ingilby granted a messuage and land in Banger Houses and Dacre Pasture for 1300 years at an annual rent of

18s 4d to John Benson tanner, of Banger Houses (Ingilby MSS 455). In the second lease, dated February 1604, a similar tenancy was granted for a messuage called Monk Ings in Dacre with lands for 1300 years at 20s annual rent, to Miles Dowgill of Brackanbaras, a tanner (Ingilby MSS 464). Another lease to a tanner, Robert Dowgill, of Dacre Pasture, was agreed in September 1612, for lands in Dacre Pasture and Monk Ings for 1000 years at an annual rent of 12s (Ingilby MSS 483). A settlement by lease and release in April 1783 from Mary Buck and Peter Buck of Thornthwaite gives Peter Buck's occupation as a tanner (Ingilby MSS 608).

4.8 Sales of bark and timber from other parts of the Ingilby estate

Sales of bark, underwood and timber continued throughout the 18th century from the many stands of woodland that were a feature of this estate. Haverah Park, part of the Ingilby estate, extended to 2170 acres and was let to ten farmers. From the figures given in a survey of 1799 (Ingilby MSS Additional Archive 2662), the area of woodland is calculated to have covered a little over 68 acres (27ha). The following document provides an insight into a transaction that was restricted to tannery bark. The document is especially important for its description of the working practice employed by tanners when stripping bark from trees.

In 1775 all the bark upon a parcel of oak trees standing and growing in Haverah Park was sold to two tanners, John Edmondson of Wilsill and William Hebden of Braisty Woods. The purchasers were to peel the bark 'at their own expence for the sum of Two Hundred and Twenty Pounds'. The peeling was to be undertaken in a predetermined sequence:

one third part of the said wood at least to be peeled this season, and the Remainder in 1776 save and excepting that not more than one fourth part of the whole Parcel be reserved to be felled and peeled in 1777, which remaining part to be left standing till 1777 to be determined by Christopher Graham of Birstwith to be felled and peel'd in such a manner that the Wood within one Farm be taken down together, then that within another Farm in the same manner, and so proceeding from Farm to Farm till the whole is taken down (Ingilby MSS 3978/3).

Another bargain and sale of wood in Haverah Park, dated 11 May 1775, by the executors of Sir John Ingilby to a consortium of gentlemen that included the Boroughbridge surveyor John Flintoff, involved 397 oaks, seven ashes and sycamores, together with their cyphers. The trees stood in the fields of a number of tenanted farms. Also included in the sale was a parcel of underwood consisting of birch and alder, together with the bark, lops and tops of the trees. The inclusive agreed price was £735, and under the terms of this agreement, the purchasers were granted a period of almost five years to 'fell cut down pill and break up the said trees underwood and bark' (Ingilby MSS 2837).

Although it is known that the value of bark was considerable, it is not possible to place monetary figures upon the output of the Ingilby woodlands until the returns contained in the 19th century documents. For instance, a tantalising document described as ‘An account of what bark has been sold, and where, since May 1731’ (Ingilby MSS 2829) merely gives a small tabulation of weights amounting to 9 tons 12 cwt 6 qrs, together with ‘34 at Harrogate; 2½ at Hollingbourne = 34½’. Sales of bark were still buoyant in the early 19th century, fetching £8/ton at the time. Mr Parkinson, a tanner from Fewston, purchased two tons of bark from Haverah Park in 1825, 15 tons in 1827, and a further three tons in 1829 from elsewhere on the estate. A further eight tons of bark from Haverah Park was sold to Mr Parkinson in 1845. Parkinson seems to have added the business of a tanner to his occupation as a yeoman whilst at Denton, and to have commenced at Cragg Hall what became a very extensive but unfortunate business. The large tan-yard begun by him, some distance below the house in the valley, was removed in 1850 (Parkinson 1882). Richard Constantine, a tanner from Wilsill, is recorded as having purchased 9½ tons of bark from Ripley and Dacre Banks in 1825 for £77 19s. He bought another three tons of oak bark from the estate at £8/ton in the following year.

Although oak was the principal species used for tannery bark because of its high tannin content, it was not the only source. European Larch (*Larix decidua*), a fast-growing species that had become popular in estate forestry for its valuable constructional and fencing timber, had a long history of bark use by tanners in its Alpine homeland. It is known to have been used for this purpose on several estates in the north of England, including Thorp Perrow and Ripley, as witnessed by a letter from Robert Barker of Otley to Mr Blackwith of Ripley Castle, dated 7 September 1843: ‘I have been expecting to hear from you for some weeks respecting the oke and larch bark and as the weather is fine and I am to have your bark I should feel obliged if you should say the prices iff you have ascertained its volume. From yours very respectfully Robt Barker’ (Ingilby MSS 2851). This is the only reference to larch bark in the Ingilby archive, and it is uncertain how extensive its use was. Much of the larch planted during the great period of planting at Ripley from 1781 to 1783 was mature by the mid-19th century, so it is reasonable to assume that as the estate became depleted of usable oak, larch may have provided an acceptable substitute.

Towards the end of the 19th century tree bark was being superseded by chemical substitutes in tanneries. The final reference to oak trees and bark is contained in a letter to the Ripley Estate Office, dated 23 May 1876. This document gives the impression that very little oak remains:

I shall finish with the oak peeling here on Thursday so far has been set out, there is a solitary oak tree standing at the bottom of the road through the portion of Cayton Gill, which has been cleared, you are aware that there were three left standing and that two

have been blown down. I fear the remaining one will share the same fate if left standing, as it has a very heavy top and nearly all to one side. I should suggest that it be peeled and taken away with the rest of the timber from that part. Please to advise me by return of post if you approve of this being done so that the man may peel it when they finish with the others. I expect there will be good sap for fully a week yet, should there be a tree or two that you wish to come down there will be sufficient time left to take a few (Ingilby MSS 1758).

4.9 Sales of wood and timber

It is apparent from the documentary sources cited above, that during the 17/18th centuries, the Ingilby estate was managing its woodland in a professional and sustainable manner. Clearly, in the sale of bark, the Ingilby estate had identified a lucrative outlet for the estate woodlands that did not result, if practised with care, in any loss of regenerative capacity of the coppice woods. In tandem with sales of bark and underwood was that of timber trees. These may have come, in a number of instances, from hedgerows as well as standard trees growing in coppices and the park. Sales of timber are recorded in the estate papers from the early 18th century. The following account is a typical record of trees sold:

Francis Matson: besides ould wood from our House.

Givan: Tho. Raland wood which he sould a gain more than he had occasion for couper [cooper's] timber to John Firreman & John Browne.

John Dearlove: two trees an ash & elme.

Mr Ridsdale: wood from Deeton & slate & wood from Harogate & 11 trees at Hair Well which I supoase he bought a great deale under worth & hounderd of lats 14 small ellars [alders] out of Park.

Givan to Abell Darley: 9 trees, 2 trees moare, 3 trees moare, 2 trees moare, 3 trees moare.

Sam Clint: 2 trees, 3 trees, 3 trees, 4 trees, 1 tree, 3 trees from Deton & part of one tree out of ould Parke besides oule wood considerable out of ye barne moare 3 oaks moare 18 or 18 trees

biger & less 10 fence his farme ye wood that was given Sam which he had no occasion for he maid into couper timber & furnater for his house.

Matthew Hodgson: 6 trees.

Sould John Firreman one tree for five or six shillings which he sould a gaine & About a third part at 11 moare one tree sould at a great deale under worth memorandum A cart going to Firremans up holling bank lane from Ripley not knowing ye occasion (Ingilby MSS 1659).

Felled timber was occasionally removed from woodlands by horse-drawn waggons on totally inadequate roads. This resulted in a dispute in 1700 caused by the movement of timber along a narrow lane:

Thos Richardson Jack of the lane at Back of Simon Smith, to through lane out of the road – & the Road now so narrow and strate that ye Large Timber can not possibly be brought upon that Road & I was in dispute betwixt you and him in the Hedge rows adjoyning above that lane. The trees is one Ash & one Oake (Ingilby MSS 1665).

While the sustainable management of unplanted woodlands derived from the Fountains Abbey estate featured prominently in the Ingilbys' estate management strategy, it was not until the mid-18th century that they embarked upon the deliberate planting of new woodlands. Whilst amenity featured highly in the Ingilbys' planting philosophy, it is also evident that there was a significant commercial aspect to the new plantings that heralded the introduction of forestry practice on the estate.

4.10 Eighteenth century tree-planting on the Ripley Estate

The 'spirit of planting' that pervaded many landed estates in the late 18th century was, to a degree, engendered by the Board of Agriculture Reports. In his *General View of the Agriculture of the West Riding*, Rennie (1794) recognised huge potential for afforestation in the extensive tracts of uncultivated moorland associated with that part of Yorkshire. William Marshall (1788) commented: 'Of late years the passion for taking down has been much stronger than that of raising up'. The Ingilbys had already addressed the need to plant new woodlands on the Ripley estate some 13 years earlier in an impressive tree-planting programme. Under Sir John Ingilby, this was mainly focused upon reclaimed moorland, and other 'improved' land rather than uncultivated moorland. From his choice of planting sites, it is evident that Ingilby had some understanding of the environmental requirements of trees and woodland, in terms of situation, aspect and soils. Perhaps he was just fortunate that the soils at his chosen planting sites provided optimal conditions for the growth of good oak, so much so that 17,290 oaks were planted on the estate in the short space of three years, from 1781 to 1783. The year 1781 saw the zenith of tree-planting, with the establishment of 22,500 young trees. In total, almost 41,000 trees were planted at a small number of carefully chosen locations in close proximity to Ripley Castle, the focal point of the estate.

The entries in Sir John Ingilby's *Planting Book* for the 1781 planting year (Ingilby MSS 2838) record a 'great quantity' of oak, ash, beech, birch and holly, together with 600 larch and 1000 sycamore. It is apparent from this record that the choice of trees was not restricted solely to hardwoods, for 3,500 Scots pines and 700 spruces were also included in the planting scheme. Seventeen main species were involved, of which seven (oak, Scots pine, larch, sycamore, birch, spruce and silver fir), were planted in numbers in excess of one thousand. These species provided the main stock of timber trees. The other ten species (alder, willow, beech, Dutch elm, Weymouth pine, Black cherry, lime, horse chestnut, hornbeam and ash) were planted in lesser numbers for a range of purposes, including coppice and underwood, hedgerow standards, and for amenity or ornamental purposes. In the second year of planting (1782) a further 4,500 trees were planted, which included Scots pines, spruces, larches and sycamores. Greater emphasis was placed upon a variety of ornamental species, planted in the low hundreds. In 1783, another

burst of enthusiasm saw the planting of an additional 2,290 oaks, 5,470 Scots pines and 3,160 larches, together with 1,400 silver firs, 150 horse chestnuts, 206 Weymouth pines and 70 ashes.

During the first two years of the estate's woodland expansion enthusiasm, most of the planting had taken place on Scarah Moor, with Tom Hill receiving most of the new trees, but in 1783 other locations, including Ripley Park, were chosen. The 150 horse chestnuts listed above were planted in the Park, together with 1400 silver firs, 1000 oaks, 50 larches and six Weymouth pines. Planting was also carried out at High Rails (1,000 Scots pines and 1,000 oaks), and on the moorland above Kettlespring Closes (1000 Scots pines and 400 larches). New plantations of oak and Scots pine in High Rails and Kettlespring Close were established from saplings recorded as being 'one foot high'. By the end of 1783, a total of 40,907 trees had been planted on the estate. A graph of the plantings is shown in Figure 4.5.

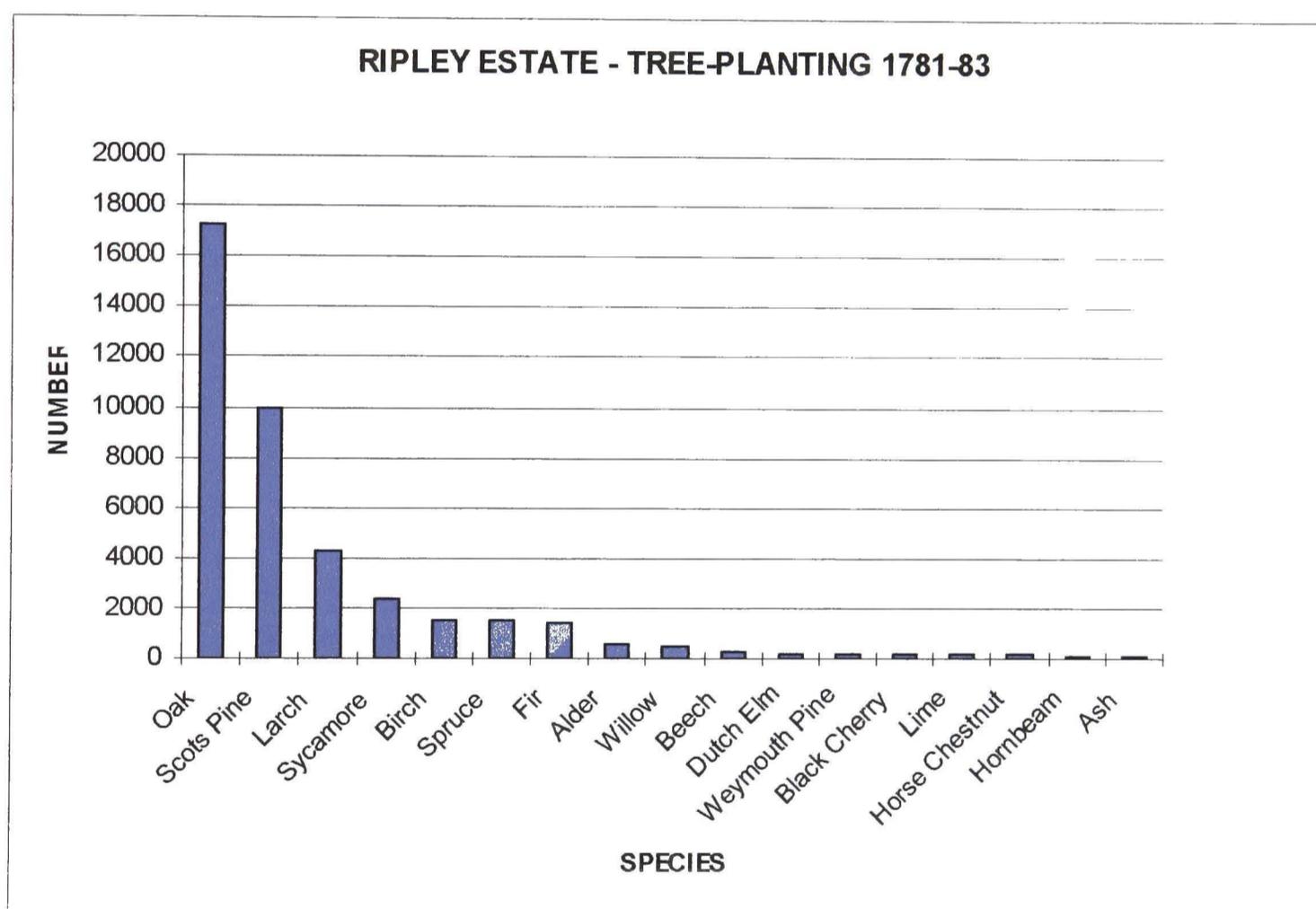


Figure 4.5. Tree-planting on the Ripley estate, 1781-83. (Data from Ingilby MSS 2838)

The new woodlands were created from young trees, nursery saplings and seed gained from a variety of sources. Some of the young trees were transplanted from semi-natural woodlands elsewhere on the estate. For example, the *Planting Book* records that 600 birches and 600 alders were taken from Harewell Wood in November 1781 for replanting on Scarah Moor. Similarly, 280 oaks were taken from the same wood for replanting at Broxholme during February and March 1783, but this particular transplanting was not a success, and all the trees failed. A number of young trees were given as gifts by neighbours – a Mr Benson of Stainley, presented

Sir John Ingilby with 800 oaks. Trees were also sourced from local nurserymen, as, for example, the 13,500 oaks bought from Joseph Thackwray for planting up Scarah Moor, and 600 sycamores for planting in Hollin Bank. Another 1500 Scots pines were supplied by ‘Simpson of Knaresborough’. The estate also purchased trees from Christopher Thompson’s renowned tree nursery at Pickhill, near Thirsk, a major supplier of young trees to other estates in the Yorkshire Dales, including Lord Bolton’s in Wensleydale (see Chapter 7). That transaction comprised 70 ashes for hedgerow trees in the ‘old lane’ and a batch of 1000 Scots pines, 400 larches and ten spruces of 6ft height for planting up the moorland above Kettlespring Closes. The estate also purchased 20 spruce fir and larch of 3ft height from Thompson for transplanting into its own nurseries at Hardhurst. These trees were then grown on to double in size before transplanting to new sites on the estate, possibly to ‘beat-up’ [fill in] the gaps left by failed trees. The estate also instituted the creation of new hardwood plantations, using conifer nurses. This is evidenced by an entry in the *Planting Book* which refers to the cutting down of ‘all the oaks from Harewell and to plant Scotch fir in between each, to be taken away when the trees get up’.

A large number of the young trees needed for the new plantings were raised from seed collected from existing woodland on the estate. These seeds included acorns, beech mast, ash keys, hazel nuts, horse chestnuts and holly berries. Rather than raising the young trees in the nursery, it was the policy of the estate to occasionally plant the seeds *in situ*. The *Planting Book* records the sowing of ‘about two bushels of holley berrys, Horse chestnuts’ upon Scarah Moor on November 13, 1782. Similarly, holly berries were planted in ‘the Stubbings’, and acorns and hazel nuts were broadcast in the Park, together with ash keys and beech mast in December of the same year. Kettlespring Closes was planted with acorns taken from the ‘old orchard’ and ‘scattered among John Shutts whins [gorse]’ (Ingilby MSS 2838).

The *Planting Book* provides an insight into the silvicultural methodology [raising trees from seed] employed. The importance of this document is that it was written at a time when the planting of new woodlands was gaining in popularity. The following examples, taken from the *Planting Book* give a flavour of its content.

Hazel: for coppice or underwood – sow the nuts either in winter or early in the spring, they will come up at summer. If you plant young plants they may be cut the year after which if done sloping and with a sharp instrument will cause them to shoot very vigorously – this tree is excellent for coppice always making a thick and strong cover – yielding also great pleasure as well as profit.

Similarly, for *Horse chestnut*: ‘sow the horse chestnut with the eye upwards’; and for *Holly*:

The best time for transplanting this tree is the beginning of April in moist weather and if the season is good and they are carefully moved there will be little danger of them [dying]. They may also be planted in August if the season is moist and they will put out roots before winter but at this time you must mulch the roots (Ingilby MSS 2838).

4.11 Amenity planting

The emphasis at Ripley was not solely focused upon commercial plantation forestry; rather more the enhancement of the landscape through the planting of trees in groups, with mixtures of native and exotic species for amenity and ornamental purposes. Sir John Ingilby’s intention was to plant up small hills and knolls with tree groups to accentuate the local landscape topography and to create a parkland landscape within the wider hinterland of Ripley Castle. In 1781 large numbers of oak, ash, birch, holly, Scots pine, spruce, larch and sycamore were planted in a mixture at Tom Hill, on Scarah Moor. In the following year beech, Dutch elm, larch, hornbeam, lime and black cherry were added in lesser numbers. Small, but distinct, clumps of coniferous trees were established in the midst of open areas, such as the Ings, where pineasters, cluster pines, Weymouth pines, firs, Scots pines and stone pines were planted in groups of twos and fours. Small clumps of 20 conifers, each consisting of 16 Scots pines and four larches, were planted in High Rails, and on ‘the hilly piece opposite the lime kilns: 1000 Scotch, 700 larch, 300 spruce’. The corners of some fields were planted: ‘70 Scotch firs, 20 spruces, 10 larches, about ten oaks in the High Stubbings in a corner against Martin Pasture’. Small sycamores were planted at Cayton, and ‘all the waste land upon the moor’ was planted with oaks and hazels. The pond in the Ings was fringed with oak trees, and birches and alders were planted upon areas of waste land.

A great deal of tree planting also took place in field boundaries and along roadsides. Examples include a line of silver firs in Little Sorrowsykes adjacent to the road, a holly and yew hedge with ash and sycamores behind in Ripley Park, 290 sycamores in the old Clint Lane, 31 Dutch elms in a line against the park fence, and an unspecified number of sycamores ‘to fill up all the old Whipley lane’ (Ingilby MSS 2838). The Ordnance Survey First Edition 6-inch map (Sheet 137) of 1856 depicts a countryside of tree-lined lanes and field boundaries punctuated with hedgerow trees in the immediate locality of Ripley and elsewhere on the Ingilby estate. These plantings are shown on the map in Figure 4.6 below. A large number of the trees shown on the map originated in the late 18th century plantings.

4.12 Outputs

By 1784 the focus of Sir John Ingilby's energies had shifted away from planting new woodlands towards a major reconstruction of Ripley castle. Sales of wood continued to make an important contribution to the estate's income, but under-estimates of building costs and the non-appearance of Lady Ingilby's dowry triggered a serious cashflow crisis which resulted in the castle being mothballed in 1794 and Sir John being forced into exile in Germany. In his absence, the estate was run by his agent, John Hewitt who, acting upon his instructions, greatly reduced the estate's indebtedness by selling large volumes of timber. Although this policy would today be regarded as 'asset-stripping', it was very successful, and Sir John Ingilby was able to return to his seat in 1804.

The woodland selected for sale appears initially to have been focused upon areas in close proximity to the castle. In 1784 a dispute over the cutting of some hedgerow trees in Millgarth, Ripley arose from an apparent misunderstanding which had resulted in some of the Rector's trees being felled in error. In his letter of complaint the Rector wrote:

When I was lately at Ripley I discovered that most of the Trees in the Hedge between the Rectory Pasture and the little close adjoining to the east to your mill had been cutt down & carried away; Mr Robinson told me it was done by your express order. I cannot conceal from you my shocking surprize at this, since the Right to the Trees did most clearly accrue to the Rectory, the Grounds on both sides of the Fence being confissially the Property of the Rectory. And you may recollect that when I cutt down several Trees up on the Glebe you requested by Mr Robinson that I would suffer these trees to stand. I entrest you, Sir, to favour me with the sentiments upon which you ordered the above said trees to be cutt down and taken away; in order that, if there be any mistake in this matter, it may be amicably adjusted (Ingilby MSS 1722).

In a letter dated 18 October, 1800 to John Hewitt, his agent, Sir John Ingilby was clearly considering what areas of coppice woodland and standing timber could be sold:

You will be satisfied that I was in the right about the trees and I am resolved to cut down as much as profitable without very much defacing Ripley, that I may get my affairs as clear as I can and as soon as I can. Let High Rails and the Lodge Wood be both sold, these are already fenced off and with a little care the wood will rise again. High Rails perhaps must be new planted and in some measure drained, and very will do that and indeed I think if it was plowed and sown with mast, acorns etc. it would come quicker and better, however the walk from gate to gate must be left. There are also a great many trees in Hollin Bank from the lane gate to the end of Dearloves pasture that may come down. I leave all this to your judgement and direction (Ingilby MSS 2662 Additional Archive, Letter 37).

From the tone of this letter, it is apparent that the oak and pine plantations established in 1783 in High Rails had not been successful. It is suggested that this was probably due to poor drainage,

and that the enthusiasm for tree-planting was a little misguided in terms of the suitability of site for oak and pine.

It is evident that Sir John Ingilby placed great confidence in his agent, whose ability to negotiate with wood buyers was crucial in gaining the best prices for wood in his absence:

Clearly there is no occasion for your having anybody to value against you, the wood buyers must always do it for themselves but it would only increase the expence to me and sure to let more people than necessary into the knowledge of what there is on the estate, of this I am very jealous and think besides you understand the value of wood as well as any of these pretended wood valuers will when there is as much of the Mountbank as Mill Land (Ingilby MSS 2662 Additional Archive, Letter 44).

An analysis of the wood sales for the years 1801-3 reveals the source of the felled timber to have been areas of semi-natural woodland and hedgerow trees, rather than the more recently planted woods that were not sufficiently mature to provide trees of saleable size. A significant stock of saleable wood lay in Haverah Park. Under Ingilby ownership, the Park had been divided up into ten farms that were let to tenants. In a survey of the Ingilby estates, annotated up to 1799, 64 acres (26ha: 3 per cent) of the 2170-acre (878ha) Park is described as 'wood'. The woodland lay in four small blocks of <4ha, and there was only one relatively large block in High Borehole Wood, which covered 16ha (Ingilby MSS 2662). A valuation of wood sold from Haverah Park in 1801 records the sale of 1596 oak trees and 433 ash trees which realised £2150 (Ingilby MSS 2842). Analysis of the valuation reveals that much of the wood was sold by length, for an average price of just over one shilling per foot (6p in today's currency). One transaction, which concerned 23 lots having an overall measurement of 289ft, was sold to a Mr Neaps for £40, inclusive of 18 qrs of bark valued at 14s 8d. Some of the wood was bought by the tenant farmers upon whose land it stood, particularly John Jackson, the tenant of High Borehole Farm, whose outlay on wood amounted to some £46. It is apparent from the records that up until page 19 in the sales ledger, most of the wood sold was oak, for after that point in the record, tabulations for bark are absent. The record then increasingly mentions 'ciphers' (trees too small to be measured by girth), ash and plain (sycamore). Clearly, by this time, most of the saleable hardwood timber had been sold. Some 1432ft of wood from Haverah Park, together with some wood set out at Ripley, was sold to Mr John Robinson for £3000 on March 2, 1802. The total figure for oak sold from Haverah Park during the period covered by the document amounted to £625 14s (6413ft).

4.13 Conclusion

The Ingilby manuscripts, upon which this chapter is based, provide a valuable impression of the continuity of tenure that characterised Nidderdale in the transition from monastic to secular

ownership of woodland following the Dissolution of Fountains Abbey in 1539. They form an unpublished archive that contains much of relevance to the appearance of woodland in Nidderdale in the present time. Through this study of their content, it is clearly apparent that the tenorial aspects of the past 500 years have been particularly influential in shaping the woodlands of Nidderdale, particularly in an environment where industrial uses formed a principal component of land-use.

In the preceding chapter, it was explained that Fountains Abbey embarked upon a major change in its land management structure in the late 15th century by letting most of its satellite granges to lay tenants. In this, it is of particular note that in 1521 half of the monastic lodge of Newhouse in Dacre township was let to William Ingilby. Under the terms of the lease, Ingilby was bound by the same restrictive clauses as other tenants with respect to woodland, under which he was not permitted to 'waste the woods or underwoods' but to grant the monastery free access to its woodland for the purposes of cutting wood and taking it away for its own use.

It is suggested that this perception of the value of woodland by the monastery was a significant influence upon the Ingilbys, for when they eventually acquired extensive areas of former monastic woodland following the Dissolution they continued to manage the woodland in a similar manner to the monks. This was despite the fact that the Ingilbys perceived woodland as a renewable cash crop rather than the abbey's perception of woodland as a source of raw materials for its own use. With regard to tenancies, the Ingilbys saw little point in altering the established arrangements instigated by the monastery. For example, at Hartwith, the tenants continued to pay an extra rent for holly (Jennings 1967, p.143) – an arrangement first seen in a Fountains Abbey lease for a tenement and a parcel of *holyn* drawn up in 1524 (Michelmore 1981, p.189) and again in 1538 (1981, p.274), in which the rent for the tenement was set at 22s and that for the *hollin* at 20d.

The Ingilbys' sentiments as to the treatment of woodland on their tenanted holdings also mirrored that of the monastery in which the tenants had few rights to wood and none to timber. But the Ingilbys were also keen to maximise their income from land and there is good evidence that some rationalisation of the landscape was undertaken to advance this purpose. We see the remodelling of the former Great Wood of Dacre as agricultural fields with the clearance of redundant and unproductive wood pasture as a clear example of this process. Similarly, the retention of productive coppice woodland as in the case of Guisecliff Wood, and areas of limited or no agricultural potential on account of inherent wetness being left as birch/alder carr as at Clarks Carr.

The description of Guisecliff Wood, as interpreted from the bargain and sale documents, gives an impression of the coppice management of unplanted woods. The 259 trees mentioned in the sale of 1730 (Ingilby MSS 2828) indicates that quite small compartments were cut over in these transactions rather than large areas of underwood. Similarly, the documents provide an insight into the more commercial aspects of woodland management in the time allowed for cutting and the structured payments by instalments for the cut wood and the imposition of penalties for non-compliance with the agreed terms. In practical terms, the fencing of coppices appears in a number of cases to have been made the responsibility of the buyers of the wood, although it is more generally the case that the Ingilbys reserved this important aspect of woodland management to their own staff. This is amplified by the restrictions in many of the sale documents regarding holly, crabapple and thorn trees indicating that their retention was deemed critical in providing a stockproof barrier in living or dead hedging. There was a common technique in the Yorkshire Dales of protecting coppice stools under thorn-bearing shrubs in this way and the Ingilbys were perhaps following a long-established tradition. In the documents that refer to the muzzling of draught animals there is an indication that the Ingilbys were prepared to institute rigorous measures to protect their woodlands. Such a protective measure appears to have no parallel in the Dales nor the wider Yorkshire countryside (M. Jones, pers. comm.).

Indications of a decline in the market for coppice products towards the end of the 18th century is evident by the sale of stored coppice and standard trees to timber merchants, hence a decline in coppicing and a move towards the establishment of plantation woodlands in common with many other landed estates in the north of England at the time. By the end of the 18th century the planting of new woodlands was gaining in popularity and in this the Ingilbys were possibly among the trend-setters of their time. The diversity of sources employed by the Ingilbys in seed, nursery stock and young trees taken from the wild provides a distinctive insight into the estate's early excursions into silviculture. Typically it was only the cash-rich estates that could indulge the fashion for tree-planting and in this, the Ingilbys' modest afforestation programme was in accordance with their status, as against the large-scale programmes that were being put in hand elsewhere in the north of England and Scotland at the same time. The prosperity of the estate was in no small part due to its woodland resources – a fact that helped salve a parlous cashflow problem in the early years of the 19th century when timber was sold to resolve shortcomings in the estate's finances which saw the castle becoming mothballed and the landowner becoming exiled in Germany. This sequence of events also illustrates the delegation of woodland responsibility from an absentee landowner to his agent – a not uncommon situation which will be encountered again in the study of the Bolton Estate in Wensleydale that forms the substance of Chapter seven.

This chapter has demonstrated that in Nidderdale there was an almost seamless transition from the woodland management tradition of Fountains Abbey to that of its secular successors the Ingilbys. Under both systems of tenure, woodland management was directed at the provision of raw materials for specific industrial end-uses. In monastic hands this was destined to support an extractive industry and in secular hands, as a revenue-generating activity. But under both systems, the inherent value placed upon woodland is clearly visible in the measures taken to ensure its conservation. For at least 500 years, stringent control of woodland resources, underwritten by legal obligations and coupled with appropriate management, ensured that such resources were not squandered. In this, the critical factor – that of tenure – is identified as the principal influence that has provided the richly wooded landscape that is a characteristic feature of Nidderdale in the present day.

5. THE WOODLANDS OF THE NIDDERDALE-WENSLEYDALE INTERFLUVE

The interfluvial zone that separates Nidderdale from Wensleydale is of particular significance to this study on account of its varied geology, topography and land tenure. In combination, these elements provide a microcosm of the different characteristics of the Yorkshire Dales woodlands. Whilst most of the woodland in the central and southern sections of the study area is oak-dominated, this being largely determined by acidic substrates derived from the Millstone Grit, a discernible gradation to ash-dominated woodland in the northern section results from the transition to calcareous soils associated with the Carboniferous Limestone series. The area retains elements of former coppice woods, wooded commons with wood pasture, managed riparian woods, a deer park and unmanaged gill woods. This chapter presents the field and documentary evidence for former woodland management practices in the central areas around Healey and Leighton, at Arnagill, in the south, and at Ellington Firth in the north. The location of the principal interfluvial woodlands is given in Figure 5.1.

The former townships of Healey with Sutton and Ilton-cum-Pott lie at the core of the interfluvial zone. Historically, these townships belonged to a locality known as 'Mashamshire', whose extent was defined by the bounds of the Swinton Park Estate. The 19th century writer, John Fisher, enthused over the woodland scenery of Mashamshire 'with its exuberant foliage' stating that:

Few places, indeed, can vie with it, either as to the quantity of the grandeur and magnificence of its forest trees, all tinged with varied hues, especially the oak, 'the king of the forest', which here grows to an amazing size, and contributes largely to the supply of material for the wooden walls of old England (Fisher 1865, p.7).

Whilst the edaphic and climatic characteristics of the area particularly favour sessile oak (*Quercus petraea*), a species that was once plentiful, many oak woods were clearfelled and replanted as coniferous plantations in the 1950s/1960s. But despite the large amount of coniferisation that has been undertaken by the Forestry Commission and other landowners, some stands of ancient semi-natural woodland that retain the visible indications of past management practices in the form of pollarded and coppiced trees can still be found in the remoter parts of 'Mashamshire'. One wood of particular note is Birk Gill Wood, a Site of Special Scientific Interest (SSSI) and an Inventory of Ancient Woodland site, which covers 74 acres (30ha) on the moorland between Colsterdale and Coverdale. A view of Birk Gill Wood is shown in Plate 5.1.

Prior to the creation of 'Mashamshire' as a large estate, its lands were held variously by the Cistercian monasteries of Fountains and Jervaulx, and by the Scrope family, whose main

holdings were centred upon Castle Bolton in Wensleydale. Fountains Abbey established a grange at Pott, which served as a sub-grange of Aldburgh Grange, near Masham. The Pott Grange lands extended over the watershed of Masham Moor into Nidderdale. Colsterdale, a remote valley to the north-west of Healey, was mostly held by Jervaulx Abbey. The manor of Healey, situated on the northern flank of the valley of the Pott Beck, had come into the possession of John Lord Scrope of Bolton before 1549. It then passed with Ellington to the Danby family in 1565 and descended with Masham. The small settlement of Leighton, with a deer park [South Leighton Park], was situated midway between Healey and Pott. Healey Pasture and North Leighton Ox Close formed the town pastures – two areas of common stinted grazing.

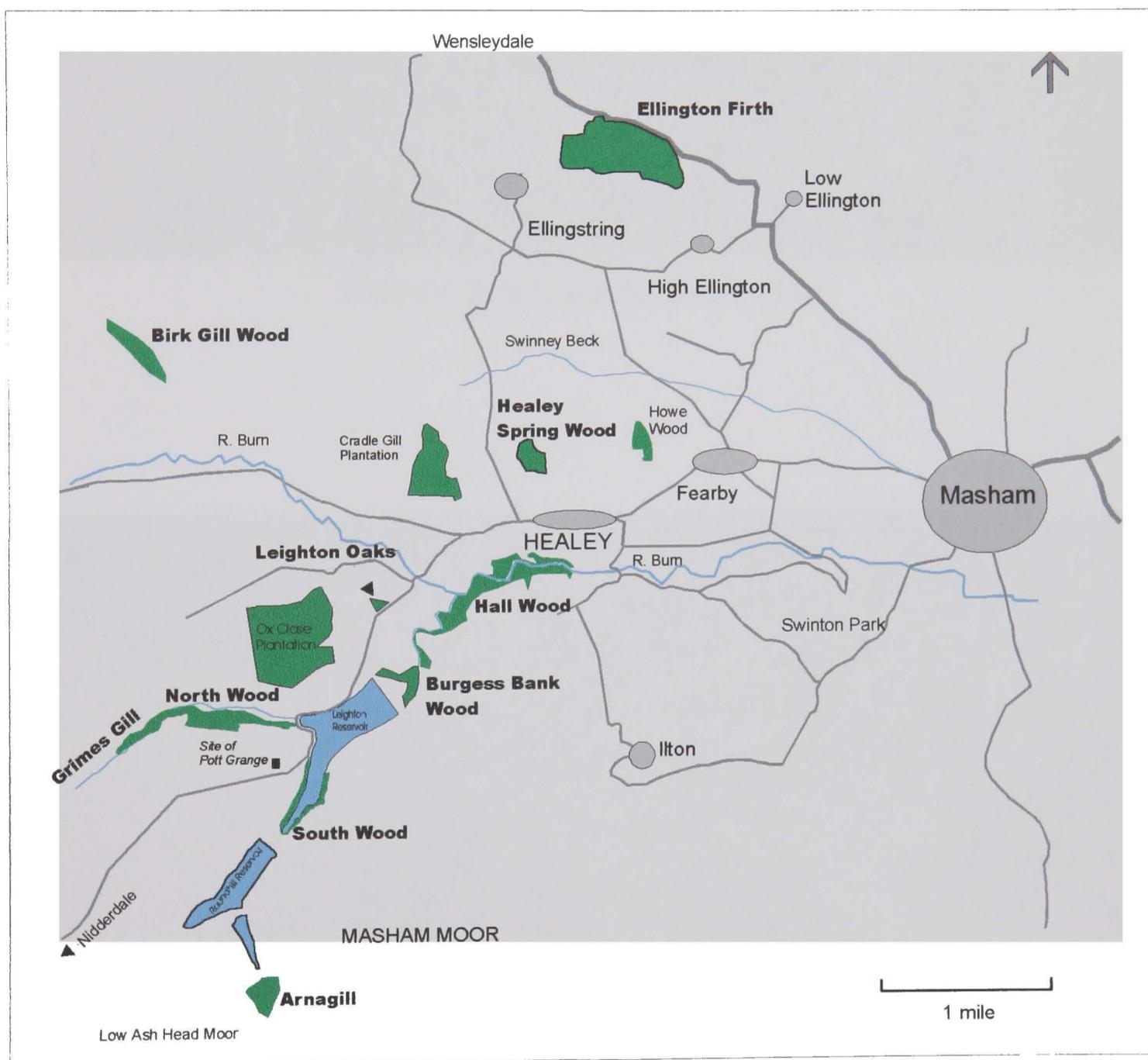


Figure 5.1. The principal woodlands of the Nidderdale-Wensleydale interfluve

5.1 The woodlands of Pott Grange

Pott Grange came into the hands of Fountains Abbey under a grant of lands from Gilbert de Watton in 1190. The grange was sited on rising ground between the valleys of Grimes Gill Beck



Plate 5.1. Birk Gill Wood, Colsterdale



Plate 5.2. North Wood, interior view with coppiced trees

and Pott Beck. The grange boundaries were described in the charters as extending from the confluence of the Pott and Grimes Gill Becks across the moors to Lofthouse in Nidderdale, some six miles to the south-west:

from where *Pozbec* and *Grimesdalebec* meet, to *Frostildhou*, thence to *Steinscogri*, *Lofthus*, *Crawelle* and Pott, reserving to Gilbert de Watton all stag and hind, boar, roe and bird of prey, pasture for 20 cows and their calves until the calves shall be removed, and timber for his house at Masham. Gilbert grants all these and free transit in *Aldoflund* and *Surmire*, with hay and roofing from these two places, and agrees not to have a forester within the bounds of the above (Vyner MSS 2228).

Fountains Abbey granted common rights in the Pott Grange woodlands to the free tenants of Swinton and Ilton around the year 1210. In an agreement

between the monks of Fountains and Adam de Stauel, Hugh de Calton, Simon de Hebeden, William de Muhaut, Walter de Ylket, Henry de Redeman and other free tenants of Swynton and Ilketon; namely that the monks have granted to them and their heirs who shall dwell in Swinton and *Ilketon*, and their men who hold from them in those vills, common of pasture and necessaries in the wood, from that place where the road of *Aikelid* descends into *Pozebec*, and so up by *Pozebec* as far as that place where *Arneraidgilebec* descends into *Pozebec*, and so up from *Arneraidgile* by that side which is without wood towards the south as far as that place where the two streams come together, and so following that stream most to the east as far as *Blaberhscauh*, and from *Blaberhscauh* straight across towards the south as far as the road of Richard de Rollos, except the meadow of the monks at *Scalethwayt* which shall remain to them enclosed as it then was (Vyner MSS 4937; Lancaster 1915, no 33).

5.2 North Wood and Grimes Gill Wood

Virtually all the land granted to the monks was high moorland, having originally been the de Watton family's private hunting chase. In this exposed landscape the woodland was largely confined within the rocky ravines of the Grimes Gill and Arnagill Becks and in the valley of the River Burn. On the 1856 Ordnance Survey First Edition 6-inch map, the Pott Grange woods are depicted as 'Pott North Wood', 'Grimes Gill Wood' and 'Pott South Wood'. Grimes Gill and North Wood is mapped as a single continuous unit, having two lateral stands along the tributary watercourses of Hard Gill and Hopper Gill, that rise on Hambleton Litch and Sourmire Moor to the north. Pott South Wood extended from a point 0.8km north-east of Pott Hall, south-westwards along the margins of the Arnagill Beck. Pott South Wood has been almost totally destroyed by the construction of Leighton Reservoir – only 7ha now remains in two blocks fringing the southern arm of the reservoir. The reservoir has similarly truncated the eastern end of Pott North Wood, whose area now covers 46 acres (19ha). This wood, whose original extent is calculated as 72 acres (29.1ha), formed the larger block of grange woodland. The 1540 valuation of the former Fountains grange of Pott describes North Wood thus: 'A close of pasture called Netherwood, 20 acres; A close of pasture called Gremesdell, 26 acres'. These 46 acres

(18.6ha) of woodland may have been supplemented by a further 26 acres (10.5ha) of wood pasture in 'Horse Close Bank, 16 acres' and 'A close of pasture called Ing Bank, 10 acres'.

Grimes Gill Wood and North Wood are included in the Inventory of Ancient Woodland (NCC 1987), and together form 57 acres (23ha) of almost continuous woodland along the valley of Grimes Gill Beck, from a point immediately west of the reservoir bridge (SE 155786) to the head of the valley, 2.5km to the west. North Wood has the appearance of being unmanaged, although (as will be seen in Plate 5.2) the existence of numerous overgrown coppice stools and pollarded trees indicates the presence of a former management regime. Most of the large trees are rooted in scree, and the boulder-strewn woodland floor is indicative of the site never having been cleared for cultivation. A visual similarity with some Dartmoor oakwoods is apparent in the twisted and gnarled trees growing on steep rock-strewn valley sides. In common with many other Dales woods, there are indications that, following the cessation of coppicing, attempts were made to convert the woodland to high forest by storing the coppice. This involved cutting the stools back, but leaving one or two principal stems to grow up as timber trees. A number of trees are twin-stemmed; many others have bulbous stems which are the remains of coppice stools. The pollarded trees have short stems and large spreading crowns. A number of overgrown pollards that originated as hedgerow trees now interdigitate the stone walls that form the field boundaries to the north of the woodland. Further west, the steep and dramatic cleft of Grimes Gill is clothed by dense oak woodland.

Grimes Gill Wood is virtually an extension of North Wood, although in terms of past management it appears to have been treated as a separate compartment. The groundflora is predominantly acidophilous, with bracken (*Pteridium aquilinum*) on the higher slopes and bluebell (*Hyacinthoides non-scripta*) in the valley bottom, where the Grimes Gill Beck is fringed with profuse birch and alder. Many of the trees bear clear indications of former coppicing, having many large poles growing from old stools. Typically the stools of the coppiced alders are large, with diameters of c.130cm. The woodland extends along the valley floor and up both valley sides. The southern side appears to be a relict wood pasture, with numerous stunted oak pollards. Some pockets of overgrown oak coppice are also detectable in numerous distorted stools. The former coppiced area extends from the valley bottom to a line about half-way up the southern valley side. Parts of the wood have been beaten-up [replenished] with new plantings and many of the larger maiden trees originate from plantings in the 1950s when the wood was under the management of the Forestry Commission. The north-facing slope is covered with prolific bluebells. The oak wood grades down into a wet flush in the valley bottom that is devoid of trees. The township boundary wall fences a large area of the woodland against the gill.

5.3 South Wood

South Wood is a large block of oak woodland situated on a steeply sloping site above the southern arm of Leighton Reservoir. The wood was mistakenly identified by the NCC surveyors when preparing the Inventory of Ancient Woodland as two blocks called 'South Wood' and 'Reservoir Wood'. The 1856 Ordnance Survey 6-inch map shows South Wood to have been one large block of woodland in the area now occupied by Leighton Reservoir, and the two blocks of woodland are the remnants of a wood that has been dissected by the reservoir. While much of South Wood has the appearance of being less than 100 years old, a number of over-mature coppice stools and some oak standards remain as a vestige of a former coppice-with-standards regime. Although there are no visible indications of former coppice compartments, a woodbank, crowned by four pollarded oaks, was noted during fieldwork. A joint in a drystone wall that respects the woodbank demonstrates that it is of more recent origin than the woodbank. Abundant bluebells in the groundflora add weight to the woodland's ancient semi-natural status, while dispersed individuals in an area of pasture are indicative of the former extent of the woodland.

5.4 Arnagill Wood

Arnagill Wood is a remote gill wood, situated in a cleft of moorland immediately to the south of Roundhill Reservoir. Arnagill, whose place-name suggests the presence of eagles, is strewn with boulders that have fallen from the gritstone moorland above. Consequently, it may be construed that the woodland floor has never been cultivated, although some of the fields that now lie under Roundhill Reservoir are depicted on 18th century maps as arable land. The woodland is typical of a semi-natural upland environment, being composed of rowan, hazel, holly, oak and birch on the drier elevated margins. Much of the acidic substrate is permanently waterlogged, giving rise to mire communities characterised by *Sphagnum* spp. In the drier margins there is prolific growth of bracken (*Pteridium aquilinum*) punctuated with occasional ancient woodland indicator species such as bluebell and wood anemone (*Anemone nemorosa*).

Fieldwork undertaken by the writer identified a stand of peculiar wood pasture formed entirely of alder pollards. These are shown in Plates 5.3 and 5.4. The twelve trees stand on the western lip of the valley, above the Arnagill Beck, on the intermediate zone that lies between the driest and wettest areas. Pollarded alders are not unknown in the Yorkshire Dales, although coppicing is the most common method of managing this species, particularly when growing alongside watercourses.



Plate 5.3. Arnagill - alder wood pasture

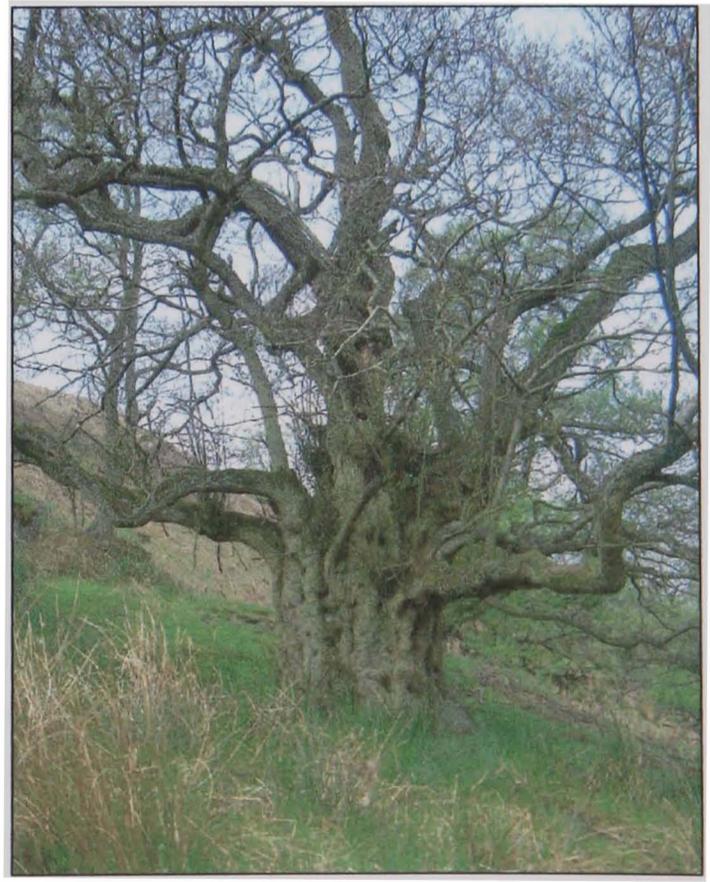
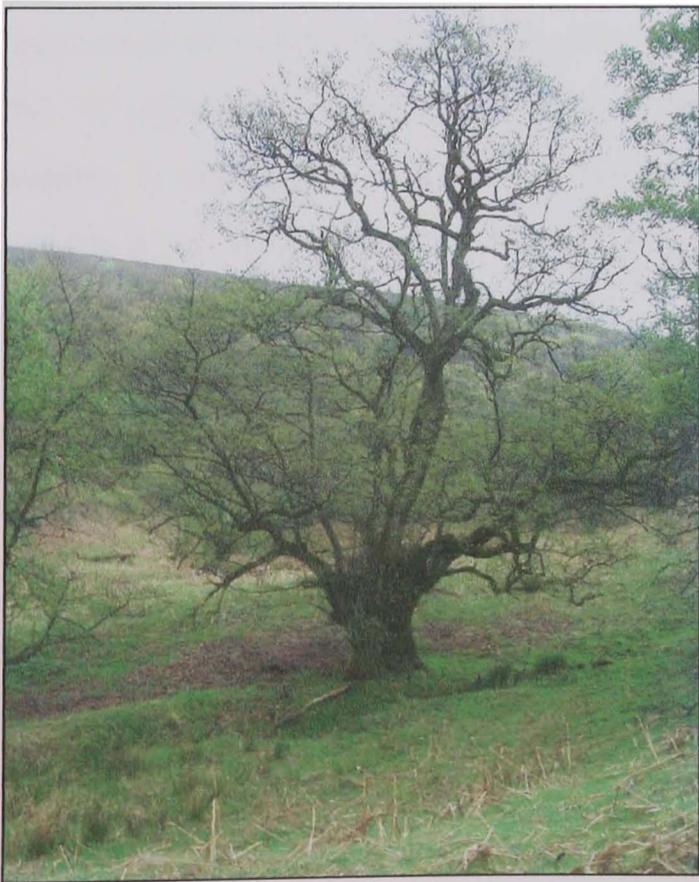


Plate 5.4. Alder pollards at Arnagill

In Swaledale, Fleming identified a stand of alder pollards in a wood pasture in the similarly-named West Arngill Wood near Muker (Fleming 1997, 1998). The situation of that woodland is not dissimilar to Arnagill – the elevation of both woods is broadly comparable – West Arngill Wood (Swaledale): 300m OD; Arnagill Wood: 260m OD. A comparison of the West Arngill trees with the Arnagill individuals was undertaken by the writer when measurements of the bolling and pole diameters of the last pollarding event were taken from both groups of trees. Coring with an increment borer failed to produce any useful data on account of the degree of rot in the Arnagill specimens and the difficulty of removing a core that contained clearly visible annual rings. As the dating of trees growing in relatively exposed sub-montane environments is exceedingly difficult (M. Bridge, pers. comm.), the conclusions drawn from the mensuration exercise can only be subjective.

Because there were only four measurable pollards at the West Arngill (Swaledale) site it was not possible to provide matched paired data, however, the following observations enable some general impressions of the historical management of the trees to be constructed. The West Arngill (Swaledale) trees had bolling diameter-at-breast-height (dbh) measurements ranging between 92 and 112cm. By comparison, the bolling dbh of the Arnagill trees ranged from 138 to 185cm, which suggests that they are older than the West Arngill trees. Interestingly, the diameters of pole regrowth ranged between 32-45cm (West Arngill) in comparison with 19-28cm (Arnagill). These data are shown as a graph in Figure 5.2 overleaf. An interpretation offered is that in the case of the West Arngill (Swaledale) trees, the date of last pollarding appears to be earlier than the Arnagill group, although the trees themselves may be younger. If the Arnagill trees could be accurately dated it is conceivable that they might date to the 16th century if not earlier. Regrettably, there is no calibration curve for the incremental growth of alder against which these data can be compared.

The documentary evidence for Arnagill is principally embodied within the *Fountains Abbey Lease Book* records for Pott Grange (Michelmores 1981). Pott Grange, together with the adjoining property Low Ash Head, was let in 1536 to tenant Richard Atkynson for a rent of 16s per annum. In common with the many similar Fountains Abbey leases, Atkynson was forbidden to fell or cause to be felled ‘any of the abbot and convent’s wood of warraunte [timber trees] without licence, except for lefull fellynge of hollynge bowes and other bruchwode at seasonable tyme of the yere callyd brusyng for pastour of cattell, and also oke bowes, not tymber, for ther fewell and makyng of fensez’ (Michelmores 1981, p.301).

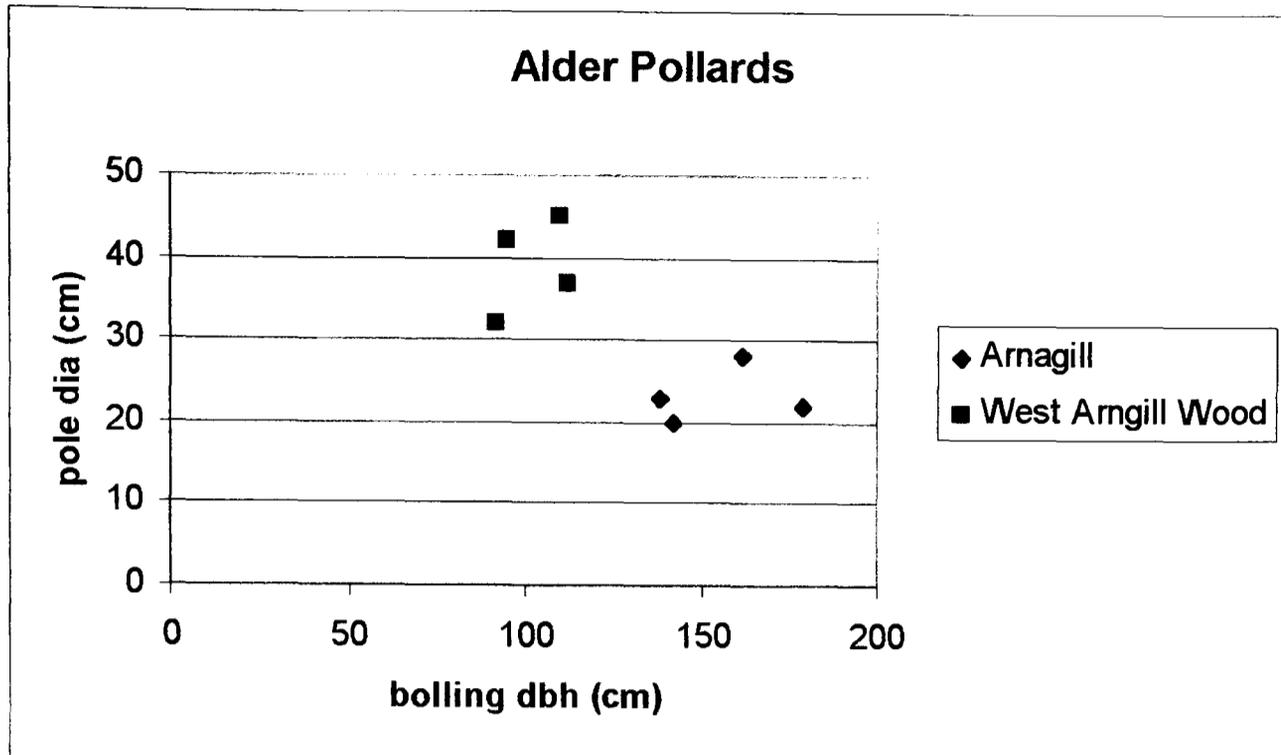


Figure 5.2. Comparison of bolling diameters of alder pollards at Arnagill (Colsterdale) and West Arngill Wood (Swaledale)

As there is no direct mention of Arnagill Wood in the Fountains Abbey leases, it is suggested that this piece of woodland was deemed to be less important than the main grange woodlands of Grimes Gill and North Wood. If this were the case, the tenants may have been at liberty to take wood from Arnagill on account of its remoteness and perceived lack of value. It is tempting to suggest that the pollarding may have originated with them. This theory is reinforced by the wording of a valuation carried out in 1574, some 35 years after the Dissolution, in which a stand of woodland at Pott Grange was described thus:

Item, there is of woodd ground within the said Graung, replenishid with burche, hollen, hassell and older, sixscore acars, which is litle worth for that the same woods are in such growndes as they cannot be caried owte for rocks and dales, but elles the same weare worth xxs an acar amounting to £130 (Walbran 1863, p.416).

This description may match the Arnagill woodland, although its present-day area 34.5 acres (14ha) is considerably less than the sixscore [120] acres (48ha) of the 1574 valuation return, however, field and map evidence suggests that the present wood is approximately one-third of its former extent, notwithstanding the land-take of Roundhill Reservoir, which extends into the northern margin of Arnagill. If the areas formerly under woodland are accounted for, the 120 acres of the 1574 valuation can be seen to be relevant to Arnagill Wood. No parallels have been found for the pollarded alders of Arnagill outside the Yorkshire Dales, but fieldwork undertaken by the writer in Upper Nidderdale has located a number of similar trees at Kelds (SE 105768). For a description of these trees see Chapter 3, p.67.

Pollards and wood pasture may have been commonplace in the post-medieval landscape of the interfluvial area. The strongest evidence for wood pasture results from observations made in the area formerly occupied by South Leighton Park.

5.5 South Leighton Park

The outline of South Leighton deer park is still clearly visible in the network of drystone walls that surround Leighton Reservoir. In the 14th century South Leighton Park (*Suthleighton*) was described as a member of Masham (VCH 1914). In a rental of 1667 '*Leighton Park and deere close*' was valued at £12 10s. This research has identified the remnants of a major area of wood pasture within the confines of the former deer park and in the surrounding landscape.

South Leighton Park was situated at the western extent of Healey Pasture, bounded by North Leighton Ox Close to the north, Pott Grange, with its woodlands of Grimes Gill and North Wood to the west, and Ilton Moor to the south. The confluence of the Grimes Gill Beck and Pott Beck – tributaries of the River Burn – fell within the boundary of South Leighton Park. The eastern boundary was aligned with the Pott Beck/River Burn confluence. The earliest maps in the Swinton Archive (NYCRO: ZS) that show the park date from the 18th century. Of these, *Chambers' Survey of Mashamshire* (1778) provides the clearest detail of the woodland. A plan of South Leighton Park, reproduced here as Figure 5.3, shows the main concentrations of woodland in the park along the course of the two becks, with more extensive stands to the south of the Pott Beck in the far west of the park, to the south of Pott Beck in the middle of the park, and in the area called Burgess Bank immediately to the west of the Pott Beck/River Burn confluence. Some woodland is also shown in the central area of the park, immediately to the west of South Leighton.

5.6 Leighton Oaks

A stand of woodland, known as 'Leighton Oaks' (SE 161792), that survives in the contemporary landscape as a rare survivor of an area of wood pasture that may have pre-dated the construction of the park, to become incorporated within its boundaries. A view of the wood pasture is shown in Plate 5.5. A boundary bank associated with the park, encloses the stand on its western margin. A view of this feature is shown in Plate 5.6.

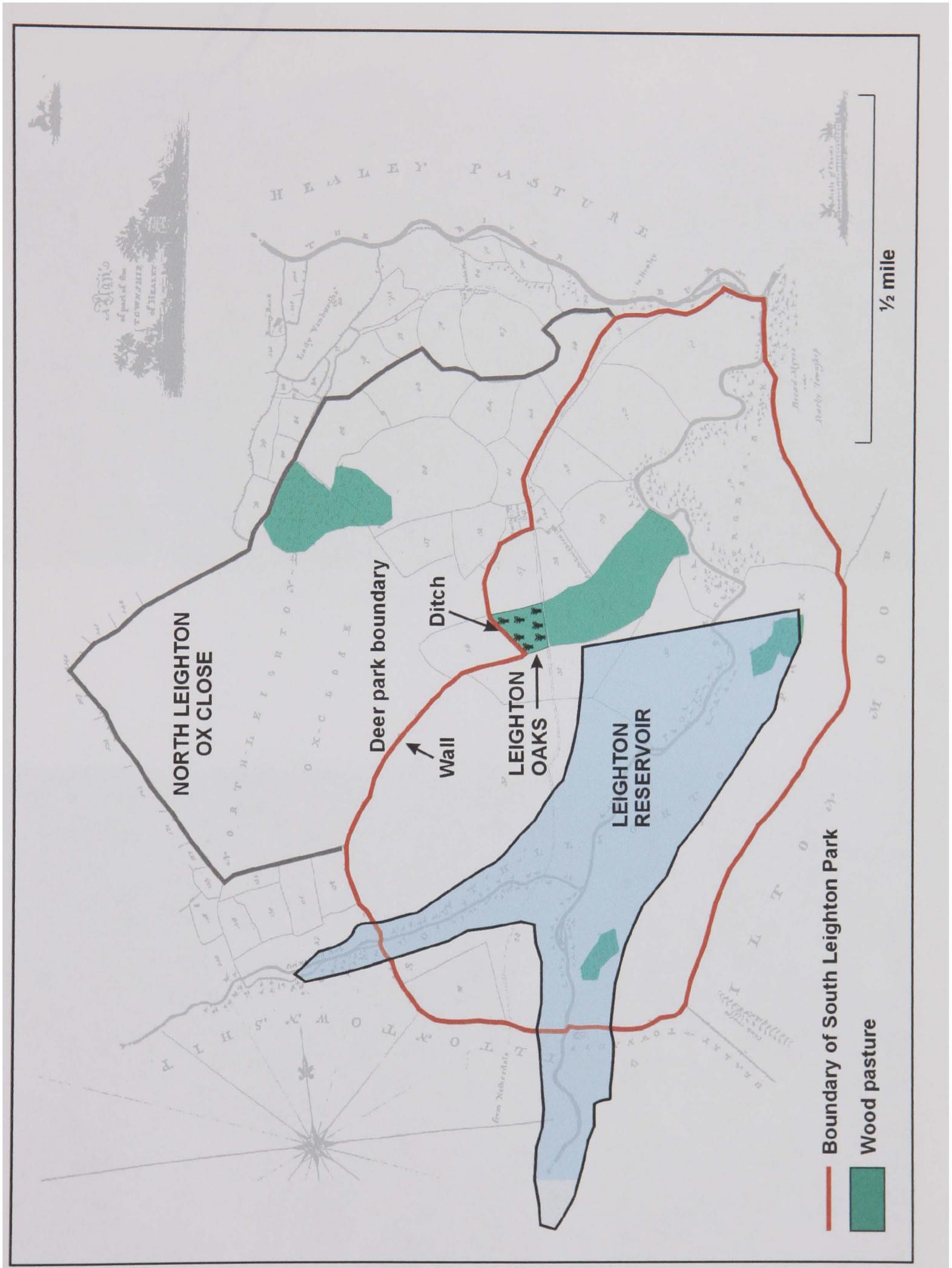


Figure 5.3. Land use and woodlands in the environs of South Leighton Park.
 (Author's annotations shown as colour overlays superimposed upon a scanned map from *Chambers' Survey of Mashamshire* (1788) [NYCRO:ZS]. Modern reservoir shown in blue. North at head of map)



Plate 5.5. Relict wood pasture at Leighton



Plate 5.6. Boundary earthwork of South Leighton Park

The 1540 Fountains Abbey Dissolution valuation return describes, under the heading *A Parcell of Pott Graunge*:

A close of pasture callid Littell Nether Wood, inclosed within Lighton Park, which close the said Sir Cristofer Danby Knt., occupieth in recompense of xxvjs.viiijd, for an annuall rent for a kow rake dew unto him at the said Graunge of Pott, and paith yerely nil, and common of pastore upon the more callid Pott more, withoute stynte belonge to the said Graunge – vjli viijd.

From this description it may be construed that the woodland functioned as pasture and was not a coppice. The name *Littell Nether Wood* has disappeared and none of the 18th century field-names contain any woodland connotations.

This remnant of wood pasture, which stands at an elevation of 200m OD, near Leighton Grange Farm, is part of a much larger area of pollarded trees that once extended from the common pasture of North Leighton Ox Close, south-east to the Pott Beck above Burgess Bank. The field in which these trees are situated (no 34), is shown on the 1778 Chambers plan to extend east of the present road. In the accompanying survey, field number 34 bears the name *Broad Ing*, owned by William Danby, and extending to 11 acres 2 rods 4 perches (5.27ha). It is calculated that the remnant wood pasture now covers just 1.75ha, whereas in 1778 three adjoining fields (nos 34, 37, 38) similarly bore the name 'Broad Ing'. These fields, each having a different use, i.e. (34) pasture; (37) arable and (38) meadow, were created out of one large field, whose extent was originally 14.87 acres (6.02ha). Two further fields situated between Broad Ing and the Pott Beck were called Deer Close, signifying the presence of deer in the park. The relict wood pasture at Leighton today consists of 32 oak trees, of which 22 are pollards, nine are maidens and one is a singled coppice stool. The diameters-at-breast-height (dbh) of the 16 largest trees are given in Table 5.1 below.

dbh (cm)	Tree form	dbh (cm)	Tree form
109	Pollard	92	Maiden
127	Pollard	119	Maiden
90	Maiden	176	Singled coppice stool
127	Pollard	118	Pollard
175	Pollard (hollow, split)	86	Maiden
103	Maiden	75	Maiden
165	Pollard	108	Pollard (hollow, split)
109	Split (pollard?)	85	Maiden

Table 5.1. The stem diameters and forms of oak trees growing in a wood pasture at Leighton, North Yorkshire

Analysis of these data indicates three distinct age-classes of trees in the stand, of which the maidens are probably no more than 150 years old. There appears to be two phases of pollarding, in which the oldest trees, i.e. those with a dbh >165cm, may date from 350-400 years BP. It is suspected that the largest trees do not have sufficiently large diameters for them to have originated in the medieval period. In consequence, they may have arisen from planted stock established in the 17th century as replacements for trees lost from the unplanted woodland that formed the medieval wood pasture. As the maiden trees appear to date from the mid-19th century, it is suggested that traditional management of wood pasture, involving the regular pollarding of standard trees, had ceased in this part of the Yorkshire Dales by the late 18th century. There are indications, however, that pollarding, as a form of silviculture, continued to be practised locally with hedgerow trees and in some parklands for some time after this. This will be discussed later in this thesis.

5.7 Burgess Bank Wood

Burgess Bank Wood stood in its entirety within the boundaries of South Leighton Park and was probably a precursor of the park. The wood was not included in the Inventory of Ancient Woodland because it failed to meet the minimum area criterion of 2ha (5 acres), but there is no doubt that it is ancient in that it has occupied the site for more than 400 years. This heavily grazed woodland, situated along the margins of the Pott Beck, retains highly visible indications of a former coppice regime in the numerous large stools of alder, birch and oak that make up the main body of the woodland. At the eastern end of the wood traces of a woodbank would accord with the need to exclude animals, particularly deer, from a coppice set within a parkland environment. Prominent ridge and furrow in an adjoining pasture can be seen to respect the outline of the wood. It is apparent that the area of the wood has never been larger than its present extent. The monks of Fountains Abbey are credited with the construction of a metalled packhorse track which passes through the wood to cross the Pott Beck by a medieval bridge. The track and bridge are associated with a route which linked the Fountains granges of Aldburgh and Nutwith Cote, near Masham with Pott and the Upper Nidderdale granges (Cunliffe-Lister 1978).

Wooded commons are thought to have been a feature of the Dales landscape in the medieval period (Muir 2000a). These places were also the common cow pastures and served as multi-purpose units of land-use. They also represented an accessible source of small wood for fencing and fuel upon which the rural population were heavily dependent. Rackham (1976) postulates that wooded commons were similar to wood pasture, having pollarded trees that enabled some grazing to take place below trees that were cropped for poles and fodder. Wooded commons were an early casualty of the Enclosure process and today few remain in a recognisable form. In

the following case study of Ellington Firth, identified by the writer as a former wooded common from fieldwork and documentary study, the tensions between the different (and competing) forms of land-use are illustrated through the medium of extracts taken from the 17th/18th century manorial court rolls.

5.8 Ellington Firth

Ellington Firth is a block of woodland set within the modern civil parish of Ellington High and Low on the southern fringe of Wensleydale. The wood lies at the northern extremity of the medieval township boundary of High Ellington. Its south-western edge forms a border with the neighbouring townships of High Ellington and Ellingstring (see Figure 5.4). The southern boundary of the Firth is respected by a large number of enclosed medieval field boundaries, which jointly formed the West Field of High Ellington. Much of the surrounding pasture land preserves a number of impressive strip lynchets. These can be seen on the aerial photograph in Plate 5.7.

The wood occupies an elevated position on a north-facing slope and forms a conspicuous component of the gently undulating, pastoral landscape. It has a sinuous boundary, characteristic of semi-natural ancient woodland, and was included in the English Nature Inventory of Ancient Woodland as 'North Wood' (NCC 1987) on account of its depiction on the Ordnance Survey First Edition 1:25,000 map and the presence of a diagnostic 'ancient woodland' groundflora. The wood is presently a plantation of mainly softwood trees, owned and managed by the Swinton Estate. The plantings are recent – the entire wood was replanted following clearfelling of hardwood trees during the Second World War (a description of these trees is suggestive of old oak pollards: E. Shaw, pers. comm.).

The wood is linked to the small settlements of Ellingstring and High Ellington to the south by a network of trackways. The land to the north of the wood was owned by the Cistercian monastery of Jervaulx, two miles to the north-west. Fieldwork undertaken by the writer identified the presence of strip lynchets within the southern margins of the wood. One of these is shown in Plate 5.8. These indicate that the wood has encroached upon land that was cultivated during the medieval period. Abandonment of land following a contraction of the population in the 14th century may have led to the development of secondary (or tertiary) woodland. The wood has no earthwork boundaries and there are no indications that it has ever been managed as a coppice wood.

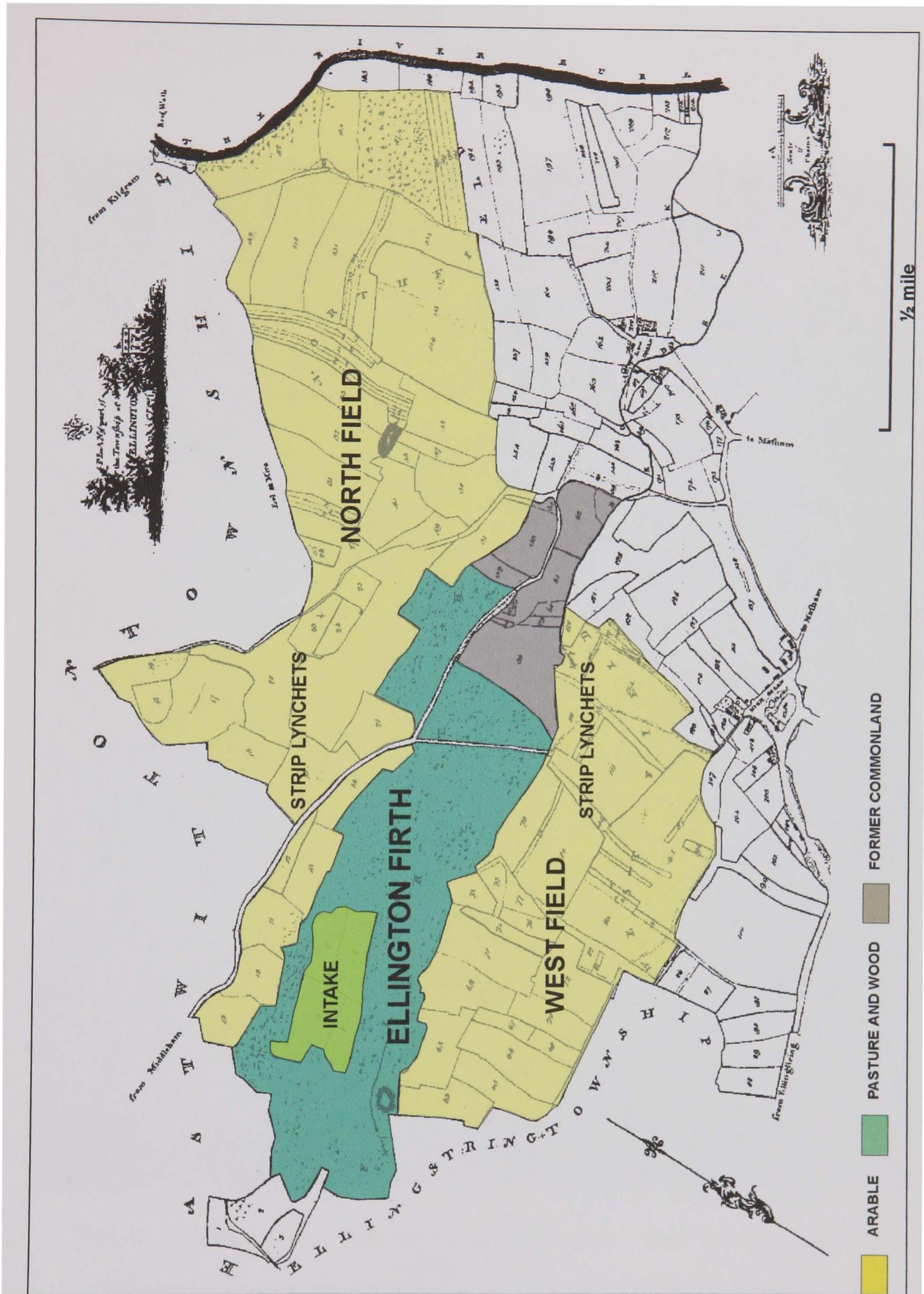


Figure 5.4. Ellington Firth - land use. (Author's annotations shown as colour overlays superimposed upon a scanned map from *Chambers' Survey of Mashamshire* (1788) [NYCRO:ZS]. Orientation of map shown by antique arrow)



Plate 5.7. Ellington Firth - aerial photograph showing the relationship of woodland to strip lynchets.

(Detail overlaid upon Meridian Airmaps Ltd (North Riding: Frame 1772097)

© North Yorkshire County Council)



Plate 5.8. Ellington Firth - strip lynchets to south of wood



Plate 5.9. Ellington Firth - strip lynchets in wood

Ellington Firth, which currently extends to 91 acres (37ha) is described in Chambers' Survey of Mashamshire (1778) as 'pasture', extending to 116 acres 3 rods 34 perches (48.26ha). From the cartographic sources and Manor Court records held within the Swinton Estate Archive (NYCRO: ZS) it is the writer's interpretation that during the 17/18th centuries Ellington Firth was a wooded common with stinted grazing. This interpretation is further strengthened by the toponym 'Firth' (a variant of 'Frith') – a name frequently associated with wooded commons (R. Muir, pers. comm.). As well as a site for common grazing, the Firth was also a source of building stone from a readily accessible exposure in the Millstone Grit which was worked as a quarry (Fisher 1865, p.427).

In the Middle Ages the manor of Ellington was held by John de Wauton and Margaret his wife. An *Inquisition Post Mortem* of 1303 (No 33) gives the extent of their holding as ten bovates, together with half a carucate of land in Ellingstring. The manor was subsequently acquired by the Scrope family of Castle Bolton, and was granted to Thomas le Scrop upon the occasion of his marriage in May 1453, whilst saving to his father:

the wild animals, and also the woods of and in the manors, lands, and tenements aforesaid . . . Thomas and Elizabeth his wife shall have and receive in the woods aforesaid, sufficient timber and wood for reasonable house bote, hay bote, fire bote, and plough bote, when they shall have need by the view and delivery of the surveyors, receivers or foresters of me, the said Lord Scrop.

Ellington remained in the hands of the Scrope family until it was bought by Sir Thomas Danby in 1565. The transfer included several parcels of land in Healey, Ellington, Masham, Swinton, Fearby, Ilton and Sourmire (Fisher 1865, p.504).

The Swinton Estate archive provides a record of Ellington Firth from the late 17th century, when it was in the hands of the Danby family. Grazing in the Firth was stinted, i.e. strictly limited to a number of commoners. Fines were handed down by the Masham Court Leet to unauthorised persons who allowed their stock to graze there. While the commoners' pigs were allowed access to the woodland for pannage, some unauthorised people also released pigs into the woodland. For example, the Ellington Jury presentments for October 1682 record that 20 people were each fined 2d for having 'unrung swine' in the Firth (MIC 1107/8928). Similarly, 23 people were each fined 2d for 'keeping swyne' there in 1684 (MIC 1107/8950). Fisher (1865, p.59) notes that 'regulation of the swine had been thought a subject worthy of legislative enactment, as by the Statute 35 Hen VIII cap. 17, sec. 17, it was enacted that the swine should not go unringed in woods'. In 1686 19 people were fined 2d each for 'keeping swyne contrary to the statute' (MIC 1107/8950). In 1707 the penalty for keeping swine unringed was 6d. The time

of year when these offences were committed accords with the release of pigs into the Firth to feed on acorns and mast.

In the 18th century the Firth hosted a multiplicity of land-uses which included woodland, arable, and regulated grazing for cattle and sheep. As a means of exercising control over unauthorised grazing, exceeding the stintage, unauthorised wood-cutting, hedge-breaking, and fence dereliction, Pains [byelaws] were declared by the Manor Court. The pains provide an insight into the quite complicated management of a wooded common. For instance, stringent measures were applied to regulate the times when livestock could graze there. Animals were excluded from the Firth and fields from the day after old Martinmas Day [November 11th]. The fine for non-compliance with the relevant pain was 3s 4d (MIC 1107/9612). Likewise, sheep and horses were expressly forbidden from the High Field (Firth Close) until the corn had been harvested:

Michaelmas 1720: A pain laid that no boddy put no sheep it firth before the corn be gottan out of the high feeld for every defalt 1s (MIC 1107/9204).

8 October 1724: A pain laid that none put any sheep in the firth nor horsis for every defalt 1s (MIC 1107/9252).

A pain that all the tups and riggalds be taken out of the Firth and fields three weeks before old Ladimis [Lady Day; March 25th] for every defalt 3s 4d' (MIC1107/9618).

1736: 'A pain that all that keepe swine in Ellington do keep them rung upon every defalt 1s (MIC 1107/9323).

Some graziers had the right to water their livestock in the Firth but in so doing were obliged to follow a code of practice, i.e.: May 1, 1716: 'A pain laid that any that hath any priviliage to water goods it Firth follow them backwards and forwards without damage to their neighbours for defalt 3s 4d' (MIC 1107/9161).

Grazing in the Firth was controlled by stintage which set limits to the number of grazing animals that could be placed there. To enforce this, the Manor Court declared pains, such as:

April 13, 1771: Pain for overstinting in the Firth 3s 4d (MIC 1107/9578)

Pain above re overstint in Firth defalt 5s (MIC 1107/9634).

A pain that if any person put any overstint in Ellingtons Firth or fields for every defalt 10s (MIC 1107/9638).

Fencing in and around the Firth was a temporary affair which required annual maintenance and/or renewal. This placed a duty not only upon those who had grazing rights within the Firth but also upon the owners of adjoining land:

October 20 1716: A pain laid that the fences in firth and park and low Rouker be maide suffishent betwixt and the 24 of February (MIC 1107/9166).

October 29, 1748: A Pain Laid that all those that have no Ground in the Firth keep their fences up all winter and follow their goods to water and back again for every default 10s (MIC 1107/9436).

October 27, 1750: A Pain Laid that all the fences adjoining the firth be made sufficient betwixt and St Mathew Day and kept so for every default 1s.

Temporary hedges were subject to 'breaking' [theft] and the pains laid stipulated quite large fines:

October 21, 1715: A pain laid that no body break no hedge but thar own for every default 6s 8d (MIC 1107/9155).

May 10, 1740: A pain laid that no person pull down or break or distroy any Hedg within the Constabery of Ellington but thear own for every default 3s 4d (MIC 1107/9357).

Similarly, the cutting and removal of wood from the Firth by unauthorised persons, particularly during the winter months, was a constant problem that was addressed by the following pains:

Michaelmas 1717: A pain layd that no boddy gitt no wood it firth (MIC 1107/9190).

November 1731: A pain laid that no boddy fell nore carry ayny wood out of the firth but them that has ground or use in it for every default 3s 4d.

A pain laid that no body cut nor lede any wood out of Ellinton Firth between 1st of May and Ladymass for every default 3s 4d (MIC 1107/9215).

May 10, 1740: A pain laid that no body cut no wood in the firth from ye 10 of May till the 7th of September upon every default 3s 4d (MIC 1107/9357).

May 9, 1741: A pain laid that nobody cut no wood in the firth tell Ladymass nor take no cart nor carrag to fetch any upon default 3s 4d (MIC 1107/9371).

Persons accused of breaking the court's pains were presented before the court and, where proven guilty, punished with a fine. The fines varied greatly, and did not always correspond with those specified in the pains. For example, fines imposed for overstinting depended upon the number of animals found grazing illegally in the Firth. On 4 November 1699 John Low of Kilgram was presented for 'over stinting in the field' and fined 6d (MIC 1107/9039), and similarly, on October 30, 1742 Thomas Plews was presented for 'over stint in the Firth pasture' and fined 6d (MIC 1107/9376). However, on May 25, 1736: William King was presented for 'overstint in the Firth' and fined the seemingly disproportionate sum of 10s (MIC 1107/9339).

Stinted commons were managed by allotting an agreed number of 'cattlegates' to authorised graziers between set times of the year. Where illegal grazing was found to have taken place, the offending graziers were presented at the Manor Courts and punished. In March 1697: John Walker of Jervaulx was fined 1s 'for turning his goods into the Firth contrary to a paine' (MIC 1107/9023). In April 1686 Mark Plewes of Sutton was presented for 'letting his bease go into the firth after St Matthews Day' and fined 1s. Mathew Wright of Ellingstring was also presented for 'letting his goods go into the Firth contrary of a paine laid' and fined 1s (MIC 1107/8930).

James Pikargill was fined 1s in 1720 for 'driving his beas up firth contrary to the payn' (MIC 1107/9210), and Thomas Plewse of Ellingstring was presented and fined 1s for 'letting his goods go into the firth contrary to a pain laid' on May 11, 1754 (MIC 1107/9480). Horses were especially excluded from the common pastures, and incidences of illicit grazing incurred a higher fine. On May 27, 1709 John Pickersgill of Ellingstring was presented for 'his horse being in the Firth' and fined 3s 4d (MIC 1107/9112).

Hedge breaking was a perennial problem in the Yorkshire Dales where hard winters often led to shortages of firewood. Brushwood hedges were an easily accessible source, and such was the degree of hardship that the offence of hedge breaking was very common. The spring court sessions invariably saw the presentation of many offenders. For example, on May 25, 1736 John Robinson, William King, Mark Plews and Edward Plews were each fined 1s 4d for hedge breaking (MIC 1107/9339). Similarly, on May 5, 1739 Elie King and Rebeckey Bell were presented and fined 1s 'for hedge breaking contrary to a pain laid each of them' (MIC 1107/9353).

The unauthorised cutting and taking of wood from the Firth was punishable by fines, and these varied considerably according to the amount of wood taken. In April 1686 Robert Ballon of Jervaulx was presented for 'cutting and bearing wood out of the Firth' and fined 1s for the offence (MIC 1107/8950). In May 1688 John Pickersgill received a fine of 3s for cutting wood there (MIC 1107/8969). In 5 November 1701 Anne West was presented for 'cutting wood it Firth contrary to a paine' and fined 6d (MIC 1107/9052). Richard Tomson was presented and fined 1s in 1718 for 'cutting of wood it high end of the firth' (MIC 1107/9190) and on October 25, 1777 the Ellingtons Jury presented Richard Hanley of Low Burton for 'felling and leading wood out of Ellingtons Firth to a pain laid' and imposed a fine of 2s 6d (MIC 1107/9618).

The effective control of stinted grazing in the Firth was wholly dependent upon the maintenance of stock-proof fences. These took the form of dead hedges made from brushwood and dead branches. Fences needed constant maintenance to prevent livestock from gaining access to the common, and graziers who failed to fulfil their responsibility for maintaining their fences were brought before the Ellington Manor Court and punished. Failure to maintain fences was the most common offence to be dealt with by the Court. This can be seen in the following extract from the court rolls for the years 1717-1747:

1 June 1717: James Webster for his fense lying downe joyning the Firth contrary to the pane 1s (MIC 1107/9173).

1720 Ellington Ambo Verdict: Wilyam Rayper for his fens lying down in the firth contrary to the pain 1s (MIC 1107/9210).

May 25, 1736: John Pickersgill for his fence lying down in the firth (MIC 1107/9323).

May 5, 1744: John Pikarsgill for leting his fens lying down ajoyning the firth contrary to a payn layd 1s; Robart Blackburn for leting his fens ly down ajoyning the park contrary to a pain laid 6d (MIC 1107/9392).

May 10, 1747: John Pikarsgill for his fence lying down to the Firth and his beasts going in contrary to a pain laid 2s 6d (MIC 1107/9421).

The documentary references presented above provide an impression of the manner in which the resources of a wooded common were managed in one small area of the Yorkshire Dales during the 17th-18th centuries. Similar punitive measures were employed in the regulation of township grazing pastures. In the following case study of Healey Pasture, the court rolls augment field observations to provide an impression of former woodland resources and their management.

5.9 The township grazing pastures

Healey Pasture was situated on rising ground to the west of the settlement. Its boundaries closely accord with those of the 541x East Keswick soil association (*Soils of Northern England 1:63,600 map, 1980*). The extent of Healey Pasture is stated in Chambers' 1778 *Survey of Mashamshire* as 484 acres 1 rod 10 perches (196.38ha). It is anticipated that Healey Pasture contained an area of wood pasture, for in October 1702 John Hintersgill was fined the sum of sixpence for 'putting his horse into a leafy pasture' there. Further evidence is afforded by the Chambers map which depicts stands of scattered woodland within both Healey Pasture and North Leighton Ox Close. It may be seen from a study of 18th century and modern maps that the woodland along the northern limits of Healey Pasture was replanted and became Bales Plantation, first shown on the Ordnance Survey First Edition 6-inch map of 1856. This stand of woodland, situated on rising ground on a probable bole-hearth [lead-smelting] site, was extended and renamed Cradle Gill Plantation – a prominent coniferous plantation that currently occupies the focal point of the former town pasture. The boundaries of Healey Pasture are still clearly visible as field walls in the present landscape. Its western boundary adjoined the medieval deer park of South Leighton at the River Burn. North Leighton Ox Close, the other principal area of stinted grazing, similarly shared a boundary with South Leighton Park. Today the location of Ox Close Plantation, this grazing land also had a stand of wood pasture along its eastern margins.

This research has shown that wood pasture was formerly widespread in and around South Leighton Park, extending from the grazing land, through the park itself, and south to the riparian woodland of Hall Wood/Burgess Bank (see Figure 5.1).

5.10 The punishment of woodland offences during the 17th-18th centuries

Healey Pasture was governed by the Manor Court Leet which conducted its business at Masham. The manorial records, which date from 1681, show how a stinted pasture was managed. They are also important for the information they contain regarding the woodland. Stringent fines were handed down for unauthorised wood-cutting, as witnessed by the entry for 14 October 1681, which stated that persons who contravened a pain that forbade the cutting of trees and removal of wood faced a fine of 3s 4d. It is observed that in many cases the actual fines imposed were less severe. For example, in October 1682, Arthur Horsman of Fearby was presented 'for felinge and carting away wood out of Healey pasture' and fined 1s 8d. Six years later it is apparent that the level of fine handed down for woodland offences had increased. On 5 May 1688 John Williamson of Binsoe and William Lofthouse of Healey were each fined 2s 6d for 'carrying wood out of Healey pasture', and one year later, in October 1689 William Loftas was fined 3s 4d for 'cutting wood in Healey pasture'. In 1667 Simon Pickersgill of Swinton was fined 3s 4d for 'cutting and carrying wood out of the High Oxe Close for makeing his fence' 3s 4d.

The court roll entries for 30 April 1691 illustrate how offences involving wood-cutting occasionally invoked a higher fine than for merely carting away dead wood. Leonard Lye and William Walker received fines of 1s each for 'carting wood out of Healey pasture', whereas Robert Crouker was fined 3s 4d for 'cutting and carting away wood out of Healey pasture'. A particularly large fine of 6s 8d, handed down by the court in October 1691, suggests that the level of fine was probably related to the quantity of wood removed. The cutting of wood from living trees was expressly forbidden. On 2 May 1696 Robert Crober and Matthew Towler were each fined 2s for 'cutting wood in leafy pasture contrary to a paine'. By 1698 the penalty for unauthorised wood-cutting had risen to 5s; three people received such a fine on 6 May of that year. Another type of offence punishable by fine was that of fence-breaking, where the dead hedging used to fence common grazing pastures was broken down and taken away. At the court session of October 1743 Matthew Winn was fined 1s for 'pulling down and taking away part of Healey Pasture fence'. Interestingly, there was an instance in 1718 where the squire was presented for dismantling the fence around the common pasture: 'A verdict made by Healey Jury at ye Court Leet houlden at Masham October 3 1718: Sir Abstrupus Danby for puling down Healey pasture fence contrare to paine is Amerst 3s 4d'.

The end-use of the stolen wood was invariably domestic firewood. This is confirmed by the wording of a pain laid on 20 April 1704 which declared that: 'none shal cut or carie any wood out of Healey pasture for feuil upon every default 3s 4d'. The pain did not apply to everyone, for it is apparent that the stinholders were privileged to take firewood (firebote) for their own

needs. Five years later, on 31 September 1709, the pain was reworded thus: 'A pain laid that no person whatsoever shall cut or cary away any wod out of Healey pasture but those that have a right therein neither shall any cut any fuell therein upon pain of every default 6s 8d'. In addition to firewood, the pasture was also a source of raw materials for fencing and hedging purposes. The stinholders were entitled to a predetermined amount of hedgebote, as witnessed by the wording of a pain laid on 10 April 1713, which stated that: 'no person or persons whatsoever that hath a right in Healey Pasture shall not cut above two or three loads of wood to a farme for hedge boote in paine of every default 3s 4d'. And furthermore 'A pain laid that no person or persons whatsoever shall cut aney wod in Healey pasture but those that hath a due and right therein upon paine of every default 6s 8d' (2 October 1713). Invariably even authorised stinholders were tempted to exceed their allowance. On 6 May 1720 John Walker and his son were fined 1s for 'cuting wood more than the paines allowed to every farm'.

Analysis of the Healey manor court rolls for 1681-1727 reveals that during this period the total number of persons presented for committing woodland offences in Healey Pasture amounted to 30 at the spring sessions and 16 at the autumn sessions. This distribution accords with most of the wood-cutting offences being committed during the winter period. Interestingly, three family names appear repeatedly. The most dishonest were the Walkers of Fearby, who appeared before the court on ten occasions and were fined a total of 20s 8d. Similarly, the Lofthouses of Healey were presented on four occasions and fined a total of 17s 6d, and the Bennetts were presented on four occasions and fined a total of 4s 8d.

Table 5.2 illustrates the considerable variability in the fines levied – from as low as sixpence for carrying off dead wood, to a phenomenal £1 6s, levied in May 1726 upon Mark Plewes, for 'cutting wood in Healey Pasture' (MIC 1107/051). It was not until the 1704 spring session of the Manor Court Leet that there was any attempt to regularise the level of fines for woodland offences. Fines were initially set at 6s 8d and this level remained in force until 1715 when it was reduced to 5s at the autumn sessions. This level of fine was maintained until the spring of 1717 when it was increased to its original level of 6s 8d. In the following year the fine was reduced by half, presumably due to the fact that only one offender had been presented at the previous spring session. It was increased again to 6s 8d at the spring and autumn sessions in 1719 but halved again in spring 1720, at which level it remained until spring 1729 when it was restored to 6s 8d.

Year	Spring fine	Offenders	Autumn fine	Offenders	Fine set by Pain at Spring session	Fine set by Pain at Autumn session
1681			3s 4d	1		
1682			1s 8d	1		
1687	1s	2				
1688	2s 6d	2				
1689			3s 4d	2		
1691	1s	2				
1691	3s 4d	1	6s 8d	1		
1692	1s 4d	1				
1694	1s	1				
1695			3s 4d	1		
1696	2s	2	3s 4d	2		
1696			1s 8d	1		
1697	5s	3				
1701	3s 4d	3	6d	2		
1701	1s	1				
1703	6s 8d	2				
1704					6s 8d	
1705					6s 8d	6s 8d
1707	3s 4d	1				
1709					6s 8d	
1710						6s 8d
1711			1s	1		
1713					6s 8d	6s 8d
1714	1s	1				6s 8d
1715	6d	2				6s
1716	3s 4d	1				6s
1717	1s 6d	1			6s 8d	
1717	3s 4d	1				
1718					3s 4d	
1719	3s 4d	1			6s 8d	6s 8d
1720			1s 8d	1	3s 4d	
1721			1s	1		
1723			1s	2		
1725						3s 4d
1726	£1 6s	1				
1727	3s 4d	1				
1728						3s 4d
1729					6s 8d	
Totals		30		16		

Table 5.2. Analysis of the Healey Manor Court Rolls 1681-1729 (NYCRO ZS: MIC 1107) in respect of woodland offences committed in Healey Pasture

It is not clear why the Manor Court found the need to make continual adjustments to the level of fines set for woodland offences, given the level of offending and the size of the fines handed down. Most of the offences were committed during the 16 years 1687-1703 (20 spring, 11 autumn), during which time the average fine imposed was 2s 6d (a half crown) for the winter

offences and 3s for those committed during the summer. After the fluctuating fines were introduced in 1704, the average fine imposed was 2s at the spring court and 1s 2d at the autumn court. It is interesting to note that these relatively low fines were handed down during a period when the pains laid had set an average fine of 6s. This suggests that the illicit taking of wood was never regarded to be a particularly serious problem at Healey Pasture, and that the high level of fines decreed in the pains were sufficient to provide a disincentive to those who might be tempted to help themselves.

5.11 The woodland history of Healey township

In the final case study of this chapter, an examination of the woodland history of Healey township is presented from fieldwork and documentary study. This study demonstrates how the clearance of woodland and organisational management of coppice woodland has influenced the present appearance of the landscape.

The settlement of Healey is situated on a south-facing slope in the valley of the River Burn. The place-name 'Healey' – *Helagh* c.1280 is defined by Mills (1991) as meaning 'high clearing or wood'. Further indications that the settlement of Healey was established in a cleared valley wood are evident in the pattern of irregularly shaped fields and field-names recorded in Chambers' Survey of Mashamshire (1778). It has been possible to reconstruct elements of the valley wood from Chambers' survey and by field investigation of the field boundaries.

The two principal areas of coppice woodland within Healey township were Hall Wood, which lay to the south of the village along the margins of the Pott Beck, and Healey Spring Wood (occasionally referred to as Healey Cote Spring), situated on rising ground at the extent of the north open field of Healey (see Figure 5.1). Beyond Healey Spring Wood, the land grades down into the valley of the Swinney Beck, which forms the township boundary with Ellington. A large area of carr woodland formerly occupied the valley floor at this point, extending upslope and probably coalescing with the broadleaved woodland. A smaller area of carr existed to the north-west, along the boundary of the town pasture. The eastern township boundary was represented by Howe Wood, whose entire extent lay in the neighbouring township of Fearby.

The field pattern on the 1778 Chambers' map shows Healey Spring Wood located on the crest of the rising ground, surrounded by a cluster of irregularly shaped fields and more regular closes. It is possible to discern the position of the former open fields in the characteristic reversed-S shape of the enclosure boundaries to the north-east, north-west and immediately south of the Spring Wood. A study of field-names, supported by field survey, suggests that woodland clearance occurred in two distinct phases. Initially, clearance for the creation of open

fields took place on the north-facing slope above the Swinney Beck, where damp woodland grading into birch and alder carr was converted into the pasture land called *Low Carr* and *Burtle Carr* [‘carr’ is a toponym indicative of alder trees]. The arable fields lay to the east, closer to the township boundary. Another area of carr woodland to the north-west was cleared and divided up into three enclosures called *Road Carr*, and another block lay at the extreme south of the township boundary on sloping ground above the River Burn. Two small areas of scrubby woodland, indicated by the diagnostic field-names *Scroggs* and *Busky Close*, lay to the south and east of Healey Spring Wood. Figure 5.5 provides an interpretation of the clearance of woodland for agricultural land.

5.12 Healey Spring Wood

Healey Spring Wood presently covers an area of 7ha (NCC 1987). It is referred to in the Inventory of Ancient Woodland as a replanted ancient wood; indeed, the name ‘Spring’ is indicative of its former status as a coppice wood. Following wartime felling in the 1940s, the wood was replanted and has become an even-aged oak plantation with a small stand of conifers and a clump of Scots pines. A few of the original trees remain, most of which bear the visible indications of a former coppicing regime in which the stools were converted to stored coppice in the form of twin-stemmed trees. The ground flora is dominated by grasses that are indicative of past grazing. The western side of the wood contains a few stunted ash trees and a copious quantity of hazel. The relict species indicate that the wood was formerly an oak and hazel coppice with some ash.

Both Hall Wood (see section 5.14 below) and Healey Spring Wood were owned by the Danby family, and managed as coppice-with-standards. All but the owners were excluded from entering these woods, and persons caught trespassing there or taking wood were presented at the Manor Court, before the Healey Jury. The following examples demonstrate the exclusion of the public from woodlands owned by the squirearchy. Some instances of woodland trespass arose through people collecting nuts – an excuse sometimes offered in mitigation by persons charged with the more serious offence of wood-stealing, hence the pain laid on 21 May 1725, which stated that ‘no person shall com in pretens to get nuts . . . upon pain of every default 6s 8d’. As far back as April 1710 the public had been excluded from Healey Spring Wood, as evidenced by a pain which stipulated that ‘no person nor persons whatever shall make they way throw Healey Spryng, in paine of such defalt 6s 8d’ (Court Leet estreat, 10 April 1710).

The wording of a pain laid on 3rd October 1734 suggests that by that date Healey Spring Wood had changed hands, and the new owner was similarly keen to have the public excluded from his



Figure 5.5. Reconstruction of the former extent of woodland in Healey. Based upon Healey Tithe Map (1839). Source: NYCRO (ZS)

woodland: ‘no person shall make any way up or down any part of Healey Spring, now in the possession of Abstrupus Danby Esq, upon paine of every default 10s’. Interestingly, the rather excessive size of fine stated in the 1734 pain does not appear to have been imposed. On 8 May 1736 Ellin Smorthwit was ‘amerced 4d for making a way through Healey Springe contrary to a paine’. The same woman was fined another 4d on 29 August 1737 for committing the same offence and was clearly not dissuaded from her actions by the paltry fourpenny fine. The new owner of the wood appears to have combined the offences of trespass and wood-cutting in both Healey Spring and Hall Wood Spring in his reworded pain, dated 23 October 1742, which stipulated that ‘no person shall make any way nor cutt any wood in Healey Spring nor likewise in Hall Wood Spring both now in the possession of the Honourable Abstrupus Danby Esq. Upon pain of each default 10s’. The fixed fine was trebled in October 1744 in another revised pain which stipulated that ‘no person or persons shall cut nor carry any wood out of Hall Wood Spring nor Healey Coate Spring nor make any waye through them. In pain of such default £1 10s’. In clearer prose, this is interpreted as ‘no person or persons shall make any way through the Hall Wood Spring of Healey Cote Spring nor cut any wood without the leave of Squire Danby. Upon every default £1 10s’ (19 October 1744). After this date the level of fixed penalties seems to have fluctuated, i.e. April 1746 – May 1747: 10s; October 1749 – October 1765: 3s 4d; October 1765 – October 1777: 10s.

5.13 The rationalisation of Healey Spring Wood

In plan, Healey Spring Wood possesses a sinuous outline, characteristic of an ancient wood, on its northern, southern and western margins. However, the eastern boundary is straight-edged, indicating that the wood has been truncated. Fieldwork and cartographic studies have confirmed that the wood is today about one-fifth of its former extent. The truncation of Healey Spring Wood is shown in Figure 5.6. The relict eastern boundary is preserved in the landscape as a hollow way fringed by earthwork banks that support a number of old pollarded oaks (Plate 5.9). The hollow way defines a route starting at the eastern extent of Healey village, leading north-north-west to curve north-west around the eastern perimeter of the former wood. The trackway turns due west, taking an alignment that represents the original northern limit of the woodland. The southern boundary of the wood is in the form of a well-preserved bank and ditch which is respected by the limits of the enclosed open north field with its ridge and furrow. It is evident from the documentary sources that during the early- to mid-18th century the wood was a coppice, but by the time of Chambers’ Survey of Mashamshire (1778) the coppice regime had been discontinued, for the wood is recorded as ‘pasture’, extending to 16 acres 2 rods and 15 perches (7.33ha). This record provides confirmation that the area of the wood has remained unchanged since the time of Chambers’ Survey, and that the clearance and truncation of the wood occurred prior to that date.

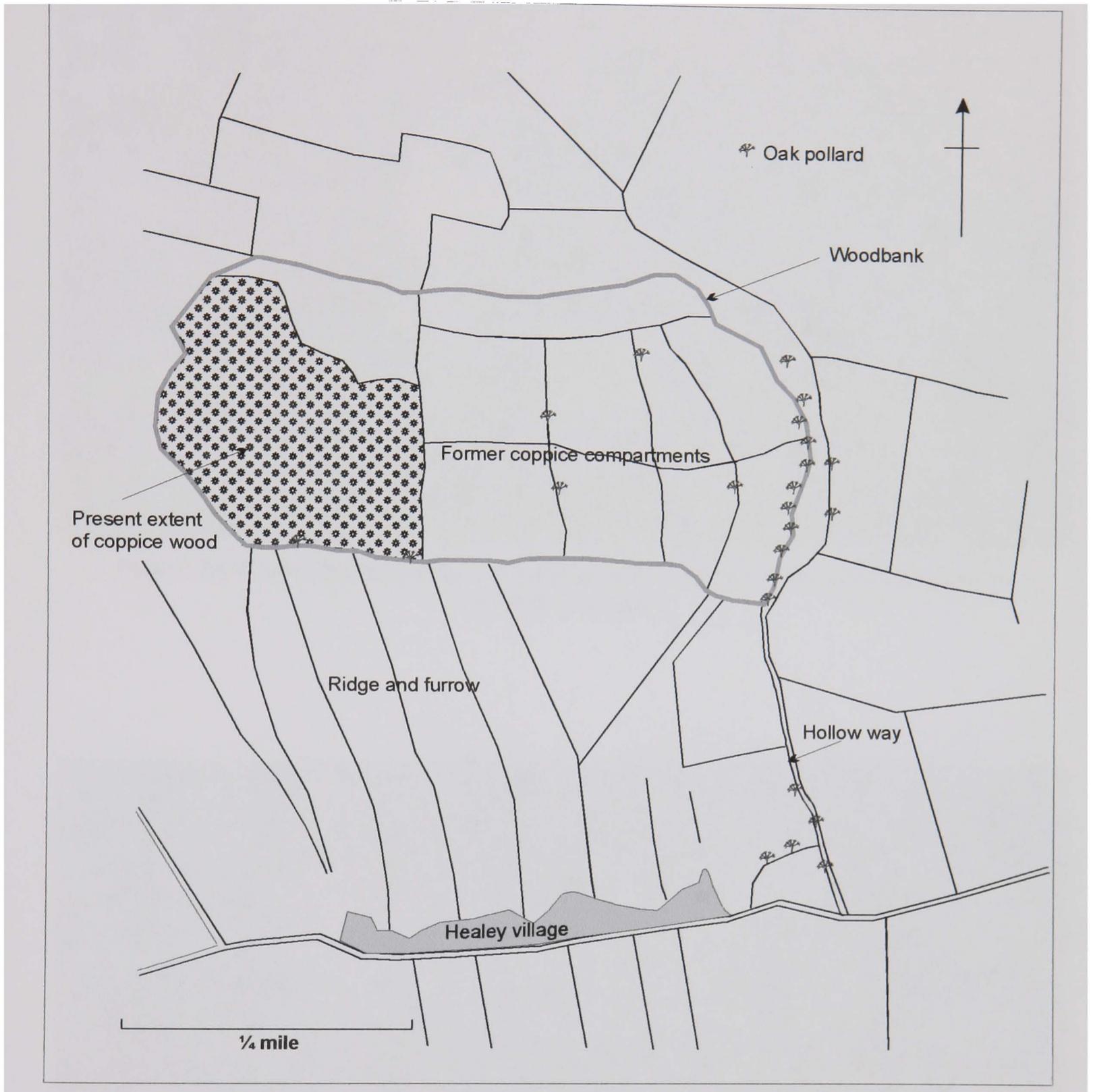


Figure 5.6. The rationalisation of Healey Spring Wood. (Diagram drawn by the writer to illustrate features observed during fieldwork. Field boundaries taken from Ordnance Survey 1:25,000 Pathfinder Map Sheet 630)



Plate 5.10. Healey Spring Wood - oak pollards fringing a hollow way to the east of cleared woodland



Plate 5.11. Healey Spring Wood - former coppice compartment bank

It is suggested that there were two phases of medieval and post-medieval clearance which resulted in the carr woodlands giving way to one of the open fields (north) and pasture to the east. The extent of Low Carr and the main block of broadleaved woodland can also be seen in the line of a trackway leading from Ellington to Healey which skirts both areas of woodland to the west of the carr woods and to the east of the broadleaved wood. It is postulated that the former block of coppiced broadleaved woodland was divided up to permit the creation of pasture. By this means the southern portion of Healey Spring was cleared and arranged into closes. These were subsequently made into seven larger fields by the process of piecemeal enclosure.

The location and shape of the present (rationalised) field boundaries within the area of cleared wood and those shown on 18th and 19th century maps is suggestive of former coppice compartments that may have numbered as many as fourteen. It is calculated that the extent of the original spring wood was 84 acres (34ha). Although recent replanting within the wood has erased visible indications of former compartments, it is interpreted that the courses of two small streams that arise from springs on the western extent of the wood were utilised to divide the wood up into cants. No evidence of charcoal-burning activity or any other industrial use is currently visible.

There are no maps existing in the public domain that show the wood covering a greater area than present, although Chambers' Survey map of 1778 gives the clearest indication that the wood formerly extended into the fields beyond its present eastern boundary. A plan of the wood and the surrounding fields, based on the Chambers' map is shown in Figure 5.7. The original wood can be seen to have incorporated fourteen blocks, shown on the Chambers map as follows:

Field number	Field name	Area acres (ha)
347	Healey Spring	18.11 (7.33)
314	Four Nooked Close	4.07 (1.65)
357	West Flatt	6.10 (2.47)
358	Spring Pasture	9.04 (3.66)
368	Middle Flatt	4.17 (1.69)
369	Spring Pasture	3.06 (1.24)
376	Hanging Bank	7.23 (2.93)
379	Spring Pasture	4.17 (1.69)
377	Flatt Bottom	3.04 (1.23)
378	Carter Flatt	4.00 (1.62)
311	High Rails	5.04 (2.04)
309	Low Rails	2.15 (0.87)
380	Carter Flatt	3.04 (1.23)
293	How Hill	5.04 (2.04)

It is envisaged that the coppicing regime was scaled down when there was a requirement for additional pasture. This led to a reorganisation of the woodland and its internal boundaries. The field pattern to the east of the present wood is identified as the relict coppice compartments, and the conspicuous earthwork that now forms the southern boundary of the wood was formerly an internal boundary associated with the coppice compartments (See Plate 5.11). It is also apparent that when the wood was reduced in area to its present size and shape, a new, shorter, route to Ellington came into use, utilising the straight eastern boundary of the wood, thus replacing the former sinuous route around the eastern edge of the former spring wood.

The Chambers' map, with its accompanying schedule of field-names and areas, provides a critical resource for reconstructing of the former woodland of Healey. These data, supported by field observations of boundaries and hedgelines, enable the area of woodland existing prior to the two main clearance phases to be calculated, thus:

Broadleaved woodland: 146.88 acres (59.45ha)

Birch and alder carr: 116.63 acres (47.2ha)

Scrub: 14.48 acres (5.86ha)

Total: 278 acres (112.51ha) – 36 per cent of the township area.

It is calculated that, following clearance for the creation of open fields, the area of broadleaved woodland fell by 42 per cent to leave a compartmented coppice wood of 61.4 acres (24.8ha) – the precursor of the present Spring Wood. This wood was further reduced in size to its present size: 18.09 acres (7.33ha). By the time of Chambers' Survey (1778) the wood had become pasture, in common with many other stands of woodland in 'Mashamshire'. No documentary sources have been found which provide a firm date for the final contraction of Spring Wood, but it is evident that its outline has remained unchanged since the late 18th century. In its present form, Healey Spring Wood represents just 12 per cent of its original size.

5.14 Hall Wood

Hall Wood, a riparian valley wood of 9ha (22 acres), situated on the south bank of the River Burn facing the Pott Beck/Burn confluence at GR SE 171796, was included in the Inventory of Ancient Woodland on account of its presence on First Edition Ordnance Survey maps and its ecological quality. Today the wood differs markedly from the other Leighton woods in that the woodland in the valley bottom is constituted entirely of alders. A former coppicing regime is clearly evident in the large over-mature stools that form much of the present wood. A linear bank set parallel with the beck, together with faint traces of shallow channels, suggests that Hall Wood was formerly an area of carr woodland that was drained in order to simplify access. Extensive replanting with sycamore, beech and ash on the higher valley sides is modern, although a diagnostic suite of ancient woodland indicator species, including bluebells

(*Hyacinthoides non-scripta*) and dog's mercury (*Mercurialis perennis*), is witness to the former existence of ancient semi-natural broadleaved woodland there.

During the 17th-18th centuries Hall Wood was a coppice, for the name *Hall Wood Spring* appears regularly in the wording of the Manor Court Leet records. That the wood was in private ownership is evident from the Court rolls, which contain instances of trespass and theft dating back to the late 17th century as evidenced by the presentation of Christopher Harborne of Fearby before the Court for 'cutting of wood out of the Hall Wood contrary to a paine' in October 1695. He received a fine of 3s 4d for the offence. The same wood is mentioned with a different name in a pain laid on 14th April 1733, which stated that 'no person or persons whatever shall cut or cary any wood out of Peter Carter Hall Wood without the leive of the lord or his officers in paine of every default 3s 4d'. The specific mention of the 'lord or his officers' indicates that the wood was owned by the squire.

During the time that *Hall Wood Spring* was owned by Peter Carter (prior to its acquisition by the Danbys around 1734), the estreats were principally concerned with the cutting and taking of wood rather than trespass. Christopher Harborne of Fearby had been presented on 11 October 1695 for 'cutting of wood out of the Hall Wood contrary to a paine' and fined 3s 4d. The same fine was still applicable in April 1733 under 'A Paine Laide that no person or persons whatever shall cut or cary any wood out of Peter Carter Hall Wood without the leive of the lord or his officers in paine of every default 3s 4d'. In April 1746 Mark Doulerd was fined the somewhat derisory sum of sixpence 'for carting wood out of the Hall Wood spring'. By October 1751 the pain for taking wood from the Hall Wood Spring had increased to 15s.

Hall Wood presently extends for about 2km eastwards along the margins of the River Burn as far as the Swinton Saw Mill, where it grades into Fearby Low Moor Plantation, another Inventory of Ancient Woodland site. Most of Hall Wood has been replanted as a coniferous plantation that also serves as a location for pheasant breeding pens. Apart from the riverside alders, all traces of the former coppice regime have now disappeared.

5.15 Conclusion

The Nidderdale/Wensleydale interfluvium is of particular significance to this study of woodland management traditions in two Yorkshire Dales. This is principally because the interfluvium, whilst demarcating two quite distinct landscapes having major differences in geology, soils and vegetation, also forms an interface between two broadly different systems of land tenure: monastic and secular. In this, the interfluvium provides a macrocosm of the many facets that have

influenced the distribution and characteristics of woodland more generally in the Yorkshire Dales.

In addition to being an area of landscape definition, the interfluvium is of paramount interest for the presence of woodlands of outstanding ecological quality and woodlands of major historical importance. In effect these two attributes are positively related, because the historical management of the woodlands has contributed significantly to the creation of high ecological quality by the continuation of traditional practices such as coppicing. In a relatively compact area, the interfluvium embodies a diverse range of historical woodland situations that comprise wood pastures on commons, parkland, stinted grazings and coppice woods as relics of former monastic and seigneurial woodlands. The existence of an historical archive that places the woodland into its socio-economic context adds a definitive layer of importance for research on the interfluvium.

In this small area the socio-economic framework, to which woodland management was a direct response, can be seen to have defined the distribution and characteristics of the woodland that remains today. This is complemented by a consideration of land-use, in that wood pasture was principally confined to an area set aside for recreation by the nobility. In contrast, the coppice woods functioned for the production of fuel, small wood and light timber for industrial and domestic uses. A tradition of tree pollarding within summer grazing pastures appears to have persisted to provide a source of woodfuel and leaf fodder. In this environment of duality of purposes, the woodland was strictly controlled by monastic or secular owners in the medieval period and more so in the hands of the Danby family who acquired 'Mashamshire' as an estate after the Dissolution.

The control of woodland resources is very clearly portrayed through the medium of the manor court rolls, discussed in detail earlier in this chapter. Punishment by fine is seen to have been the most common response to the problem of people committing woodland offences in the lord's woods (as shown in the example of Healey and Hall Wood spring woods) and similar offences including hedge-breaking on the stinted commons. This was not peculiar to this area and is a commonly observed activity elsewhere in medieval and post-medieval society. But by the 18th century the level of fine imposed seems to have frequently been significantly less than that set by the stated 'pains' – an acknowledgement, perhaps, that the unauthorised taking of wood was almost regarded as a fact of life. In consequence, the fines imposed were, in the main, so derisory as to be construed as a licence to gather wood rather than a serious disincentive.

The actual forms of woodland management, which are still visible in much of the woodland in the interfluvium, can be seen to have been related to particular end-uses. For example, the close proximity of the Colsterdale coalmines presented an immediate outlet for the lord's coppice wood, being destined for use as hand tools, mining equipment, pit props and various types of grove timber. In contrast, the pollarding of field and hedgerow trees by tenant farmers was a response to a need for firewood and small poles in a system of pastoral farming in which livestock were turned out on to the moorland fringes for summer grazing. In this system, the existence of virtual wood pastures composed of pollarded alders set within a matrix of wet grassland may represent a previously unrecognised form of woodland management peculiar to Nidderdale and the interfluvium that may have originated during the monastic era. Of the shredded trees recorded at Pott and Ash Head granges in the post-Dissolution valuation of former Fountains Abbey woodland (see Chapter 3), there are now no visible traces.

Interestingly, this study indicates that a wood pasture tradition was maintained in the interfluvium area beyond the time when the practice had virtually disappeared in Nidderdale. The surviving remnants of this form of woodland management provide a tantalising impression of a landscape that contained significant stands of wood pasture as recently as the 18th century. In this, the presence of wood pasture in close proximity to quite large stands of coppiced woodland is reminiscent of the countryside of the 15th century. The persistence of such a landscape may be due to the fact that the 'shire moor' (blocks of moorland intercommoned by all the settlements in an early estate) that characterised 'Mashamshire' until the 19th century, identified by Winchester (2000, p.28), and the complicated tenurial pattern that this involved.

In this chapter, the common thread that links the interfluvium with Nidderdale is the control of woodland through land tenure, enforceable by law. This factor, which has been shown to have a positive relationship with the survival of woodland in the landscape elsewhere, was the result of the concentration of virtually all of the land in the interfluvium and Nidderdale being in the ownership of two family estates. Significant tenurial differences in neighbouring Wensleydale have also influenced the distribution and characteristics of woodland there. These tenurial differences and the resulting responses in terms of woodland management are explored in the next chapter.

6. FIVE CENTURIES OF WOODLAND MANAGEMENT IN WENSLEYDALE

This chapter examines the role of woodland and its management in Wensleydale over a period of 500 years. In this, the significant difference between monastic Nidderdale with its intensively-managed woodland, and secular Wensleydale (in its middle and lower zones) with its distinctive form of land-use focused upon hunting and tenanted farms, is fundamental to an understanding of the role of woodland in the landscape. To amplify this, a selection of supporting case studies is presented to demonstrate the tenurial elements of this landscape and show how these factors have influenced the woodlands of middle and lower Wensleydale, using documentary records and observations made during fieldwork. Of particular relevance is the question of why there is less woodland in Wensleydale than Nidderdale.

Land tenure provides the key to understanding the organisation and management of medieval and later land-use in Wensleydale. In the early years of the post-Conquest period, much of Upper Wensleydale was, like Upper Nidderdale, an expanse of wild and sparsely populated moorland that served as a hunting chase for the Norman lords. There were, however, in the middle and lower zones, more settlements than in Nidderdale, although at the time of Domesday Book (1086) much of this was described as ‘waste’ (B. Harrison, pers. comm.).

In an earlier chapter it was explained that much of Nidderdale came under monastic control in the 12th century through grants of land from lordly benefactors. Conversely, during the middle ages Wensleydale was divided into three great properties:

- (i) *The Lordship of Middleham*, granted by Edward IV in 1473 to his brother Richard, Duke of Gloucester. On the accession to the throne of Richard III in 1483 the Lordship came to the Crown. It remained royal property until 1628 when it was sold by Charles I to the citizens of London. The Lordship extended westwards from Middleham to include most of the southern side of the valley and the Forest of Wensleydale to the dale head;
- (ii) *The Jervaulx Abbey estate [Abbotside]*, on the northern side of the valley, from Askrigg to the dale head;
- (iii) *The Scrope [Bolton] estate*, on the northern side of the valley from Leyburn to Carperby.

Apart from lands owned by Jervaulx Abbey on the southern side of Stags Fell in Upper Wensleydale and some other parcels of land and woodland owned by the abbeys of Rievaulx and Coverham around Wensley and Preston-under-Scar, most of Wensleydale was owned by the Scrope and Neville families from the 13th century. At the Dale head lay the Forest of Wensleydale which occupied the entire valley above Bainbridge and west of the river Bain and Mearbeck (Joy 1991). The Forest of Wensleydale was part of ‘one great forest, nominally subdivided into those of Lune, Applegarth [Arkengarthdale], Wensleydale and Bishopdale,

which extended from the source of the Tees to that of the Cover, or nearly forty miles from north to south' (Whitaker 1823, p.11).

In total, the Forest covered 108 square miles of the Dale, extending, according to Cox (1909): 'up the Ure valley to the confines of Westmorland, about eighteen miles in length, with an average of six miles in width'. In 1543 the Forest was valued at £800 a year, and said to contain 'seven goodly parks and as many forest chases' (Hartley and Ingilby 1991). As the Forest was the property of the Lordship of Middleham, it was administered from Middleham Castle, and was subject to Forest Law, under which 'All tenants and inhabitants within the said Forest were subject and compellable to answer all actions, suits and plaints, in his Majesty's courts of Richmond or Middleham' (VCH 1914, p.253). Twelve foresters who were housed in a purpose-built lodge established at Bainbridge in 1227 enforced the law.

In 1145, following the founding of Jervaulx Abbey on its first site at Dale Grange, near Askrigg, Count Alan, Duke of Brittany, had granted the monks 'the right to dig for ores of iron and lead within his Forest of Wensleydale, and to take the flesh of deer that had been worried by wolves' (Joy 1991). Hartley and Ingilby (1953) comment that:

Though a king never came here, the lords of Richmond and Middleham rode out with the followers, lances, horns, and dogs to hunt the deer, the wild boar, and sometimes the otter. In 1296 Peter de Thoresby, the vicar of Aysgarth, who lived at Bainbridge, was licensed to chase 'the hare, fox, and cat with his own dogs.

As late as 1538-9, 610 fallow and 60 red deer roamed the Forest. Leland observed that the upper end of Yoredale was 'a forest of redde deere, longynge to the Kinge', and that 'Middleham Castle enjoyed a very good supply of red and fallow deer' (Speight 1892; Chandler 1993). Camden, writing 50 years later, commented that 'wild deer, goats and stags of extraordinary size with branching horns find there a safe harbour'.

6.1 A landscape of parks and chases

Whilst in Wensleydale and Nidderdale there was some similarity of land-use in the existence of a royal Forest within their boundaries, it was in Wensleydale where the landscape of the chase was predominant. This can be seen in the profusion of parks created by the Lords of Middleham around their castle at Middleham.

Parkland was the major form of land-use in the hinterland of Middleham. The creation of parks followed the granting of a licence to Ralph Neville to impark his wood of Middleham in 1335 (VCH 1914, pp.253-4). To the west of Middleham lay a succession of parks extending as far as West Witton, at the foot of Penhill. The area of parkland was considerable. West Park, which

covered an area of 452.1 acres (182.97ha), occupied a tract of land between Middleham Low Moor and the river Ure. Sunskew, situated to the south-east of Middleham Castle, was the largest park, covering 634.9 acres (256.95ha). In total, there was an area of 1087 acres (439.92ha) set aside for hunting in immediate proximity to the castle. John Leland provides an impression of the parks associated with Middleham Castle in his commentary: 'There be four or five parks about Middleham, and belonging to it, whereof some be reasonably woodyed. The castle has two parks, Sonskue and Westpark, close to it, and a third, called Gaunless, a half-mile away. Westpark and Gaunless [Wanlass] are well wooded' (Chandler 1993). His observation that two of the parks were 'well wooded' is useful. Middleham West Park, a compartmented park, lay immediately to the west of Middleham castle, extending along the northern flank of Middleham Moor. The following case study of Middleham West Park examines the extent and composition of the woodland component of a major medieval park.

6.2 The woodland of Middleham West Park

Middleham West Park occupied an area of steeply shelving land to the west of Middleham that descends from the crest of Middleham Low Moor to the periphery of the river Ure (see Plate 6.1). An impression of the woodland contained within the park can be gained from a map dated 1678 (reproduced here as Figure 6.1), the Tithe map of 1839 (reproduced here, with fieldnames as Figure 6.2), and the First Edition Ordnance Survey 6-inch map of 1856. A reconstruction of the former park compartments is simplified by the park boundaries having remained virtually unaltered since the 17th century, apart from extensive subdivision of the park for agricultural use which took place prior to the drafting of the Tithe map.

The 1678 map (NYCRO ZS, MIC 1732/258), shows that Middleham West Park was a complex of three sub-parks contained within a compartmented area that was enclosed by a continuous boundary wall. As might be expected in a large medieval park whose prime purposes were the containment of deer and hunting, the appropriate form of woodland management was wood pasture. This is shown graphically on the map as areas of scattered trees. At Middleham, wood pasture occupied the three main divisions of East Park, Middle Park and West Park, covering 129 acres (52ha), 70 acres (28ha) and 122 acres (49ha) respectively. In addition to these large areas of wood pasture, there was a larger, more open area of deer lawn covering 144 acres (58ha) in the south-western quadrant of the park complex. The Lodge and stables were located at the centre of the system, adjacent to a small paddock ('Oake Paddock') and a larger enclosure ('Rails Close') that presumably served as grazing for horses. Four other small subdivisions functioned as hay meadows, and in the south-eastern sector, divided by a still-extant sinuous stone wall, was another area of hay meadow extending to 71.25 acres (28.8ha) intriguingly named 'Generous Close'.



Plate 6.1. Middleham West Park (in foreground, beyond wall)



Plate 6.2. Penhill Park (arrowed)

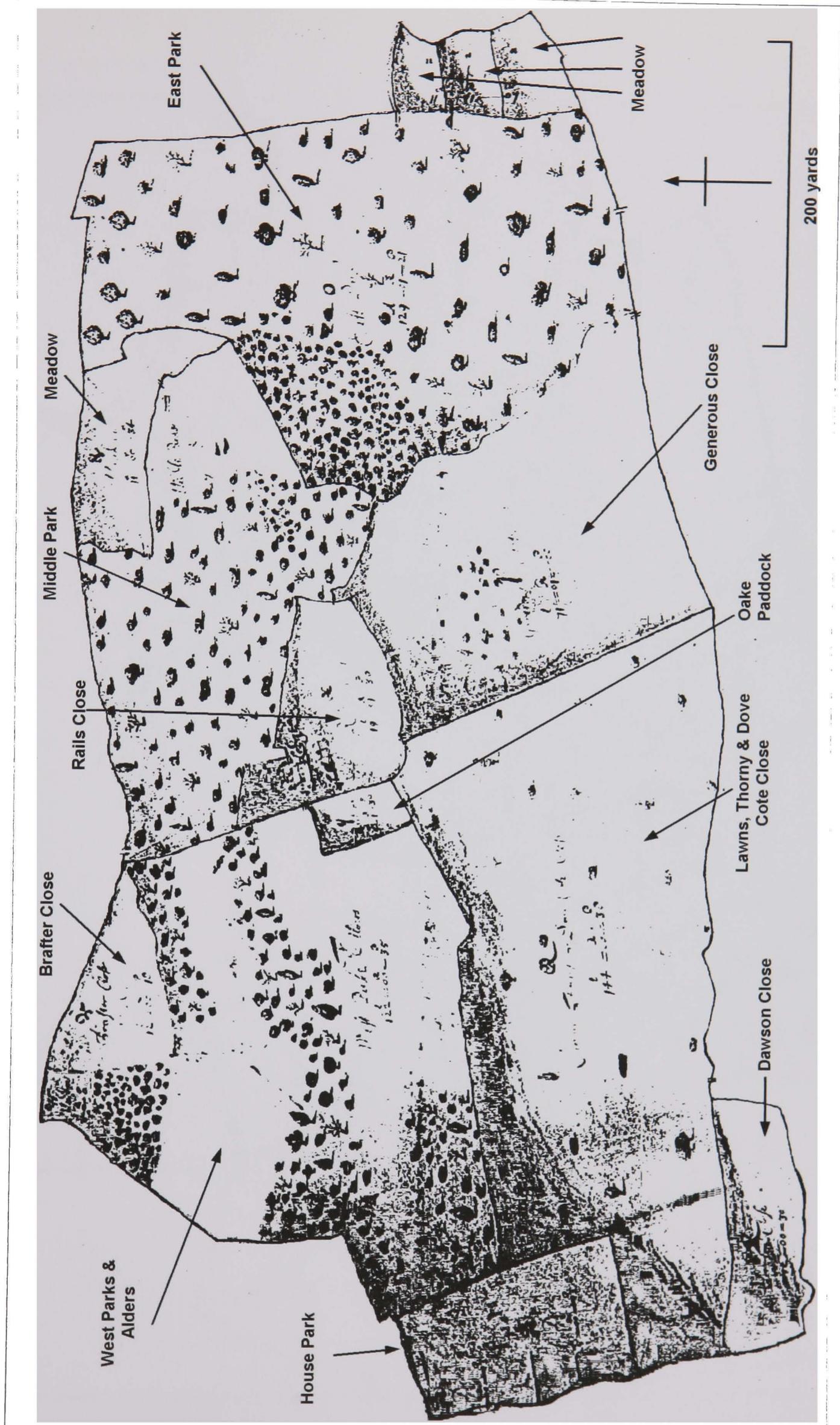


Figure 6.1. Middleham West Park in 1678. Author's interpretations overlaid upon scan of original map [NYCRO: ZS]

There is sufficient detail on the 1678 map to identify two principal areas of coppice. The first, which occupied the western fringe of East Park up to the boundary with Middle Park, was still extant in the 19th century, and shown on the Tithe map of 1839 as 'Orton Wood' (shown in green in Figure 6.2) covering 10.4 acres (4.2ha). The other, smaller, area is shown in the far north-western extremity of the park, adjacent to the West Park, occupying just under half of the compartment called 'Brafter Close' (12.12 acres; 4.9ha). Immediately to the north-west of Orton Wood lay the wood pasture of Middle Park. To the east of Orton Wood was area of wet and scrubby woodland which is detectable from the Tithe map in the field names 'Wham' and 'Scroggs'.

An appendix of three small closes of meadow extending in total to 11 acres (4.5ha) can be seen to adjoin the park at its extreme south-eastern boundary. Field observation revealed these three closes to have been divided by hedged banks and ditches, whilst abutting the main eastern boundary wall of the park and therefore, it is suggested, of a later date than the establishment of the park. Similarly, a 12 acre (4.9ha) close of pasture, shown on the 1678 map as 'Dawson Close' at the south-western corner of the park and extending into the area known as Cross Bank on Middleham Low Moor, appears to have been an encroachment on to the moor.

The 1839 Tithe map shows a cluster of fields named 'Springs' to the north of the three small closes. This is interpreted as a former stand of coppice wood that lay outside the park and which extended to 19 acres (7.6ha). It is suggested that this stand of woodland was cleared and converted into five small fields prior to the date of the Tithe map.

This cluster of parks represents an enclosed multi-purpose unit that typifies land-use in mid-Wensleydale during the medieval period. In this arrangement it is evident how these different forms of land-use functioned within an enclosed system that included an element of wood production. Middleham West Park was primarily an area set out as compartments of wood pasture totalling 333 acres (134ha), whose purpose was to provide an appropriate habitat for deer. In this system, wood pasture not only represented a source of wood and timber in the pollarded trees, but also leaf fodder for the deer. The haymeadows complemented this system by providing another source of winter fodder in addition to grazing for horses and livestock on the aftermath following the hay cut. And finally, the 16 acres (6.4ha) of coppice represented a substantial source of underwood and poles for firewood and fencing. The ratio of wood pasture to coppice is calculated as 22:1. In total, the 349 acres (141ha) of wood pasture and coppice represented 56 per cent of the enclosed area. It is perhaps significant that the former areas of coppice wood were situated at the break of slope on this moderately shelving site, presumably to facilitate the management of such woodland.

Whilst Orton Wood was still present in 1839 as a remnant of the former coppice wood, the wood pasture had been cleared during the conversion and further subdivision of the Middle Park to grassland. The characteristic field names 'Wood Pasture' and 'East Wood Close' appear on the Tithe map (1839) in the position of the former Middle Park. Apart from a small stand of parkland trees on Sharp Hill that may be residual wood pasture from the former East Park, the woodland shown on the 1678 map, including Orton Wood, the principal area of coppice, has now virtually all disappeared. Whilst the present land-use is predominantly intensive grassland for dairy farming, utilising a simplified system of field divisions from that shown on the Tithe map, the original divisional boundaries of the medieval parks remain largely unaltered. The many hedgerow trees that populate the present park originate from early 19th century and more recent plantings.

6.3 Other parks beyond Middleham

The parkland further to the west of Middleham occupied a tract of landscape between the river Ure and the northern scarp of Penhill (see Plate 6.2). Free chase in West Witton and Penhill had been granted to Ralph Earl of Westmorland in 1417 and was still in existence as late as 1769. A number of parks and chases are mentioned in a perambulation of the Lordship of Middleham boundaries made in 1628 (Willan and Crossley 1941). Mount Park and Capplebank Park lay on the southern bank of the river above Wensley, and Penhill Park occupied an area to the south known today as Middleham Low Moor. Wanlass Park was situated in the manor of West Witton, and extended from the margins of the common fields of West Witton to the south bank of the river Ure. Leland's comment that Wanlass Park was a half-mile from Middleham was inaccurate, as it is 4½ miles distant.

It is possible to postulate the probable forms of woodland management practised in these extensive areas of parkland from field and documentary study. The following case study takes the form of a discussion of Wanlass Park, now a property of the Bolton Estate.

6.4 Wanlass Park

In the 13th century Wanlass Park was called the park of West Witton, extending to 60 acres and 'stocked with deer' (*Cal Pat* 1281-92, p.457). It acquired its present name in 1465, to distinguish it from the 'new parks' of Capplebank and Penhill (VCH 1914, p.286). Wanlass Park was described as '100 acres of wood' in 1652. A moiety [half] of the park was in the tenure of William Brodley in June 1652, and 'a moiety of the park, or impailed or enclosed ground called *Wanlez als Wandlez Parke*, in the archdeaconry of Richmond, and a moiety of all lands and tenements belonging to it' was granted to John Welles, of Langar, Notts, on 22 May

1634. Under the terms of the lease, Welles was not to commit waste ‘except in the deare’ of which he was permitted to kill half their number: ‘a moiety of those in the park’. In the will of William Sudell of Forcett, dated 1663, it was stipulated that £500 was to be raised from the woods and underwoods of Wanlass Park. Later in the 17th century Sir Thomas Metcalf (son of James Metcalfe of Nappa, d. 1655) held ‘Wanlas parke by lesse at ye rent of £6 13s 4d’, when the area of parkland was given as 280 acres (113ha), and worth yearly £46 13s 4d. A comment that ‘It is well stored with fallow deere and woods and underwoods’ is of particular interest. In the 1605 Survey of the Lordship of Middleham it is recorded that the Keeper of Wanlass Park was paid £3 0s 8d per annum (Willan and Crossley 1941).

Wanlass Park was acquired by William Chaytor as part of the manor of West Witton in 1769. Chaytor died in 1819 and in 1853 the park was sold by his trustees to the Bolton Estate. The plan attached to the 1853 sale particulars shows that the park had been cleared of woodland and divided up into agricultural fields that were let to tenants. A number of workmen’s bills archived with the Coverdale estate documents (NYCRO ZQH) reveal that between 1811 and 1819 the woodland was cleared and sold for various end-uses, including timber for the Surrender Mine in Swaledale which had been leased by the Chaytors in 1792 for 21 years from the Pomfret-Denys family. The reference to beech (April 15, 1811) is the only tree species mentioned.

A transcription of the bills that illustrate woodland survey works follows:

1811

Feb 5: One day marking wood at Wanlass Park 5s

One day volume marking wood 5s

Feb 12 One day showing the wood 5s

April 15: One day mending at Wanlass Park to show and dispose of beach wood to Mr West and Mr Thornywas of Richmond 5s

One day measuring 350ft of wood 5s

1812

Jan 8: Felling brushwood at Wanlass Park 18s

1817

Jan 28: One day to Wanlass Park to set out wood for Surrender Mine 5s

April 29: One day at Wanlass to set out wood for gates and repairing the barn 5s

July 6: Work done at Low Wanlass: wood felling and leading self and man, 3 days each £1 1s

The old wood pulling down 1s each

Wood felling and leading for the gates 7s

July 23: One day to Wanlass Park to set out wood for the roof of barn at Low House and let the work at 10s per sq ft to G. Wood 5s

Aug 21: One day to Thoresby and to Wanlass to look after buildings and wood 5s

1818

April 14: One day at Wanlass Park to set out wood for the Surrender Mine 5s

Dec 5: One day to Wanlass Park to set out wood for Surrender Mine 5s

Dec 22: One day to Wanlass Park to look after the Surrender wood and mark it 5s

1819

Jan 7: One day to Wanlass Park to look after the wood for Surrender Mine 5s (NYCRO ZQH 4/8/87-160)

The importance of these bills is that they only mention setting-out, felling brushwood, cutting and clearance of wood. There is no mention of any management [planting or coppicing]. It is therefore evident that the wood was being sold with no regard given to its long-term management and regeneration. A field inspection of Wanlass Park by the writer found it to be almost devoid of trees apart from occasional hawthorns and some distorted oaks and ashes. It was noted that the medieval boundary wall (S. Moorhouse, pers. comm.) was positioned to enclose a landscape formed of drumlins (see Plate 6.3). A linear earthwork, set parallel with the river, was interpreted as a bund rather than a woodbank. In the draft management plan for the Bolton Estate, the consultants comment that:

throughout late medieval period deer parks were a powerful status symbol. The artistic quality of the parks was paramount and the blend of water, woodland, parkland and open grassland was devised for landscape as well as the well-being of the deer. The landscape qualities of Wanlass are such that it has all these qualities. The deer park landscape is quite intact in places, and the boundary and interior walls are identifiable, plus some buildings, including a ‘fothering’ house at Low Wanlass (Clark 2000).

Wanlass Park is shown on Godson’s map of the Bolton Estate (1737). This map, reproduced here as Plate 6.4, shows the woodland in Wanlass Park to have been particularly extensive. It was difficult to understand the purpose of the peculiar triangular-shaped wood with three connecting narrow bands of trees shown immediately below Batt Island. Aerial photographs suggested that the terrain was formed of drumlins. This interpretation was confirmed by fieldwork which revealed that the clumps of trees shown on the Godson map corresponded to groups of trees that had formerly graced the drumlin tops. Furthermore, the peculiar feature referred to above, which was initially interpreted as having had a function connected with the herding of deer, was found to be the site of ‘Black Plantation’. This is shown on the Ordnance Survey First Edition map, as woodland, although its site is now clear of trees. Given the degree of felling that had been carried out within the park during the early 19th century, the interpretation offered is that the Chaytors had purposefully stripped the park of its woodland in order to generate cash, and converted its interior into pasture for farming tenants.



Plate 6.3. View of Wanlass Park showing medieval boundary wall and drumlins



Plate 6.4. Woodland in Wanlass Park depicted on Godson's map of the Bolton Estate (1737)

6.5 Coverdale

Coverdale has a particularly interesting woodland history, in that it hosted a royal Forest and park and an area of monastic woodland. This case study is principally focused upon the manors of Braithwaite and Coverham, which lie within five miles of Middleham. The documentary sources held in the Middleham estate archive at NYCRO contain a wealth of interesting material relating to the management of woodland in these two manors from the 15th-19th centuries.

The Forest of Coverdale, a component of a large area of hunting forest of which the Forest of Wensleydale was also a part, occupied the middle to upper reaches of Coverdale. Here the sparse woodland and open fellsides provided ideal conditions for the hunting of deer and the woodland was singularly managed for this purpose. As was usual with areas earmarked by the crown as hunting forests, punitive laws were enforced to protect the King's deer. The Forest courts conducted their business in the Hall Cote at Carlton in Coverdale, and the Forest was administered from Middleham Castle until August 12, 1539. The Forest of Coverdale is mentioned in the Middleham accounts for the years 1465-7. The extent of the former Forest is today characterised by a number of hunting and woodland place names, including Gammersgill, Swineside, Hindlethwaite, Arkleside, Bradley, Hunters Hall, and Woodale (Pontefract and Hartley 1988, p.210).

Part of the manor of Braithwaite, on the southern bank of the river Cover, was owned by Jervaulx Abbey, a Cistercian monastery situated at nearby East Witton, and there was an abbey grange on the site now occupied by Braithwaite Hall. The manor of Coverham, on the northern bank, comprised the three townships of Agglethorpe, Caldbergh and Coverham. The township of Coverham included the royal park of Cotescue and a Premonstratensian monastery. The manor was part of the Lordship of Middleham until 1310 when it was acquired by Geoffrey le Scrope of Masham. It remained in Scrope hands until 1415 when it was confiscated and granted to Henry, lord FitzHugh. It was returned to the Scopes in 1443 following a legal dispute that was settled in their favour.

The woodland resources of Coverham were substantially greater than those of Braithwaite. Coverham lay in a wooded valley (see Figure 6.3), whereas Braithwaite was situated on the northern slope of Witton Fell. There was a substantial area of woodland at Caldbergh, immediately to the west of Braithwaite, which belonged to the Lordship of Middleham. In 1240 Ralph de Middleham granted 40 acres of wood to his under-tenant, the Lord of Coverham. In turn, in 1252, the Lord of Coverham granted 40 acres of wood in Caldbergh called *Almehawe Wood* to Coverham Abbey and received a quitclaim of *Hyppeslyth Wood* in the same place in return. In 1338 Geoffrey le Scrope was granted a licence to impark his woods of Coverham and

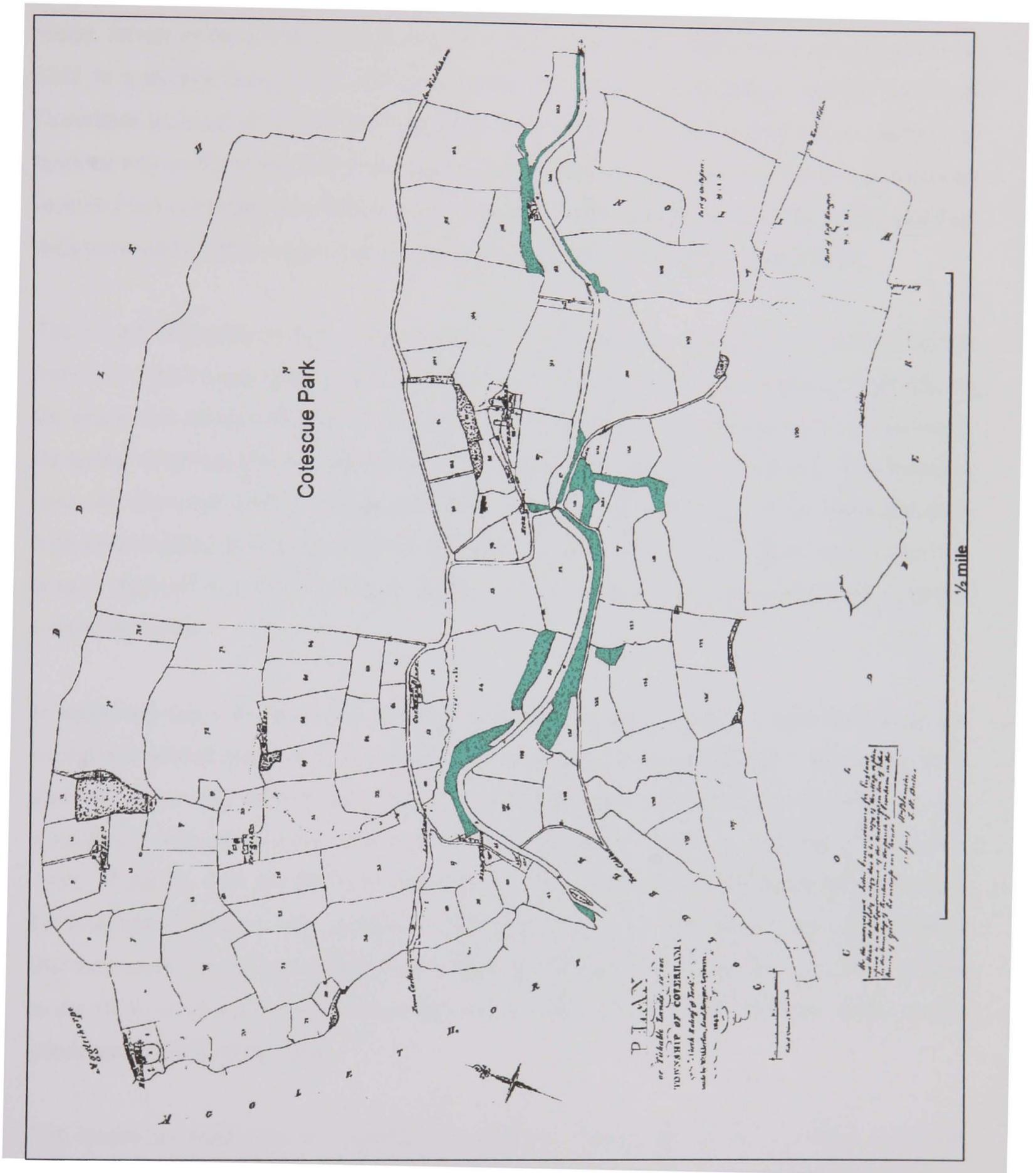


Figure 6.3. The township of Coverham, showing Cotescue Park and woodland along the river Cover. (Author's annotations shown as colour overlays upon a scanned image of a section of the Coverham title map (1842) [NYCRO:T/PR/COV/4])

Caldbergh to form a 'small forest' [a chase], provided they did not lie within the Forest of Coverdale (*Cal Pat* 1338-40, p.94). The Abbot of Coverham had acquired the whole of Caldbergh by the end of the 15th century and held it until the Dissolution. He was also a free tenant, farmer of the demesne and the tenant of Coverham manor house. An award was made in 1251 in a dispute between the Abbot of Jervaulx as Lord of East Witton, and the Abbot of Coverham as Lord of Caldbergh. This complex diversity of land-use and tenure resulted in tensions and conflicts over the jealously protected woodland resources. A collection of manorial records from Coverham provides an insight into a woodland dispute of the 14th century together with some useful information concerning the management of the manorial woodland.

The records demonstrate that preservation of his Forest property was the major concern of the lord of the manor, and relationships between himself and the abbot were sometimes difficult, to the extent that on several occasions the abbot was presented by the forester to the manor court for taking wood and allowing his cattle to graze in the spring [coppice woodland]. Despite being amerced, distrained and attached [arrested] for repeated woodland offences, the abbot persisted with his activities, showing an apparent disregard for the lord's authority. He also obstructed the tenants' right of way to the common pasture, which resulted in their animals having to graze within the Forest.

In numerous cases the court records cite the illegal cutting of timber and greenwood as the reason for presentations and amercements. For simply cutting greenwood, 24 people were attached, and it may be surmised that these individuals regarded the fines handed down by the court as payments for licences to take wood. For example, at Coverham Court on 12 November 1418, 17 people were attached and amerced for cutting greenwood, and similarly, on 22 July 1419, another 28 people were attached for the same offence. On that occasion the jury remarked that the manor [house] was defective in timber and roofing by default of the abbot of Coverham to the value of 10 marks, and in consequence, the lord's forester was ordered to arrest all the goods and chattels of the abbot.

The numerous references to 'greenwood' suggests that some of the woodland contained pollarded trees, the 'greenwood' being leafy branches cut as fodder for livestock. In an account of the proceedings of the Court of William Lord FitzHugh on 16 May 1443 it is recorded that fourteen tenants 'at will of the lord and sworn on inquisition' said that 'the abbot of Coverham had cut wood and branches of the lord and given them to his animals to eat'. One Thomas Chawmer was also fined 1d for cutting the branches of an ash tree. (NYCRO ZDX, Document 6).

One can envisage that some of the woodland within the lord's park was a wood pasture with numerous pollarded ashes, for the forester's presentment of the abbot specifically accused him of having 'cut off branches of 30 ash trees'. (NYCRO ZDX, Document 5). The lord also owned a coppice wood which is referred to in the documents as *les Spryng*. At the Court held on 6 February 1442 the forester presented the Abbot of Coverham for having 'eight oxen in lez Spryng of the lord at one time' – an offence for which he was fined the sum of 4d. There were also incidents of hedge stealing committed by the local population. On 9 June 1443, the forester presented Thomas Thwayt and Robert Redisdale for carrying away 'the fence round les Spryng'. They were each fined 2d for the offence. In common with many coppice woods in the Dales, the 'fence round les Spryng' would have been a dead hedge whose composition rendered it particularly suitable for firewood.

Although the lord assiduously protected his rights within his woodland, he made grants of timber to deserving tenants. At the court session of 22 July 1419, the tenement of Anable de Bellerby was said to lack timber and the forester was ordered to deliver to her what she needed. In order to meet this request, the timber would have had to be cut from a wood pasture or an area of coppice that contained some standard trees. In view that the Act for the Preservation of Woods was at that date some 130 years into the future, under which the owners of coppice woods were required to have twelve standard trees in each acre, it is uncertain that the timber was drawn from coppice woods.

The Coverham manorial records provide a glimpse of 15th century woodland management in Coverdale that may be fairly typical of the valley-bottom woodland in Wensleydale. They suggest that when the woodland was emparked in 1338 there was a tradition of pollarding. This continued for another century and then declined in favour of coppicing – a progression which has been observed throughout much of Yorkshire (Jones 1998).

The woodland in Lower Coverdale is now mainly concentrated in two blocks around Caldbergh. Low Wood (to the west of the river Cover) and Strands Wood (to the east), together with the wooded Caldbergh Gill, are included in the Inventory of Ancient Woodland (NCC 1987). Of these, Low Wood, which forms the biggest block in 24 acres (10ha), was the principal area of woodland in the medieval period, extending northwest from the river to Agglethorpe to adjoin the open fields of Melmerby along its western boundary. The pattern of field boundaries in this area is indicative of assarting, in contrast with the large east field of Melmerby, whose furlongs are preserved in the landscape by the hedgerows of piecemeal enclosure [enclosure by private agreement].

The area of woodland in Coverham is not given on the Tithe map award of 1842, apart from the statement that ‘the quantity of land now cultivated as woodland is 26 acres 2 rods 1 perch’ (26.5 acres/10.7ha) ‘and exempt from payment of tithes by prescription’. Although this area of woodland is incomplete, additional areas of woodland can be calculated from the land-use information on the apportionment, i.e.:

21	‘The Wood’	pasture	1-2-0	(1.5 acres/0.61ha)
113a	Bainbridge wood	pasture	0-3-36	(0.9 acres/0.36ha)

giving a total area of 28.9 acres (11.7ha). In view of the fact that the requirement for woodland had declined by the 18th century, with pasture held to be more valuable, this comparatively low figure is not unexpected. In the *Victoria County History* (VCH 1914), it was recorded that Coverham had 115 acres (46.5ha) of woods and plantations.

6.6 Cotescue Park

Cotescue Park was located in the north of the manor of Coverham (see Figure 6.3). In 1465-7 payments were made for 72 roods of hedge to be newly made between Coverham Close and Cotescue, from the plantation (spring) to the fishpond, repair of the hedge between Cotescue and the moor, making ditch and hedge from ‘la Halhede’ and repair of the wall (VCH 1914, p.218). Rowntree (1981) notes that the *Victoria County History* states that in 1484 – the year before his death on Bosworth Field – Richard III exchanged *Slape Gill called Cover Head* for 63 acres of arable land and eight acres of waste land, which he enclosed in his Park of Cotescue. Cotescue Park is described in the 1791 tithe award as ‘arable and meadow’ extending to 158 acres 3 rods 27 perches (158.9 acres/64.3ha).

Rowntree (1981) comments that the exchange of lands was probably made with Coverham Abbey, as the fishpond is described as being beyond the western boundary. In 1486 Henry VII appointed Henry Pudsey as Keeper of Cotescue Park, together with the forestership of half of the Forest of Coverdale. Two of the ‘King’s Grooms of the Pantry and Livery’ were made Palers of Cotescue and other parks and Bow-bearers of Bishopdale and Coverdale (Rowntree 1981). The royal park is shown on John Ogilvy’s strip map of 1675 as extending from Carlton, five miles to the west, to the stone bridge over the river at Coverham. Rowntree points out that there are a number of different spellings for Cotescue, including *Scotscough* (15th/16th century) and *Skotteskew* (18th century), and the park is shown on Jefferys’ *Yorkshire Atlas* of 1771 as *Scots Cleuch*.

6.7 Braithwaite

The manor of Braithwaite possessed a lesser amount of woodland than Coverham, and it is evident that rather than using wood for fuel, peat was taken from the adjacent moorland to fulfil this function. Similarly, ling [heather] was used to thatch the vernacular buildings (NYCRO ZS MIC 1747). In 1316 John de Braythweyt licensed a messuage, 30 acres of land and 3 acres of wood in *Braythweyt* (Bailden 1894). Braithwaite Wood is described in a document of 1811 as comprising 21 acres (8.5ha) of woodland west of the Flesh Beck. It was then, as now, an area of alder carr on the northern escarpment of Witton Fell. Its present appearance perhaps belies its former status, for in the 15th century it seems to have been far more substantial than now. Its former management as a coppice is distinguishable from the multi-stemmed alder stools that remain, but strangely, in view of the unsuitability of the site for more demanding species and the inherent wetness of the substrate, it is recorded that oak, elm, ash, holly and crabapple were originally present. The main evidence for this is contained in a contract of sale dating from the middle of the 15th century, the wording of which is reproduced by Whitaker (1823, p.345):

This endenture made betwix the worshipful Lord Richard, Earl of Salisbury, Lord of Mounthermer, on that one part, and John of Whixley, on that other parte, beares witness that the said John has selled to the said erle alle the underwoode growing within the lordship and boundes of Braithwaite beside Middleham, to hewe, kutte down, occupy, brynne, [burn] and manoure, and do awaye with free entree and issue, fro the date of these endentures unto the ende of foure yere then next filowing, savyng evermore, abyding and standing stille there, alle okes, almes, esshes, holyns, and crabtrees, withoute any fellyng or hewyng down, or croppying or twystyng* of theym, or of any of theym, by the seyde erle, or by any other on hys behalv.

And the seyde erle after the quantite, as the seyde underwood is felled schal get it be resonable closed aboute with hegge [duryng the yeres beforeseyd to sauve the spring]. For the while underwoods, in manner as is aforesaid, the seyde erle shal peye to the seyde John ten pound of moneye, that is to seye, fyve mks at the day of makyng these endentures, and other fyve mark at christenmess nex comyng, and other fyve merk at Whisson then next fillowing, without uttre delaye.

Given at Middleham the 4th day of Maye, the yere of the regne of Kyng Henry Sext, after the Conquest neent [1422-1461] (Harl. MSS 433, p.189).

*Grainge (1863, p.137) interprets this term as ‘pruning or lopping the branches of trees’

This contract is important because it describes a 15th century sale of the coppice rights to Braithwaite Wood, in which John of Whixley [abbey?] sold the underwood to the Earl of Salisbury. For his part, the purchaser was only entitled to cut the underwood and burn the lop and top [for charcoal]. It is pertinent that the contract was specific to the underwood and demonstrates that ‘useful’ species such as oak, ash, elm, holly and crabapple, were occasionally excluded from coppice sales as seen in the practices of the Ingilby estate described in Chapter 4. Of particular significance is that the public were denied ‘free entry and issue’ for four years.

This may be interpreted that the rights to take wood enjoyed by the public were *de facto* and could be waived by the landowner.

The requirement to provide protective hedging around the newly cut coppice stools in the second clause of the contract indicates the presence a positive form of coppice management. This would have been influenced by the 'Statute for the Enclosure of Woods' declared by Edward IV in 1483 which stipulated that newly-cut coppices were to be surrounded by 'sufficient hedges' to exclude grazing animals for a minimum term of seven years.

It is presumed that Braithwaite Wood continued to be managed as a coppice, for although records for the intervening years have not been seen, it is recorded as a source of mine timber in the 17th century. Gledhill (1992) notes that during the years 1660-63 400 sacks of chopwood and half the mine timber used were sent from Braithwaite to the Hurst mine of Thomas Swinburne (NYCRO, ZCC). Gledhill comments that the price paid for the chopwood decreased dramatically with distance from the mill, and that sourced from Braithwaite was less than half that purchased locally (in Swaledale).

It is interesting that the 15th century document referred to above records a number of species in Braithwaite Wood that had disappeared by the 19th century. The function of the wood as a coppice may have been compromised by wetness and general unsuitability for other than specially adapted species such as alder and willow. It is apparent that the wood was susceptible to for long periods of inundation, and that the standing water was polluted or stagnant. This is evident in some Middleham estate correspondence of the 19th century which reports that a number of tenants, whose cattle grazed in the wood, had suffered serious losses by their animals contracting a fatal water-borne disease. This is indicative of the animals having had access to stagnant water within the woodland. At the time of the correspondence, the condition of Braithwaite Wood (as woodland) was poor, for it was recommended that it should be drained, cleared, replanted and fenced. Surprisingly, there does not seem to have been any intention of excluding cattle from the replanted woodland:

The woods in Braithwaite have very little timber in them and that of an inferior quality. The chief produce is alder, and no timber can be raised unless the woods are first drained, therefore if this is not done, and young trees planted, the fencing them in would be a useless expense, as far as it relates to the growth of timber; but it would as before stated, do away with the danger of cattle getting a disease that kills them. The fencing them off with walling will take 190 roods of 7 yards to the rood, and will cost 10s per rood, including getting and carting the stones, which amounts to £95 (NYCRO ZS, MIC 1732).

Clearly, these recommendations were not adopted, and the wood remains, to this day, in much the same condition as described a century ago. It is, in some ways, characteristic of numerous unplanted alder woods that represent an important component of the indigenous woodland of the Yorkshire Dales, where limitations imposed by a marginal site and poor conditions were no bar to its management as a renewable resource.

6.8 The Bolton (Scrope) Estate

During the medieval period, the Bolton estate of the Scrope family, centred upon Castle Bolton on the northern bank of the river Ure, similarly enclosed tracts of land as hunting parks. West Bolton [Low] Park was one of two parks created in close proximity to the castle. Leland observed: 'There is a parke waullid with stone at Bolton'. The boundaries of West Bolton Park included an alder wood called Ellerlands, whose emparkment must have denied the local inhabitants a long-exploited source of fuelwood. In 1314 Henry le Scrop was granted letters patent to extinguish the access through West Bolton Park 'from *Slaypwath* to *Swaldal*' providing he granted an alternative route on his ground to the north of his park. The diversion of this route subsequent to the emparkment is discussed by Beresford (1984, p.195). In the Account Roll of John Scrope, 1535-6, (NYCRO Z.100) the wood is referred to as a 'farm of one close within the lord's park there called *Ellerlounde*' [Ellerlands] and let for 100s a year.

A number of medieval deeds held within the Bolton archive (ZBO) at the North Yorkshire County Record Office (NYCRO) contain references to woodland owned by the Scropes. The earliest records are concerned with assarting [woodland clearance], principally in Bolton and surrounding vills. Initially, this activity was promoted on lands given to monastic orders. In one example, under the terms of a late 12th century grant, the monks of Rievaulx Abbey were given leave by Roger le Scrop to make assarts in the woodland at Bolton where they could cultivate from 'the wastes and wood, 17 acres and 2 roods and pasture for 13 beasts, three pigs, 120 sheep and six rams' (Atkinson 1889, pp.89-90). Similarly, through a grant from Acharius de Tunstal, the monks of Rievaulx Abbey acquired about 15 acres 'in the territory of Bolton of the road which leads from Bolton to Richmond, next to the spring called *Birkelde*, on the east side of the same, as far as *Stainwath*, of which 4½ acres are cultivated, and 21 acres are uncultivated and woody, which the monks may assart as they wish' (Atkinson 1889, pp.120-121). Further indications of assarting are contained in a medieval charter of 1204 for Preston-under-Scar, where a particularly large assart is described as being adjacent to the boundaries of Redmire. A grange of Jervaulx Abbey, situated nearby at Mouthwaite [now in the grounds of Bolton Hall] (SE 079895), was valued in the 1301 Lay Subsidy at 17s 2¾d.

Two 13th and 14th century documents mention woodland in Wensley. The first, dated 1285, refers to the *Wood of Wendesle* [Wensley] in an agreement setting out the formalities for its division between Sir Roger, son of Roger de Ingoldeby and Nicholas, son of Thomas de Hulveshow. Under the terms of the agreement, Sir Roger was granted ‘the northern part with the southern part in *Wilvenebancke* ‘in severalty’, and at *Hellerker* shall enjoy all *Linhholm*; Nicholas to have the southern part of the wood and the northern part of *Wilvenebancke* and may have *Goduinholm*’ (13 Ed I [1285]) (NYCRO MIC 2424/978). From this description it appears that the woodland was situated on the northern bank of the river Ure, and it is tempting to identify present-day Ellershaw [an alder wood] with the *Hellerker* mentioned in the document.

In Preston and Wensley, the irregular field boundaries are indicative of woodland clearance. This is further endorsed by the occurrence of many ‘-ridding’ (assarting) field names in the townships. In the second document, an award of 1302, Geoffrey de Estoan complained that James de Wendesley had disseised him in various places of common pasture belonging to his freehold in Wendesley. The award contains several references to ‘-ridding’ names, i.e.:

. . . together they submit themselves to an award to be decided by a group of local people in which ‘*Thousker* [Thowker – now a wood east of Keld Heads smelt mill] and *Le Gille* remain commons, both when cut and in grass, for all beasts each year; that sufficient entry and exit to *Hellegellewath* from *Wendesley* be made for all beasts being driven in *Le Gille* and outside; that assarts made between *Rolberidding*’ and *Jopperidding*’ remain to said James and his heirs as arable land, but that no other assarts be made by him in future within the limits of *Wendesley* . . . and that the place called *Osbernheuedsik*’ be common for all beasts yearly and at all times of the year as usual; and that *Belleridding* be waste and common for ever: James and Geoffrey by corporal oath and grant they will keep to the award. (Sunday before Circumcn. 1302) [NYCRO MIC 2424/1012].

This award is important because it shows that an undertaking was given by Geoffrey de Estoan not to make any more assarts on condition that access was allowed for animals to cross the river Ure at *Hellgillwath*, a ford which was located to the west of the present Wensley Bridge.

The first mention of timber occurs in an exchange document of 1312 that refers to a stand of alder wood called The Ellerlands, shown in Figure 6.4 (mentioned above, in respect of Bolton West Park), situated on the hillside above Bolton Castle. This document sets out an agreement formalised between Sir Henry le Scrope and Robert de Redmire, under which Robert was granted a messuage and land in the vill of East Bolton [Castle Bolton] in exchange for lands held by him in the vill of Little Bolton [West Bolton]. Under this agreement, Robert was licenced to take timber from the wood of *Ellerhind* (or *Ellerlund*) for the repair of his messuage (NYCRO MIC 2424 frame 186). It may be construed that Robert had been required to quit his former holding in Little Bolton when Sir Henry le Scrope created West Bolton Park.



Figure 6.4. The Ellerlands and Bolton Gill Plantation.
 (Author's annotations superimposed upon a scanned image of a Bolton Parks Mining Company map dated 1864 [NYCRO: ZBO(L)20])

A reference to coppice management in Redmire is contained in a bargain and sale agreement dated March 1534, for ‘woods growing in Lykbargh Springs and Braken Ridinge in the lordship of Ridm[er] co. York’, where John, Lord Scrope purchased the right to cut coppice in woods owned by Coverham Abbey for £6 13s 4d. Under the terms of the agreement, Scrope was allowed five years ‘in which to fell and spring the woods’. This was on condition that

he shall spring and keep the woods at his cost and charge as he fells and takes the woods; also shall deliver to the tenants of the Abbot in Ridm[er] such timber as may be needed for reparations at the sight of four tenants of Lord Scrope and four tenants of the Abbot, the wood to be taken at the discretion of the Bailiff of Wensley (MIC 2424/739).

Further references to the management of coppice woods occur in the *Account Roll of John Scrope, 1535-6* (NYCRO Z.100). These consist of a number of disbursements for ‘repair of hedges around *East Gill* 3s 4d; putting lime about the roots of trees in *Estcloce* 2s; repair of hedges of *Langhede Spring* 20s’. The existence of managed woodland in Redmire is also indicated somewhat later, in an 18th century estate rental, in which the rent for John Robinson’s farm, set at £5 per annum, was reduced by 20s per annum for ‘looking after ye woods’.

The 16th century Scrope account roll provides some indication that there was a significant stand of coppiced woodland at Leyburn in the reference to a sum of 3s 4d, paid for ‘keeping Lez Sprynges in Laborne’. In connection with the same woods, John Nailler was paid 10s per year ‘for mending hedges in Laborne Sprynges’ – the protective fences around young coppice growth. The same Nailler was also paid 14s per year for the upkeep and repairs of the weirs (*le Werez*) on the river in Wensley. Other payments made for the management of woodland listed on the roll include ‘2s/yr allowed for repairs to hedges of the orchard of Thornton Rust by the lord’s order’, and the 10s per year paid to Richard Braithwaite for the upkeep of the lord’s orchard at Preston. A credit entry of £6, is shown for the sale of wood in *Estbolton* [East Bolton], and another entry of particular interest mentions mine timber: ‘coal, faggots, timber, and ‘le pittes’ bought this year £33 19s 1½d’. It is perhaps pertinent that the references to woodland in Lord Scrope’s Account Roll of 1536 mention only coppices. Their location in the Redmire, Wensley and Leyburn area may be due to the fact that there were no coppices in the uncompartmented parks around Bolton Castle which were reserved for hunting, and which would have probably been managed as wood pasture.

6.9 West Wood

In addition to the stands of coppice woodland around Leyburn and Redmire, there was a very substantial block of woodland to the west of Wensley. There is reference to the *Wood of*

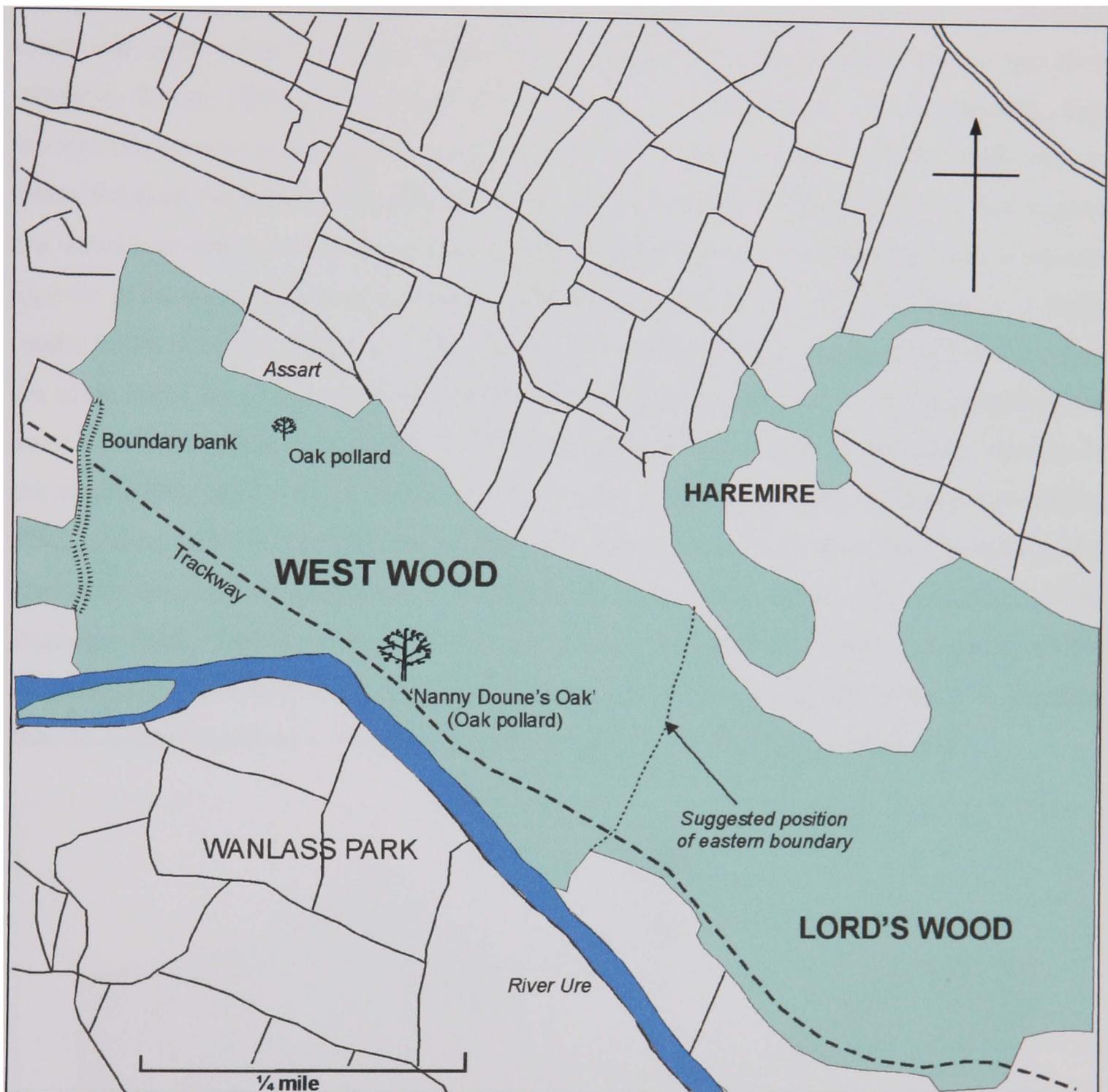


Figure 6.5. West Wood, Redmire, showing elements of former deer park. Map drawn by the author to illustrate features observed during fieldwork. Field boundaries taken from Ordnance Survey 1:25,000 Outdoor Leisure map 30

Wensley in a grant of 1320 by James de Wensley to Sir Henry le Scrop, which included ‘all the soil of the same wood and all lands and tenements with appurtenances in *Le Ryddings* and in *Tolouse*’. The *Wood of Wensley* is thought by the writer to correspond to the present West Wood.

Although West Wood is situated midway between Wensley and Redmire, it has been suggested that it takes its name from Wensley (S. Moorhouse, pers. comm.). It is evident from a study of maps and estate plans that West Wood has at various times borne other names, including ‘Redmire Wood’, ‘Bolton Hall Wood’ and ‘Lords Wood’. The pattern of the surrounding field boundaries provides some confirmation that the wood was in existence during the 14th century. Many fields on the northern margins of the wood preserve ridge and furrow features that respect the wood boundaries, and fieldwork has not detected any cultivation features extending into the interior of the wood. A large linear earthwork at the western end of the wood, aligned at right-angles to the river Ure (Figure 6.5; Plate 6.5), marks the limit of the woodland and can be traced for some 200m on a north-south orientation downslope to terminate at the northern bank of the river Ure. This earthwork is clearly visible from Wanlass Park on the far riverbank. The line of the earthwork is replicated by a later boundary wall and formal gateway associated with Bolton Hall, built in 1678. The profile of the earthwork, shown below in Figure 6.6, is indicative of a deer park boundary as opposed to a woodbank (R. Muir, pers. comm.). The existence of this boundary bank, together with a number of veteran pollarded oaks within the matrix of the modern plantation woodland, and the existence of the stumps of many more large trees, suggests that there may have been a deer park into which the *Wood of Wensley* was enclosed.

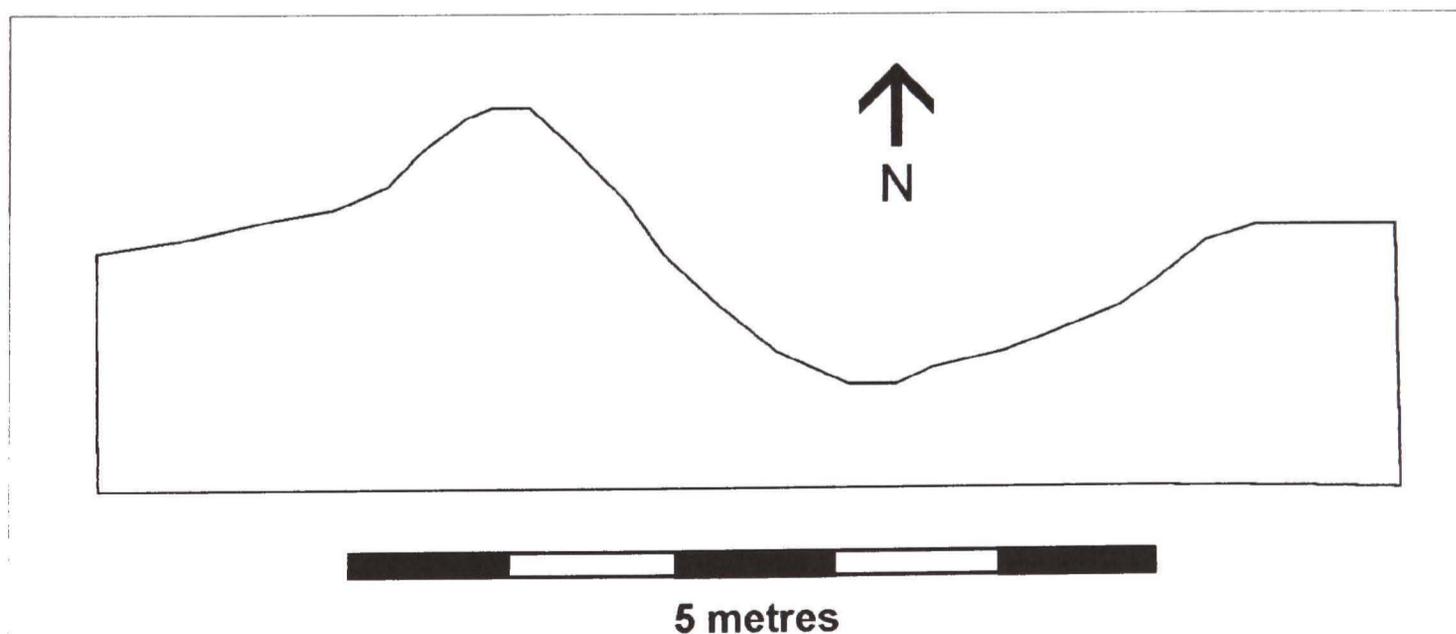


Figure 6.6. Profile of earthwork boundary in West Wood, Redmire



Plate 6.5. Former deer park boundary, West Wood, Redmire



Plate 6.6. 'Nanny Doune's oak' - veteran pollard in West Wood, Redmire

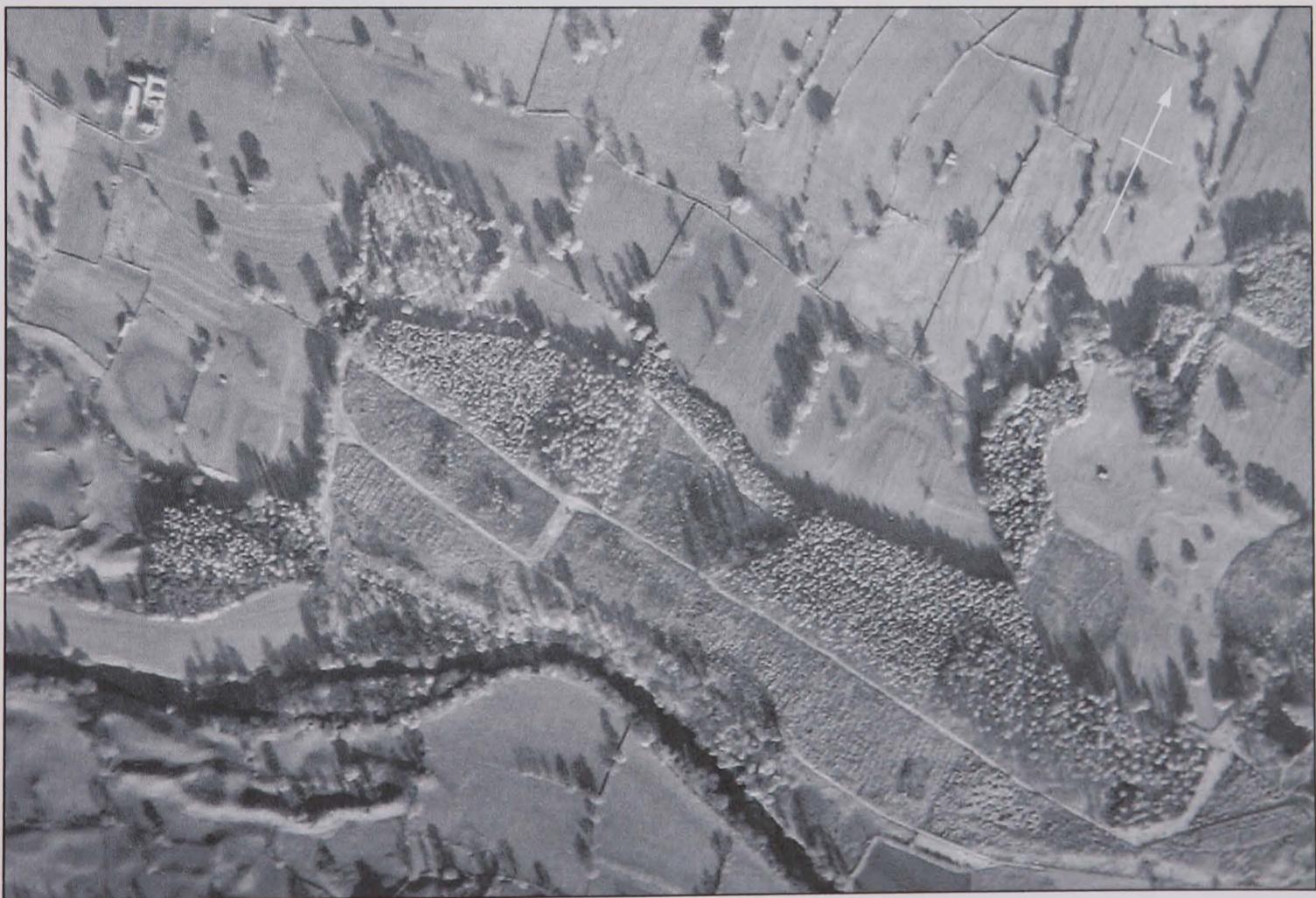
A probable relic from a former wood pasture regime exists in the form of 'Nanny Doune's Oak', an oak pollard of large proportions (Plate 6.6). With a girth of 578cm and dbh [diameter-at-breast-height] of 174cm, the age of this tree is estimated at 460 years. If an annual incremental growth rate of 1.27cm/yr^{-1} (Mitchell 1966) is assumed, this provides a planting date of c.AD 1540. Numerous decayed stumps of other large trees, now largely concealed in the understorey of a larch and sycamore plantation, may be the remains of other pollards that were felled during the remodelling of the woodland in the 18th-19th centuries. No documentary references to a deer park have yet been found, but the impression that a relict wood pasture existed in West Wood in the 18th century is contained in estate correspondence which indicates that there were very old pollarded trees in West Wood at the time. The main evidence for this is contained in a letter dated 1 December, 1790 in which Thomas Maude, the agent, recommended selling more timber to improve the woods, noting that West Woods in particular had many 'rickety Trees of Elm & Ash, dead, dying & hollow which are only fit for charcoal and such inferior purposes – £60 value' (NYCRO ZBO).

The writer thinks that this earthwork boundary is a surviving element of a medieval deer park that was incorporated into a designed landscape following the construction of Bolton Hall in 1678. Capplebank Park, on the opposite side of the river, became the home deer park, and the medieval deer park was lost when the woodland became the focus of new planting as an extension of the pleasure grounds. A revetted peripheral earthwork that follows precisely the outline of West Wood (Lord's Wood) and shown on the Godson Map of 1737, can be identified as part of the formalised layout of *pleasaunces*, walks and carriage drives in the wood rather than a feature of medieval date (Plate 6.7). The relationship of these features with the modern layout of the forestry plantation can be seen in the aerial photograph in Plate 6.8.

The Wensleydale parks were discrete units of land-use for the prime purpose of hunting, and consequently the management of parkland woods was primarily geared to the enhancement of hunting rather than the large-scale production of fuel and small wood associated with Nidderdale. Within parks the woodland was invariably managed as wood pasture, where the trees were pollarded to provide a supplementary source of winter fodder for the deer in the form of leafy boughs. Mature timber trees were generally plentiful, and occasionally gifts of timber would be made to favoured individuals or religious communities by benevolent landowners. Changes in land-use resulting from an absentee landlord (and hence a redundant deer park) and the letting of land to tenant farmers initiated the clearance of wood pasture from much of the parkland during its reorganisation during the 18th century for agricultural purposes or forestry plantations. Because of this, wood pasture has been virtually eliminated from Wensleydale, and the only indications of its former widespread extent exist in estate records.



Plate 6.7. West Wood as depicted on Godson's map of the Bolton Estate (1737), showing the elements of a designed landscape with formal drives in the woodland



1/2 mile

Plate 6.8. In this 1960s aerial photograph of West Wood the relationship of the forestry compartments with the designed landscape shown in Plate 6.7 is clear. Also evident in this photograph is the medieval cultivation that respects the northern (top) and western (left) margins of the wood.

(Meridian Airmaps Ltd, North Riding, Frame 16771068. © North Yorkshire County Council)

6.10 Coppice woods

The identification of former coppice woods in Wensleydale is complicated by the fact that virtually all of the estate woodland has been converted to plantations. Coupled with this is the rare occurrence of boundary earthworks around Dales coppice woods to aid their identification. In consequence, the location of old coppice is almost totally dependent upon fieldwork, in the identification of relict trees (as favoured by Rackham), the presence of an indicative groundflora, and archaeological features connected with woodland industries. The *Mid-Wensleydale Multi-functional Plan* (Clark 2000) comments that: ‘coppice woodland is quite rare, with the best examples being at Redmire Falls, where hazel, bird cherry and ash dominate, and at Haw Bank (Ox Close), with hazel, ash, oak and sycamore. The coppice of Haw Bank and to some extent the linking bank between Warren and Leyburn Shawl has been lost through epidemic populations of rabbits’.

It is possible to identify a small number of old coppice woods to the west of Leyburn, in a significant area of managed woodland below the scarp known as Leyburn Shawl. Supported by the documentary references to *Laborne Sprynges* referred to above, the field evidence for a former, and extensive, coppice wood in Leyburn Shawl Plantation is clearly evident in the present appearance of the wood. The floor of plantation – the former Leyburn Shawl Wood which formerly extended to 45.59 acres (18.46ha) – is strewn with scree, and there are no indications of cultivation clearance. A number of large overgrown ash stools form a stand of abandoned coppice at the eastern end of the wood (Plate 6.9). Girth measurements taken from a sample of the poles indicate that the coppice was last cut in the early 20th century. Further to the east of the eastern boundary is an open area called ‘The Stubbings’, which was formerly part of the coppice wood, but was clearfelled after the land was sold to the Riddell family of Leyburn Hall. A plantation of 4.52 acres (1.84ha), created by the Riddells, is depicted on the upslope section of this cleared area on the Ordnance Survey First Edition 6-inch map of 1856 (see Figure 6.7). A Bolton Estate plantation ‘Shawl Top Plantation’, covering 3.79 acres (1.54ha) was established on the crest of Leyburn Shawl. The establishment of this plantation is described in the estate correspondence presented in detail later in the next chapter.

A stone wall forms the western limit of Leyburn Shawl Plantation. Beyond this boundary, in an area known as Sheepfold, there is a large extent of well-preserved ridge and furrow cultivation, together with a number of field trees that can be seen to stand on old hedgebanks which were similarly orientated with the ridge and furrow. An interpretation of the origin of these trees as hedgerow standards associated with the amalgamation of strips by piecemeal enclosure, is

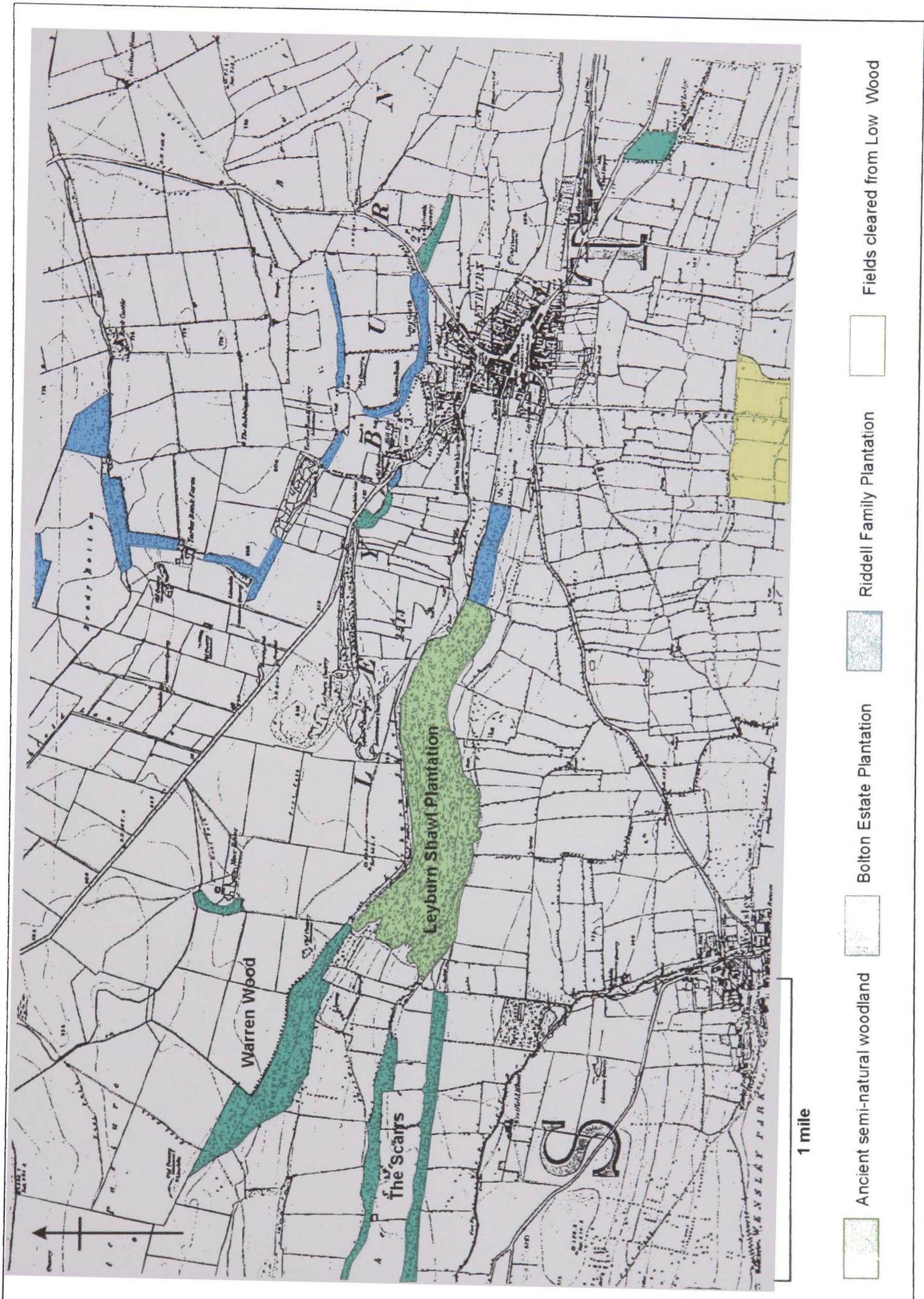


Figure 6.7. Bolton Estate and other woodlands in the Leyburn area.
 (Author's annotations and colour overlays superimposed upon a scanned image of the Ordnance Survey First Edition 6-inch map of 1856)



Plate 6.9. Abandoned coppice in Leyburn Shawl Plantation



Plate 6.10. Preston Spring Wood

offered. Further to the west, the woodland extends in a narrow strip along a limestone shelf into Warren Wood, the lower part of which is now derelict. A young plantation occupies the upper part this former coppice wood. At the western extremity there are a number of ash stools. At the top of the wood there are a number of larches and Scots pines that appear to be the remnants of an early 19th century Bolton Estate plantation.

‘The Scarrs’ and ‘Thowker Wood’ are two strips of woodland that extend westwards from the lower western extremity of Leyburn Shawl Plantation towards Preston-under-Scar. The Scarrs (the upper strip) is now a walled larch plantation, and there are no visible indications of a former coppice regime, nor any distinctive groundflora. In contrast, Thowker Wood is a plantation of Norway spruce but preserving some relict ash and hazel from a former coppice regime. Another small stand of former coppice of woodland survives at Tullis Cote, adjacent to the former Keld Heads smelt mill, forming part of Gillfield Wood. This 22ha (54 acre) block of old coppice has reverted into a self-regenerated birch wood. The existence of a large complex of industrial archaeological features associated with the former lead mine within this wood suggests that it was a managed coppice prior to the closure of the mine in the late 19th century. It is included in the Inventory of Ancient Woodland.

Condenser Wood, situated to the south of the mine, has similar characteristics to Gillfield Wood and can be seen on the Ordnance Survey First Edition 6-inch map to have also formed part of the same block of woodland. Clark (2000) notes that Condenser Wood is unusual because its broadleaved nature is the result of natural regeneration on old mine workings rather than any concerted planting programme. The name of the wood appears to be linked with its former industrial use in connection with the Keld Heads leadmine.

The woodland continues westwards along the lip of Preston Scar to descend the escarpment to the west of the former Bolton estate village of Preston-under-Scar. Here, it forms two large stands of woodland called Scarlet Wood and Preston Spring. The 16.11 acres (6.53ha) Scarlet Wood, formerly known as *Scarth Nick Wood*, is a scar edge wood, situated within the boundary enclosure of Preston Pasture and abutting the boundary with Redmire Pasture. The wood, whose walls are now derelict, is shown on the 1737 Godson estate plan as a triangular walled plantation. It is presently stocked with a Scots Pine and larch estate mixture, with beech along the scar top. It is interpreted that this wood was formerly a coppice that was replanted in the 18th century as part of the Bolton estate’s planting initiative. Interestingly, the *Remarks Book* for 1765 notes that the fence of Scarlet Wood was neglected at that time (NYCRO ZBO MIC 1822).

6.11 Preston Spring

Preston Spring is, in contrast, an area of coppiced ash, oak, hazel, hawthorn and grazing pasture. The woodland is on a steeply sloping site adjoining the western township boundary with Redmire, and to the south-east of the Redmire-Richmond road (Plate 6.10). The presence of scree and boulders that have fallen from the scarp face, and the absence of any indication that the hillside has ever been cleared for agriculture, suggests that the wood is unplanted. Somewhat surprisingly, there is no indication of woodland at this location on the 1737 Godson estate map, apart from the word *Spring* and a portrayal of some grazing livestock. There is a prolific groundflora of ancient woodland indicator species, including wood anemone (*Anemone nemorosa*) and bluebell (*Hyacinthoides non-scripta*).

The wood is only partially walled, and a linear earthen bank marks its upper extent. Although the place-name *Spring* is usually indicative of a coppice wood, there is no indication that Preston Spring was ever compartmented as a rotational coppice wood, although evidence of coppicing is apparent in the overgrown stools. The Spring was a multi-purpose wood which functioned as the cow pasture for the inhabitants of the village of Preston-under-Scar. It is described in the 1712 Survey of the Bolton Estate as:

Preston Spring – farmed by the whole town and is part of their common pasture. The rent is raised thus: every tenant or freeholder that has grasses in the common pasture pays 2s 2d for every grass towards the spring rents'. The total number of grasses is given as: 'My Duke's grasses 89½; Free grasses 24; in all 113½ at 2s 2d = £12 5s 11d (NYCRO: CRONT 1312).

Although the grazing was strictly controlled, it is not known whether the coppice was subject to any formal management regime, despite it being the principal source of fuel and small wood for the tenants. Preston Spring is again similarly described in the 1778 Bolton Estate Survey Book as the 'Town Pasture' of 183 acres. Butterworth (1993) comments that: 'The site of the earliest town pastures is clear enough, shown on maps from the 18th to 19th centuries to be *above* the village – Spring Pasture and East Pasture, with a further pasture on ground now quarried, to the north'. By 1826 it had become necessary to allot cow-gates or stints on the 194 acre 'High' pasture (i.e. the Spring) and on the 152 acre 'Low' pasture, which spread over several fields well to the south of Preston.'

It is perhaps pertinent to consider the population size, for Preston was principally a mining village with a fluctuating population, where agriculture was pursued as a form of pluriactivity. Consequently, it is reasonable to assume that increases in the population saw greater numbers of grazing livestock being kept on the town pasture. The 1673 Hearth Tax returns indicate that there were 56 houses and cottages, with a population estimated by Butterworth as 266. The

1801 Census return lists 260 inhabitants, indicating that the village had not undergone any perceptible growth in the previous century. Butterworth comments that the Manorial Court summary of heads of household in 1756 indicates a possible small rise in population in the middle of the 18th century, but this was minimal in comparison with the increase during the mid-19th century when the population rose to over 300. At the zenith of the mining era, between 1851 and 1871, the population peaked at a little over 400, but with the collapse of the lead industry, it declined to just under 300 by 1891. (This figure also includes the residents of Bolton Hall and Bolton Park as part of the parish of Preston-under-Scar).

The species that were most commonly managed by coppicing in the Yorkshire Dales were oak, ash, alder, birch and hazel. But perhaps the most frequently coppiced species was alder, on account of its abundance in gills, on wet fellsides and waterlogged areas adjacent to streams and rivers. In accessible situations where the trees could be coppiced, the wood was used for a multiplicity of uses. Charcoal-making for gunpowder manufacture was particularly important, but alder coppice also provided a source of raw materials for clog-makers, who used its wood for soles. There was also a ready outlet for alder wood in the mines, particularly during the 18th century, when alder was second only in importance to ash as mine wood (Rough Field Book of Leyburn and Carperby, 1779, NYCRO ZBO MIC 1822).

Alder coppices do not readily lend themselves as suitable sites for plantations, chiefly on account of the waterlogged conditions normally associated with the species. In consequence there are perhaps more examples of unaltered alder coppice still extant in the Yorkshire Dales than coppices of oak or ash. Sepperdin Wood, situated along a stretch of the Airedale Beck, near Redmire is a good example of a riparian alder wood, whose former coppicing regime is still clearly visible. This 3.84 acre (1.6ha) wood is typically small, and by consequence, ineligible for inclusion in the Inventory of Ancient Woodland despite its undoubted antiquity. As customary with many small coppices in the Dales, Sepperdin Wood, was regularly grazed – its land-use is described as ‘wood and pasture’ in the Redmire Tithe map award of 1843.

Not all riparian coppice woods are solely composed of alder; a number of mixed species coppices occur in close proximity to rivers. These invariably stand on elevated sites that are not subject to permanent waterlogging. Rod Box Wood, on the northern bank of the River Ure near Redmire Falls, is composed of ash, alder and birch with a holly and hazel understorey, and it is evident that frequent, but short, inundations have not been inimical to this mixed woodland. It is perhaps pertinent to mention that this wood is currently in active coppice management under a national park agreement, perpetuating a technique that has been practised in the same wood for many centuries.

6.12 Freeholders Wood

Hazel coppice was once a widespread feature of the Wensleydale landscape. Hazel woods provided vital raw materials and a seasonal crop of nuts for the families of agricultural labourers. The most extensive stand of relict hazel coppice in Wensleydale is Freeholders Wood, on the north bank of the river Ure at Aysgarth Falls. Active coppice management declined at the end of the 19th century and had ceased by the 1930s. The right of estovers in this 36 acre (14.58ha) wood is still exercised by 30 'freeholders' resident in the nearby village of Carperby. The rights pass between successive owners of each property and are not vested in individuals. Up until 1982, when the wood was acquired by the Yorkshire Dales National Park Authority for the purposes of reinstating the coppice regime, each freeholder also had the right to graze a cow in the wood. It is apparent from the surrounding 'ridding' field names that the wood formerly covered a much larger area than present (despite the extension to the wood undertaken as a Millennium project in 2000). A summation of the areas of surrounding fields having characteristic clearance names indicates that Freeholders Wood originally extended over 80.92 acres (33ha). This is twice the area of woodland stated on the 1839 Tithe map award: 40 acres (16.1ha). The award describes the wood as 'Common land', and formalises the grazing period thus: 'The above Common Land is called Freeholders Wood and is enjoyed by the owners of Gait therein as a stinted pasture from Old May Day to Old Michaelmas Day in each year when it is laid down as Common Land until the following Old Lady Day and enjoyed by the owners of Messuages and Lands in the said Township [Carperby] in proportion to the respective values of their Messuages and Lands. The said Common Land is totally freed of cattle between Old Lady Day and Old May Day' (WYAS RD/RT 45).

6.13 Woodland rights

An estimation of the extent of coppice woods on the Bolton estate can be gained from the tithe map awards which provide a tabulation of land-use and area. It is calculated that the total area of coppiced woodland in Carperby (beyond the Ox Close and Haw Bank) together with areas described on the Tithe map award as 'wood' was 51 acres (20.76ha). It follows, therefore, that Freeholders Wood represented 78 per cent of the total, and the woodland rights were enjoyed by just 30 households. But whilst the freeholders of Carperby enjoyed these special privileges, it is apparent that many Bolton estate tenants elsewhere had been granted the right to cut underwood from the woods, on the proviso that no standard [timber] trees would be felled, but left to grow on to maturity.

For many years the Bolton Estate maintained a tradition whereby the incumbents of Leyburn and Redmire were each year presented with timber in lieu of tithes on woodlands in the parishes, ie: 'An ancient composition of a good Timber tree for Plough or Wain gear

customarily set forth yearly at Christmas out of Wensley Woods the property of the said William Powlett Lord Bolton for the use of the Rector of the said Parish in lieu of all tithe of Chopwood and titheable wood throughout the Parish of the Woods of the said William Powlett Lord Bolton' (Redmire Tithe map 1843; Leyburn Tithe map 1844).

It is apparent that the Middleham Estate was less generous and saw the woodland there as its exclusive property. At the Court Leet held on the 6th April 1783, it was declared that: 'Every person or persons that shall cut or destroy any wood or underwood upon Middleham Moor or the Busks for heating their ovens with all, or any other use, save hedgewood, for every such offence £1 19s' (NYCRO Z.775). This perceived lack of available woodland from which the rural populace could take their needs in terms of firewood is discussed further in Chapter 9.

6.14 Conclusion

During the Middle Ages Wensleydale was essentially a landscape devoted to hunting in which the majority of managed woodland took the form of wood pasture. This landscape of aristocratic recreation contained a Royal Forest at its western extent and numerous hunting parks and chases on the dale sides between Middleham and Askrigg. Apart from property owned by Jervaulx Abbey on the northern flank of the dale at Abbotside, the ownership of land in Wensleydale was secular, being chiefly in the hands of the Crown (the Lordship of Middleham) and a small number of seigneurial families, amongst whom the Scropes of Bolton Castle were singularly influential.

This fundamental difference in land tenure distinguishes Wensleydale from Nidderdale and it is due to this distinctive arrangement of land-holding in Wensleydale that tenure is identified as the principal factor that determined the management of woodland there. Fundamentally, it was because the land-use was geared towards the provision of a suitable environment for the hunting of game animals such as deer and wild boar, that the woodland was principally managed as wood pasture in which aggregations of pollarded trees and undershrubs stood in close proximity to areas of open grassland. This system of woodland management was particularly suited to address the need for the provision of cover, grazing and a supply of harvestable small wood. In this system, the pollarded trees served to provide vital shelter and cover for game animals as well as a source of polewood and leaf fodder, while the treeless areas supported grazing land and provided a place in which the pursuit of game on horseback could take place.

Although wood pasture was particularly widespread in Wensleydale, there were stands of coppiced woodland in the valley bottom. A number of these woods were situated adjacent to townships in which an element of the rural population was entitled to exercise the right of

firebote (to take firewood in the form of dead wood and fallen branches). This duality of purpose in serving the needs of a hunting landscape and that for domestic firewood characterised the management of woodland in Wensleydale from the medieval period until the demise of the Lordship of Middleham in the 17th century. Following its sale by Charles I to the citizens of London in 1625 and the expeditious resale of large numbers of holdings to their sitting tenants, the old tenorial system changed from an essentially feudal pattern to one in which the Dale became a province of yeomen farmers and landed estates. Under this reorganisation of tenorial arrangement and landscape there was a marked decline in the amount of wood pasture and woodland generally, as the predominant system of land-use changed from hunting to agriculture. After this time, the woodland resources were mainly comprised of those elements of former wood pasture that remained in the parklands of family estates, the hazel coppices that had traditionally been managed and worked by commoners on the lower valley sides, and the remnants of woodland that still existed on the stinted grazing pastures on higher land. A number of coppice woods in the ownership of the Bolton (Scrope) and other estates functioned as a source of small wood and fuel for the burgeoning lead industry.

Wensleydale is of particular importance to this study of woodland management as it still retains beneath the Parliamentary Enclosure landscape elements of the medieval landscape in which woodland was primarily managed as an amenity. This is evident in the relics of a former landscape of parks, villages and open fields where an extensive network of former hedgerow trees provides a framework upon which a reconstruction of the medieval and post-medieval woodland can be developed.

The extractive industry in Wensleydale was on a smaller scale than that in Nidderdale during the monastic era and, in consequence, there was not the requirement to place large areas of woodland under intensive coppice management. Coppice woods on estates were, however, assiduously managed, and it is evident from documentary studies that their contribution as a source of grove timber and fuel for the mines was considerable. In Wensleydale coppicing was widely practised by the rural populace and represented an important aspect of the rural economy. It took place in most small woods and upon hedgerows to provide vital supplies of fuel and small poles. At this level it was less organised and on a smaller scale than in Nidderdale and tenure can be seen to have played a pivotal role in its application. This was because the control of such woodland was mainly in the hands of individual yeomen farmers. Where woodland existed on tenanted properties the familiar pattern of landowner control existed under which the tenants' right to wood was severely limited.

This chapter has described the evolution of the medieval landscape with its pollarded trees and hunting parks into the more familiar landscape of small farms and large estates that characterise Wensleydale today. A particular feature of the contemporary landscape is the broadleaved plantation woodland that exists in the Dale to the west of Leyburn and the shelf woods that characterise the underlying geology and topography east of Aysgarth. These woodlands, which are the product of the post-medieval changes in land tenure described above, now afford a sylvan aspect to the middle of the Dale. They originate from a revolution in estate management which forms the final aspect of this research. In the following chapter, the rise of modern forestry on the Bolton Estate is examined with the use of important and previously unstudied documentary material to provide an account that describes this critical era in the history of the woodlands of Wensleydale.

7. A CENTURY OF WOODLAND MANAGEMENT ON THE BOLTON ESTATE, WENSLEYDALE, 1719-1816

The woodland of Wensleydale is the product of five centuries of past land-use and management. The perception of this woodland as a fundamental component of the landscape character of Wensleydale is based upon a subtle blend of many different types of woodland. These range from field trees and shooting coverts, shelter belts and small woods in the valley bottom which make an overarching contribution to landscape beauty, to large plantations of timber trees on the valley sides, which in some cases accentuate the underlying geological configuration of the Dale. In the foregoing section it was explained that since the medieval period land tenure has been the principal engine of influence in the evolution of the landscape. This influence, together with that of the Parliamentary Enclosures, has remodelled the medieval landscape of the chase into that of the landed estate, in which the former parkland has become the pastoral and wooded landscape that today characterises Wensleydale.

This evolutionary process has had a profound impact upon the woodlands, for virtually all of the medieval wood pasture and coppice woodland has disappeared to accommodate grazing land or timber plantations, and today only vestiges of a former woodscape remain as a cryptic layer in this palimpsest landscape. As a consequence, the prevalent visible characteristics of the Wensleydale woodlands are largely the product of the last two hundred years of management. In order to understand this aspect more fully, a number of questions may be posed, including, for example: in what way has the area of woodland changed during the post-medieval period; how has the woodland acquired its present appearance; what factors have determined its situation and composition; and what end-uses have influenced or decided its management. The answers to these questions lie in an historical study of estate policy.

This chapter is presented in the form of a case study of the Bolton Estate in mid-Wensleydale, whose influence upon the woodland history of the north of England in general and Wensleydale in particular has been profound (Worsley 1989). It is based upon an important and previously unstudied archive of estate correspondence and other records for the period 1719-1816 from the Bolton archive held by the North Yorkshire County Record Office at Northallerton. This correspondence catalogues the transition from woodmanship to silviculture and forestry in Wensleydale. This case study is presented as an interpretation of the woodland history that lies behind an extremely important documentary record.

7.1 The Bolton Estate

Centred upon the 14th century Bolton Castle, the Bolton Estate spans the valley of the river Ure from the watershed between Coverdale and Wensleydale in the south, to that between Swaledale and Wensleydale in the north, and from Leyburn in the east to Carperby in the west, covering an area of 17,400 acres (7042ha). The estate has an extremely varied topography, ranging from lush, valley bottom grazing pasture to high exposed moorland. It is noted for its woodlands and commercial forestry and has been a major influence in the development of forestry and woodland management in the north of England. One personality of particular importance was Nigel, 6th Baron Bolton (1900-63), the author of several forestry books, including *Profitable Forestry* (1956) and President of the Royal Forestry Society from 1937-1943. Lord Bolton was appointed Chief Acquisition Officer to the Ministry of Supply in 1939, charged with acquiring 18½ million tons of timber in 6½ years for the war effort, which resulted in the felling of his own most prized plantations.

In the period under consideration, most of the estate's income was derived from numerous tenanted farms in the Dale, and from its coal and lead mines situated on the high moorland ridge between Wensleydale and Swaledale and on the daleside to the north-west of Wensley. The settlements of Leyburn, Wensley, Redmire, Preston and Carperby were largely the property of the estate.

7.2 The estate archive

Although the estate archive was seriously diminished by a fire that devastated Bolton Hall in 1902, the surviving documents, now held by the North Yorkshire County Record Office (NYCRO) and calendared under the code ZBO, contain much of relevance to this historical study of woodland management, particularly for the period spanning the early 18th to early 19th centuries. The documentary material is chiefly in the form of estate surveys and valuations (of which there are many), together with vouchers and receipts for purchases and sales. Of particular importance is the correspondence of Thomas Orde, the first Baron Bolton and his agents. These letters catalogue the transition from woodland exploitation to forestry management that took place on the estate from the mid- to the late-18th century. The construction of Bolton Hall in 1678 initiated a remodelling of the countryside around Wensley that involved the incorporation of one of its former open fields into the Home Park and the creation of a designed landscape that extended to include the former deer park of Capplebank and the 'Wood of Wensley' (West Wood). The flow of correspondence that informs this case study began in 1719, at a time when copious residues of a former chase landscape of wood pasture and ancient pollarded trees were present on the estate.

7.3 Exploitation of the woodlands

During the early 18th century the estate woodlands were being cut down for use in the coal and lead mines, for woodland, at that time, was perceived as a saleable resource that could be exploited to satisfy short-term financial needs. In a letter to the (absentee) Duke of Bolton, dated 18 December, 1719 Mr Hammond, the estate manager, reports: 'I am going on with the Grubing of the Thorns and Teasles in the low part of Caplebank, and the Old Trees are cutting down there for the use of the Colliery and the Lead Mines' [NYCRO, ZBO IV 8, 172].

The documents are largely silent for the ensuing 40 years and it is reasonable to assume that the clearance of old neglected woodland continued in a similar manner during this time, for when the correspondence resumes in 1760, the letters still dwell on this topic: 'There are several small parcels of ground in Capplebank which is over run with under wood, which I believe may be got stubbed in the Winter for the Wood, which will improve the herbage. The Ash Timber, which is mostly decayed, we are cutting up into Grove Timber for use in the Mines, as it cannot be sold for any other use' [NYCRO, ZBO IV 8].

The above correspondence provides an impression that much of the estate woodland was derelict by the mid-late 18th century. Some tree-planting had taken place when Bolton Hall was built in 1678. This was manifest in two avenues that extended southwards from the Hall to cross the river and ascend the facing hillside, and eastwards towards Wensley. The Godson Estate Map of 1737 reveals the quite large extent of managed woodland on the estate associated with the Keld Heads mine (Plate 7.1), and in Capplebank Park, which was managed as wood pasture and lawns (Plate 7.2). In addition to these stands of managed semi-natural woodland, the estate had also established new plantations at Hell Gill (to the east of Bolton Hall), on the northern riverbank, and around Mount Park, to the east of Capplebank. Worsley (1989) comments that mixed planting had been practised on the estate since the 18th century, and sycamore planting had long been established, as three trees near the Hall are known to date from 1720. These initial plantings represented the advent of forestry in Wensleydale.

The estate had become reliant upon sales of wood as a means of providing a cash income. To this end, it will be seen that shortly after the mid-18th century, there was a wholesale onslaught upon the estate woodlands that probably saw the destruction of most of the old pollarded trees which stood in the former parkland wood pastures around Bolton Hall. Evidence of this is contained in the estate papers for 1760, when the estate was experiencing problems with the river Ure eroding the riverbank and causing the loss of valuable riverside pasture land near Wensley Bridge. Thomas Maude, the agent, estimated that it would cost £129 19s 9d to make 'a



Plate 7.1. An early Bolton Estate plantation at Keld Heads, depicted on Godson's map of the Bolton Estate (1737)



Plate 7.2. Capplebank Park, depicted as wood pasture and deer lawns on Godson's map of the Bolton Estate (1737). The avenue cutting the park from north-east to south-west is contemporary with the construction of Bolton Hall (1678)

Weir to cross the River Yore, piling the southside, making a cutt on the north side, and removing a sand bed. In order to prevent the river from over flowing the grounds on the south side, washing away a high road and that it might be kept in its antient channel to Wensley Bridge' [ZBO IX 1/12/1].

By 1775 further problems with the river had arisen necessitating urgent repairs to the bank at a time when the estate was not in good financial health. A statement by Thomas Maude, suggesting that timber should be felled as a means of generating cash, creates a vivid image of the difficulties wrought by the river and the state of the woodland at the time:

The River Yore has made an impression upon one part of the Bolton Estate near Wensley at a place called the High Ings as to threaten a total deviation from its ancient course and endanger a very valuable tract of meadow ground which is daily worn away by the rapidity of the current and will in the end be very considerable loss to the inheritance. The water corn mill at Redmire called Redmire Mill has likewise been undermined by the River and altho' the same has been new built it will nevertheless require great care and attention to wear, defend and support the banks of the River to prevent the like accidents for the future. The Estate of the Duke of Bolton is likewise in many places down at Middleham and Thornton Steward much injured and worn away by the rapidity of the River Yore and will require a considerable sum of money to repair or defend the several parts thereof against the current of the river. It is with great concern that Mr Maude beholds this increasing destruction and waste of so much valuable land and represents this matter as an object of attention of his Grace the Duke of Bolton and to Miss Powlett and earnestly recommends that a survey of the several places above mentioned may be made by some skilful person and that a sufficient quantity of wood may by mutual consent be agreed to be immediately cut down and sold under the inspection of proper Workmen for defraying the necessary expenses of the support of the Banks of the River in the most needful places, and prevent in time the mischief that will otherwise undoubtedly be the consequence. The Timber I would recommend for sale on this account is principally such ash and elm as is greatly on the decline and other inferior wood of all which there is a great abundance, and the felling it in certain quantities would in many instances prove beneficial to the Estate by permitting the younger trees to flourish, which in their present crowded and shady state are much discouraged in their growth. Thos. Maude, 25 June 1775 [ZBO IX 1/12/2].

Erosion of the riverbank continued to present the estate with serious problems in 1784. Again, Maude looked to the estate's woodland resources as a means of generating funds to meet the cost of remedial works. The woodland was valued by W. Gill and Francis Earle 'to defray the expense of rectifying the course of the River Yore in Wensley Ings, and other contingent expenses also to be used in compleating the work, 10th July 1784'. The following timber trees were identified as saleable, with a valuation of £298 14s 5d:

In the Bridge Walk:

86 lime trees and 4 cyphers £46 7s 9d

43 plain trees and 34 cyphers £21 12s 6d

In Scaur Bottom:

21 ashes and 1 cypher £13 7s
8 elms and 1 cypher £34 0s 6d

In West Woods:

101 ashes and 11 cypher £69 11s
30 oaks and 2 cyphers (bark included) £78 9s 6d

In Wensley Park:

26 ashes and 10 cyphers £5 8s 6d
19 elms and 3 cyphers £4 10s
36 oaks and 1 cypher (bark included) £55 17s
Total £298 13s 9d

Expenses of timber and work by estimate £278 14s 5d

To charge of planing and estimate valuing wood inspecting work and contingent expenses. We compute at £20. Total £298 14s 5d [ZBO IX 1/12/8].

The end-uses of this wood are not always clear, but sales of wood to the mines figure repeatedly in the documents. A wide range of species was used for minewood (often referred to as ‘grove timber’). The following example, taken from the *Rough Field Book for Leyburn and Carperby, 1779* is a typical list of trees cut for use in the mines: ash 135; sycamore 101; alder 103; elm 65; larch 248.

In 1784 another valuation was carried out to determine the amount of timber that would need to be felled in order to pay for the repairs to the riverbank. This document provides some interesting valuation figures and describes the trees growing on the estate that were deemed suitable for sale. The term ‘cyphers’ refers to immature trees that had not yet gained sufficient girth to qualify as timber. The references to bark signifies a demand for this material by local tanners:

A Valuation of the Timber necessary to be cut down within the Manor of Wensley for the purpose of defraying the Expenses of rectifying & repairing the Course of the River Ure in Wensley Ings . . . £298 13s 9d, less £20 (charges for planning, valuation etc).

The timber trees identified included 86 limes and four cyphers, and 43 plain trees and 34 cyphers in the Bridge Walk; 101 ash and 11 cyphers and 30 oak and 10 cyphers in West Woods; 26 ash and 10 cyphers, 19 elm and three cyphers and 36 oak and one cypher (bark included) in Wensley Park. The most valuable was the oak.

The felling programme raised some criticism from Thomas Orde’s immediate neighbour, John Anderson, of the Swinithwaite estate. In a letter to Orde, Anderson said: ‘Bolton Estate is greatly injured by the cutting of Timber’. He interestingly reveals the destination of the cut timber as: ‘a very considerable quantity has been cut for the Cotton Mill at Askrigg this year as well as for other purposes’. Clearly, much of the felled timber took the form of thinnings, which

is indicative that some thought lay behind the selection of timber for sale: 'the fell which is to take place will contribute to thin the wood upon the Estate of which Francis Earle can give you the particulars'.

An interesting side reference is that made to the foddering of cattle with holly, in which Anderson comments: 'I believe very great havock was made last winter amongst the Hollies, which I am informed were cutt down for the purpose of fodder for Cattle, & have since been sold . . .'. The scale of this felling operation was considerable. Francis Earle's letter of 12 July, 1784 gives an impression of its extent – even an avenue of trees was condemned, with the exception of five lime trees. Clearly Earle felt justified in his actions as he considered the trees were of poor quality and denied that the felling would impair the estate:

. . . all the trees in the Avenue from North end of Bridge which stands in the road are marked and valued excepting 5 Lime Trees proposed to stand. The Trees in Scaw Bottom you see by valuation ment[ione]d, when going from Bolton Hall Over L[or]d Bridge Scaw Joyn's South East End of Bridge and comes down to South side of the River, when going west From Hall about 200yds distance. There is a pond and gate at the entrance of West Wood after we had gone 60yds west From the gate we Turndd into the south part of the wood and mark'd & valld. The ashes and oaks ment[ione]d in west wood. The Field Called Wensley Park Lay about 200yds East from the Hall and The South End of the Field comes to the North Side of the Road Going from Bolton Hall to Wensley. The Trees that are Valued are not improveing Trees and The Ash Trees in Wensley park are of a Bad Quality. I cannot perceive That cutting the wood down will injure the Estate or Deface it, Excepting the Bridge Avenue . . . Francis Earle, 12 July 1784.

More repairs to the riverbank were carried out in 1785 and 1786. The uses and costs of the wood for constructing 'cutts, weirs, frames and piles' are contained in two letters from Francis Earle to Thomas Orde.

13 December 1785. Francis Earle, Middleham to Thomas Orde, London:

. . . nothing done at present . . . only The Oak, Ash and Elm wood in Wensley Park and Valld at £65-15-6 is Taken From the whole Valuation £298-14-9 To Make Frames and pyling in order to keep the River Yore in its proper channel.

An account of the 'expense of makeing Cutts & weirs in Wensley Ings etc. by Gill & Earle' shows that work was begun on the river in 1785 and continued in 1786. The significant contribution of the sale of wood and bark in reducing the bill for this work is of particular note, for the total outlay is given as '£309 18s 8¼d; wood & bark sold £306 0s 0d. Therefore expenditure of £3 18s 8¼d'.

By March 1785 most of the radical tree-felling had been carried out, to the extent that the South Avenue, by now 100 years old, had been removed; Thomas Maude was clearly pleased with the outcome:

. . . The South Avenue to the intended distance is already down, and its effect in looking from the House and at a distance upon it is admirable and instead of appearing naked it really opens a prospect of more wood finely scattered, as well as grouped, more especially in approaching the House coming from Wensley.

There is a gap of two years before the correspondence again turns to woodland. In 1787 the estate was still financially unstable, and was now considering selling land to raise cash, for in a covering letter to Thomas Orde, dated 18 May 1787, Maude enquired whether ‘the proposed sale of part of the Yorkshire Estate be put in Execution.’ A letter from John Anderson to Thomas Orde on the matter of a possible sale, highlighted the mines and woodlands as being the most valuable part of the estate. In the event, timber at Leyburn Shawl and Downholme (near Richmond) was sold.

The poor state of the Bolton woods is again apparent in the correspondence, and one may envisage that natural regeneration was poor. Maude writes:

The woods will certainly be improved by the operation when properly cleared of the smothering part, as the acorns and other timber seeds will be disseminated more and the vegetation of every kind be promoted by the admission of rain, air and sun, of which the trees are now partially deprived.

Overall, the 1780s were of particular significance for the estate woodlands, for while there was heavy reliance upon the woodland resources in terms of income generation, with a felling programme primarily aimed at producing saleable timber, the desirability of thinning the woodland, removing poor trees and improving the woodland generally was gaining importance in the Estate’s woodland management strategy. This may be the first indication that the estate had begun to consider its woodland resources in the long, as opposed to the short term, when neighbouring estates, such as the Ingilbys at Ripley, were engaged in major tree-planting initiatives.

There is a clear hint that towards the end of the 18th century old pollards, indicative of former wood pasture, were still standing in West Wood. These had clearly become derelict and were perceived to be a hindrance to the production of decent timber. Maude writes:

Whilst I am upon this topic, let me add, that there are many distorted ricketty trees of elm and ash, dead, dying and hollow, particularly in the West Woods, which are only fit for charcoal and such inferior purposes, that if selected for sale might be greatly

beneficial to the Estate, as their company prevents and obstructs the rising succession of every sort of valuable Trees. The wood alluded to under the above description might possibly amount to sixty pounds, and if the rest of the Woods were view'd for the same purpose, perhaps as much more might be found, which would certainly render the remaining part of more value in a shorter time, as the crippled trees are the weeds which both deform and incumber the soil and greatly injure the growth of underwood, sapling and timber.

It is apparent that a number of the estate's tenants had been granted the right to cut underwood from the woods. This was on the proviso that no standard [timber] trees would be felled, but left to grow on to maturity. Such trees were marked by the estate staff to identify them. However, the tone of the correspondence suggests that the trees-for-cash felling policy instituted by the estate may have struck a discord with some tenants who felt their rights were being compromised. In the following letter, Maude brings this concern to Thomas Orde's attention:

Bolton, December 1st, 1787. Sir, The Tenant for Life having been always entitled to cut underwood for sale on this Estate, I think it will be satisfactory for you to know that the utmost care has been taken to preserve and mark what Trees come under the Denomination of Timber, as well as those which may become so in time. For this purpose, Francis Earle was summoned to attend and an experienced person in separating the selling part now under consideration from that which is to remain, and due care will be taken that no illegal Liberty may happen.

The river continued to present the estate with flooding problems, and in 1791 there was again the need to sell timber in order to generate the funds to pay for river works. An 'Estimate for opening High Wear in Wensley Ings etc', dated 13 May 1791, suggests 'selling more timber to defray cost – beech, plaintree, limes, ash, elm & small quantity of oaks.' The year 1793 seems to have been particularly bad for the estate – faced with perennial riverine flooding and a spell of bad weather. In Maude's letter to Thomas Orde of 5 February 1793, he says:

There is much distorted & decaying Timber on the Estate, that might well be spared [sold] . . . We had 2 floods both within the week the first. . . came 2 thirds of the way from the Avenue Bridge to the Mansion, covered the adjacent ground in wreck and sand as to do fifty pounds damage at least, to the Ground, Crops & Fences only near the House . . . The Bridge near the house was in great Danger from a Tree which the water had rooted up and left on a Shoal in Wensley Ings . . . The storm also blew down several parts of the park and other walls & Fences, uncovered Houses and threw down a chimney.

While this letter must have caused Orde some despair, a further letter, in quick succession from Mr Bayley, probably exacerbated this by giving the impression that the woodland was becoming depleted and the time had come for the estate to resort to selling hedgerow timber, despite a perceived abundance of elm and sycamore.

15 February 1793. From J. Bayley, Bolton Hall to Thomas Orde at Carisbrooke Castle, Isle of Wight: Further problems with the River. Suggest removing distorted timber from the hedgerows in order not to resort to the woods – but if not some sycamore and elms might be felled.

In March, 1793 the estate engaged Thomas Siddall, a woodman from Preston-under-Scar, to assist with the valuation and felling work. John Anderson, acting in the capacity of *ex-officio* steward, wrote to Orde on 5 March 1793 about the valuation of hedgerow timber. In his letter he referred to the ‘crooked & decaying trees’ in the woods, and suggested selling wood for the mines in Arkendale [Arkengarthdale] and using the remainder for piles (for shoring up the riverbank). Anderson was clearly very supportive of Siddall’s abilities and qualities, and it is apparent that he would rather sell timber to the mines than to timber merchants:

Siddall was with me yesterday and I believe begins this day to value the Timber in the hedge rows for the use instructed; he is completely qualified for the business and may be relied on for integrity. He does not differ in opinion from Mr Maude respecting the state of the Wood to be felled, a large quantity may be cut down which is either crooked or decaying, thought to what value he could not speak; when he has gone over the whole I will send you the particulars; he can sell any quantity of wood for the Mines in Arkendale to advantage which is better than disposing of it to those who purchase for profit [1541/2].

Siddall, however, appeared to be rather single-minded in his perception of woodland as a cash crop. His activities, in valuing and condemning trees, greatly concerned Thomas Maude. In his letter to Orde, dated 20 March 1793, Maude is alarmed by Siddall’s intention to make inroads into the ornamental woodland:

Siddal is valuing wood, but extends his views beyond what I daresay you will consent should be cut down, although the trees may be in Decay. He has included a plantation in the corner of the park and a wood by the water-side called Belle Wood between the House and Wensley – They are both very ornamental and would leave the Prospects too naked til other Trees get up – They may be decimated and probably re-decimated without injury to the View but to take them totally away would make a faulty void – However as valuing and felling are two different measures there is Time enough for to determine perhaps upon the spot. The valuation of each parcel is kept distinct which may be useful and informing, as it may direct how far we may go in that way and no farther.

The following letter, dated 25 May 1793, from John Anderson, Temple House, Thomas Orde’s immediate neighbour, endorses Maude’s concerns at Siddall’s activities and stresses that part of the condemned woodland should be retained:

the woods . . . they certainly ought not to be cut down tho’ I think they may be thinned with advantage, Syddals valuation which I shall inclose is of little consequence as one fourth of the wood valued should not come down.

A timber valuation in excess of £400 indicates that, despite Maude's protestations, the felling had now been extended to include some ornamental trees. John Anderson was clearly unhappy with the proposals. On 5 June 1793, he wrote:

Mr Bayley has neither wrote to Mr Dickinson the Engineer, nor to Mr Carr of York . . . he thought . . . Funds should be raised to defray the expense of the necessary repairs. The Valuation of His Grace the Duke of Bolton's Wood Marked Numbered and Cyphered on Bolton Hall Estate Etc. is for £423-18-6, but the greatest value of trees including beech and oak has been annotated by Mr Anderson with *extremely ornamental ought only to be thinned with caution.*

By March 1794, Siddall had donned the mantle of asset-stripper, and continued to ravage the estate woodlands. In March 1794 it was found that Bolton Bridge was in need of repair. In order to pay for the necessary works, Siddall carried out a valuation of timber trees on the estate. The record of his valuation is as follows:

A Valuation of Wood on the Estate of his Grace the Duke of Bolton in Yorkshire by Thos Siddal. (For the repairs of Bolton Bridge.) This includes trees in Preston township, Swinithwaite, West Witton and a considerable number in Wensley i.e. part of the landscape to the south of the Wensley Drive and the Hall e.g. 31 lime in Lime Walk; 33 ash, beech & sycamore in Thick Wood; 21 sycamore in the Bridge Garden Spring and a number of cyphers. The cyphers may be cut down without giving injury to the plantation. The total value is £738 18s 6d.

The detail of this valuation is as follows:

Ash and elm wood in Liberty. Large wood and Mount Pasture in Andrew Bell's Farm: 89 numbered trees and 20 cyphers (£68 14s 6d)
 Sycamore wood in Andrew Bells Lym Walk Field: 31 numbered trees (£25 0s 6d)
 Ash and Elm wood in the plantation at the high end of Andrew Bell's farm: 364 trees and 344 cyphers (£279 6s 6d)
 Beach Wood in the plantation ditto: 21 numbered trees and 5 cyphers (£47 12s 0d)
 Oak Wood in the plantation: 3 numbered trees (£3 5s 0d)

Preston township:

8 sycamores in the Black Walk £23 11s 6d
 29 trees, 8 cyphers ash and elm in the High Paddocks £21 2s 6d
 19 trees, 10 cyphers oak in Scarth Wood £29 2s 0d

Swinithwaite:

99 trees, 106 cyphers ash and elm in High Keld and Little Ing £60 13s 6d

Wensley:

89 trees, 20 cyphers ash and elm in Liberty Leys Wood and Mount Pasture £68 14s 6d
 31 trees lime in Lime Walk £25 0s 6d
 16 trees 13 cyphers ash elm and sycamore in Wensley Ings Head £11 12s 6d
 33 trees ash, beach and sycamore in Thickwood £35 7s 0d
 21 trees 3 cyphers sycamore in the Bridge Garden Spring £24 4s 0d
 40 trees 32 cyphers oak in Thooker £55 3s 6d

West Witton:

42 trees 24 cyphers ash and elm in Maron Schaw Bottom £25 3s 0d

45 trees 69 cyphers ash and elm in Fairbanks Bottom £28 1s 6d

Total £408 15s 0d (472 trees and 285 cyphers)

Plus 388 trees 349 cyphers ash, elm, beach and sycamore in the Plantation in Capplebank £330 3s 6d.

Siddall added a note that: 'The cyphers might probably be cut down without injuring the plantation. No timber here is touched upon in the woods' [ZBO IX 1/12/8].

The repairs to the bridge were scheduled to be carried out in September 1794. In his letter of 12 September to Thomas Orde, Maude said: 'This month of September will quite repair the bridge as well as expend the sum allotted for banking which extends above and below bridge so that all on light will look alike finished. Mr Foss has given me the enclosed plan and will contract to make the whole complete and deliver the same for fifty pounds, the estate finding wood and the old ruin adjoining for stone materials. There is much oak upon the spot as will do, ready for the sawpit or axe. There will be only extra a gate to make. The next work will be defending the Ings at Wensley when a fund is established for which Messrs Anderson and Morley must lend their joint aid for the operations.'

7.4 The advent of forestry on the Bolton Estate

On February 27, 1795 Thomas Maude resigned from his post as Bolton Estate Steward. His replacement was John Anderson, of nearby Swinithwaite, who had previously been closely involved with the running of the estate. Under Anderson's influence, the estate began to set out a number of new plantations and Thomas Siddall was put in charge of the established Bolton woodlands. On 1 May, Anderson wrote to Thomas Orde recommending that Siddall should receive a salary of five guineas a year

for looking after the Woods and for setting out timber for the use of the tenancy with propriety to be continued, should you see no reason to the contrary. He to have the general superintendence of the whole of your woods. Downholme and Leyburn to have each as usual separate persons to particularly attend to the respective woods in those places, their joint salaries (as to the two latter places) are either 40 shillings or five guineas.

In the autumn of that year work began on setting out a new plantation to the north of Bolton Hall. Anderson wrote to Orde on 13 Oct 1795:

Before I left home I waited on Hammond and viewed the piece of ground which he will let you have in exchange for another, as the planting season draws near, the exchange ought to take place as early as possible that the intended plantation by the road side leading from Hellgill to Preston might be immediately set about.

New plantations were also being set out on Leyburn Moor and at Preston-under-Scar. On October 26, Anderson wrote to Orde stating:

Tomorrow I intend visiting Leyburn Moor to see what forwardness the plantation fence is in. When the weather will allow I shall push the planting business rapidly forward. I think it would be advisable to defer till next season the Preston plantation joining to Hammond's piece; we have plenty to do without it for the present. No difficulty whatever we can arise to raise a fund to defray the expense of planting, shortly I will write you more fully on this. I must have a whole day with Siddall in the woods soon, after which I shall recommend to you a reasonable fall of timber. I think one half of the Lime Trees in the Avenue leading to the Bowling Green House might be taken down; they are at height.

7.5 The disparking and division of Capplebank Park (1795) and the creation of Capplebank Plantation (1796-1800)

A notebook dated 1795 [ZBO IX 1/23: MIC 1166] provides an outline of tree-planting activities on the estate. There are references to planting on heights near to Middleham Moor 'part in Humphreys and part in Bells Farms' [frame 5659] and, importantly, to the disparking of Capplebank in order to divide the land up into new farms, whilst retaining areas for plantations.

Capplebank Plantation (SE 075875) is a conspicuous block of woodland situated on the northern flank of Penhill, immediately below the scarp of Middleham Moor and overlooking the environs of Bolton Hall. The northern (lower) boundary of the plantation has a distinctive scalloped form which is quite unlike other Wensleydale plantations, and as such Capplebank Plantation is a local landmark.

The plantation was created in the late 18th century following the division of Capplebank Park into three zones. It is depicted on the Ancient Woodland Inventory map as a mixture of ancient semi-natural woodland and ancient replanted woodland. Extending to 17 acres (6.88ha), of which only 2ha is classified as semi-natural; the remainder is stocked with larch and coniferous species. The historical development of the Plantation is given in detail below.

Capplebank Park ('the Bank of the Horses' – S. Moorhouse, pers. comm.) was a deer park, bounded by the river Ure to the south and Middleham High Moor to the north. The place-name may also refer to horse-breeding (R. Muir, pers. comm.). Until the early 17th century the park was part of the Lordship of Middleham. Together with Penhill Park, an area that included Middleham High Moor, this stretch of open fellside had been used for hunting by the nobility since 1417, when free chase in West Witton and Penhill was granted to Ralph Neville, Earl of

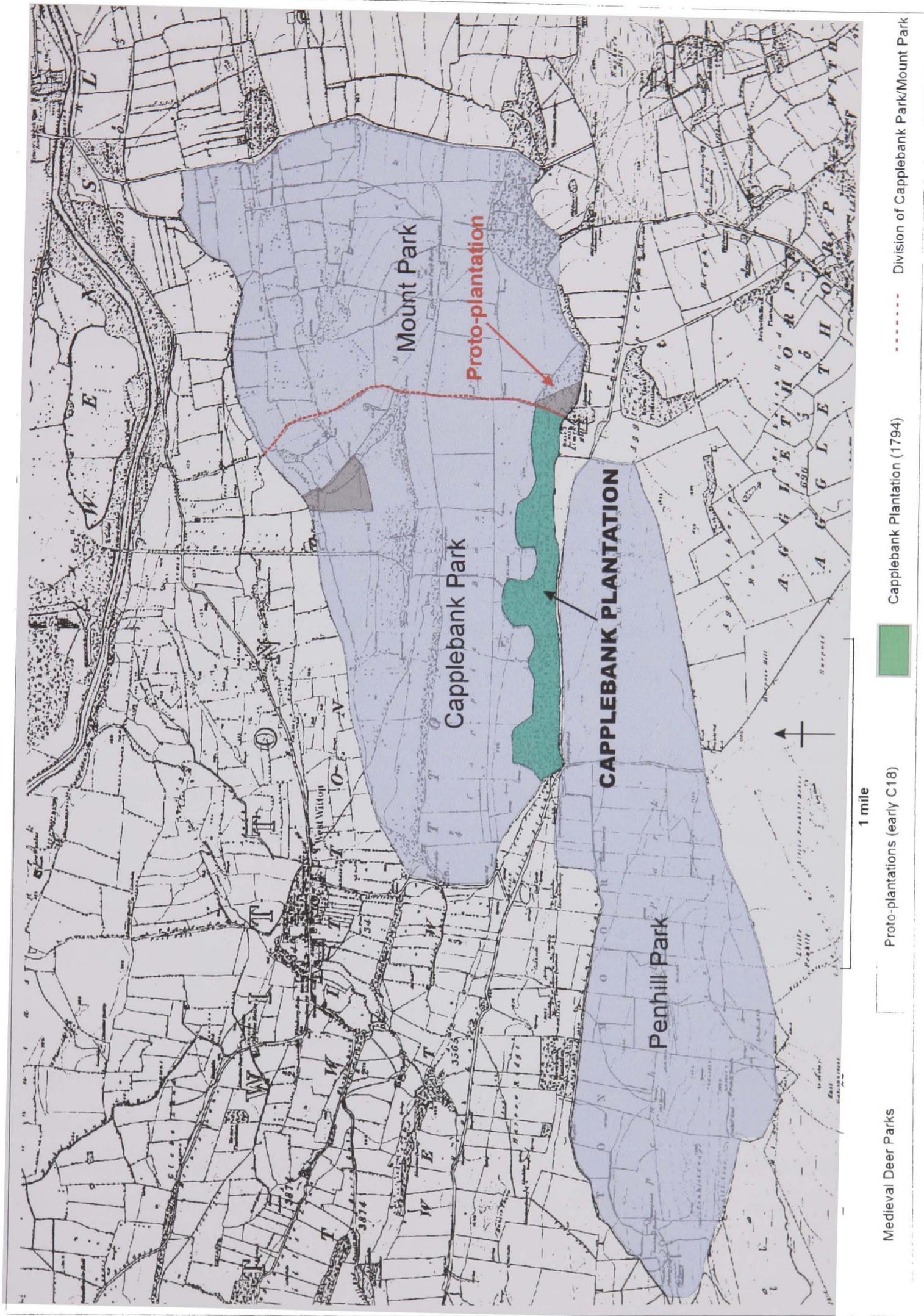


Figure 7.1. The context of Capplebank Plantation. Author's annotations shown in colour superimposed upon on scanned map base from the Ordnance Survey 1st Edition 6-inch map, Sheet 67 (1856)

Westmorland. Emparkment appears to have taken place in the later 15th century: the first mention of Capplebank Park and adjacent Penhill Park occurring in 1465 when nearby West Witton Park was renamed 'Wanlas Park' to distinguish it from these two 'new' parks (VCH 1907).

Following the Crown's acquisition of the Lordship of Middleham in 1483, the 390-acre (157.8ha) park became a royal chase. Jones Barker (1854) notes that Penhill Chase was vested in the Crown and comments: 'as lately as 1844 a portion of it remained, known as Capple or Chapel Bank' (1854, p.201). Following the transfer of title to the Crown, Capplebank Park was leased to the Scropes. Confirmation that it was in their hands during the 16th century, is provided by an 'examination of witnesses made upon Interrogatories on behalf of Lord Scrope', dated 24 January, 36 Hen VIII (1545), in which William Hunter of West Witton, husbandman, aged 78, is described as 'underkeeper of the park of Keblebanke' (McCall 1911, p.80). This arrangement continued into the 17th century, with the Scropes receiving mention in the Lordship of Middleham Survey of 1605 (Willan and Crossley 1941). This stated that Thomas, 10th Lord Scrope of Bolton 'holdeth Caplebanke parke at the rent of £5. The quantity of land is 390 acres'. The park was acquired by the Scrope family shortly after this time.

With the construction of Bolton Hall in 1678, Capplebank became the home park, stocked with red and fallow deer. Shortly afterwards it was subdivided to create Mount Park in its eastern sector, presumably for the purposes of simplifying land management and creating agricultural land that could be let. Capplebank Park had an ovate boundary whose course can still be followed in the pattern of relict field walls. A summer house and hunting lodge was constructed within the park by the grandson of the first Duke of Bolton in 1678.

Bay Bolton Avenue, a formal avenue of trees, contemporaneous with the building of Bolton Hall, served to provide a direct link between the Hall and the park. The avenue, the line of which is still extant, left the Hall, on the north bank of the Ure, to cross the River Ure by Lord's Bridge. It then ascended the northern slope of Penhill, to terminate at the southern (top) boundary of Capplebank Park with Middleham Moor. It is evident from the depiction of Capplebank Park on the Godson Estate Map of 1737 that the formal avenue passed through three discrete stands of wood pasture. The southern park boundary coincided with the crest of a steep slope to allow wild deer to gain access to the park. But having entered the park, they were confined by the steep terrain which prevented their escape.

The Godson Estate Map of 1737 shows Capplebank Park as a large area of wood pasture, with concentrations of trees interspersed by linear lawns (Plate 7.2). In the field, it is evident that this

arrangement was primarily determined by the local geology, with the woodland occupying the steep slopes created by the erosion of the shales of the Yoredale series, and the lawns sited on the level limestone benches. It is highly unlikely that this woodland was planted, being in the main composed of ash and oak pollards. Furthermore, it is apparent from estate correspondence of the early 18th century that it was largely unmanaged and probably derelict. Failed and dying trees were continually being removed from the park in an attempt to maximise its grazing potential.

Land-use was a mixture of pasture and meadow. Dickinson's Bolton Estate *Survey* of 1723 and his subsequent *Field Book of ye Mannors of Wensley and Preston in ye North Riding of ye County of York Surveyd for his Grace ye Duke of Bolton* describes Capplebank Park as 'Pasture'. In Dickinson's later survey of 1730, Capplebank is described as 'Meadow' in the tenancy of Edward Fothergill. It appears that at this time, the deer were a contentious issue, for in the absence of the Bolton family, who chose to live in London or at their Hackwood Park, Hampshire estate, rather than in Wensleydale, there was little advantage to the estate of maintaining large numbers of deer in the park. It made more sense to clear the woodland and let the park for agricultural purposes. In 1759 Mr Hammond expressed his concern (in a letter) at the large deer population in Capplebank Park:

Mr Law told me last Sunday that his Son had written to him to know what number of Deer was in the Park. I think there is upwards of 250, but most of them are young Deer, and not many Bucks among them. I am apt to think that neither your Lordships or any of your family will ever live at Bolton so that it answers no end in keeping so many Deer in the Park where they eat up the most of the Grass. If they were all or most of them destroyed the Land might be let, which would turn to advantage, but keeping the Deer never will. From May to Michaelmas I took as many Cattle into the Park as amounts to £57.11.0 but if a great many of the Does and young Deer are not killed this latter end of the year, some of which may be sold, but not many of them there will be no room to take near so many of the Cattle into the Park next year, what your Lordship would have me do in the affair of lessening the number of Deer, the sooner I have your directions and better. I am your Lordship's most Dutyful and obedient servant, Mr Hammond. Bolton, 9 October 1759 [ZBO IV 8,172].

Lord Bolton appears to have heeded Hammond's advice, for in a letter dated 29 July 1760 written by Will Law, the deer keeper, to Bolton, Law says:

I shall punctually observe your Grace's order with regard to the Deer. There are about Two hundred and sixty in the Park with ninety Bucks and One hundred and seventy Does, and not more than four brace of Bucks that are fit to kill for sale which shall be sold and what more I can dispose of.

It is apparent, from another paragraph in the same letter, that the woodland had been neglected and was probably derelict and, upon the disposal of the deer, would be cleared to improve the pasture:

There are several small parcels of ground in Capplebank which is over run with under wood, which I believe may be got stubbed in the Winter for the Wood, which will improve the herbage. The Ash Timber, which is mostly decayed, we are cutting up into Grove Timber for use in the Mines, as it cannot be sold for any other use [NYCRO, ZBO IV 8].

In 1794 the area of deer park was reduced in order to rationalise the land-use. This involved dividing the park into three discrete blocks with the top third being set aside for a plantation, the middle third laid out as agricultural fields, and the lower third retained as a small grazing area for cattle and deer. The notebook, dated 1795, referred to above [ZBO IX 1/23: MIC 1166] describes the creation of Capplebank Plantation in some detail. It refers to two divisions being staked out: 'those for early plantation and those for future woods'. This suggests that the intention was to provide a create a plantation of fast-growing softwoods together with a more traditional stand of mixed broadleaves. The origins of the plantation lay in a small wedge of planted trees situated at the northern subdivision boundary with Mount Park. This proto-plantation appears on mid-18th century maps as a stand of woodland appended to the eastern end of the wood pasture. The eastern boundary of this proto-plantation coincides with the present boundary of the Yorkshire Dales National Park. Another 18th century plantation, which has since been cleared, lay in the north of Mount Park on a slope above Wensley Ings. The proto-plantation, depicted on the Godson map of 1737 and shown brown in Figure 7.1, is described in 18th century surveys of the Bolton Estate woodland as '537. Plantation Wood: 7 acres, 1 rood, 20 poles' (3.29ha). Similarly, '537 Plantation Wood joining to Capplebank 7-1-20' is shown in the Bolton Estate Survey of 1765. The wages paid to four men for overseeing the estate woodlands, set out in an Account Book for the same year, include the entry: 'Roger Mason for looking after Capplebank Park £10' [frame 5677].

It is apparent from an estate plan of 1794 which shows the layout of the new plantation, together with the surveyors' offsets (redrawn here as Figure 7.2), that the very individual, scalloped northern boundary was a deliberate attempt to landscape the new woodland, in order to enhance its appearance from Bolton Hall. It is reasonable to assume that this relatively early plantation was quite novel in its concept, for it is as much an expression of 18th century landscape design as it is a feature of early forestry practice. Two views of the plantation (in Plates 7.3 and 7.4) bear witness to its dominance of the landscape on the northern flank of Penhill.

While the work of dividing up Capplebank Park was underway, timber sales continued as before. On January 18, 1796 Siddall set out four parcels of timber, two of which were sold by Anderson under private contract and the other two were sold by public auction. 'The amount



Figure 7.2. The division of Capplebank Park to form Capplebank Plantation, agricultural fields and a shrunken deer park (1794). Redrawn by the author. Source: NYCRO (ZBO)



Plate 7.3. Capplebank Park, looking towards Capplebank Plantation



Plate 7.4. Capplebank Plantation, viewed from Preston-under-Scar

exceeded £500'. In the same month the plantation on Leyburn Moor was completed and planting was commenced on the lower side of the road leading from Bolton Hall to Hellgill (along the boundary with Wensley Park).

A reminder of the inherent hazards of tree-felling and the use of edged tools occurred in November of that year by an accident that resulted in a proposed wood sale being deferred:

Siddall on Friday last received a desperate cut in his leg from an axe which will I am afraid be the cause of some weeks confinement to him, it happens at a bad season as I proposed a sale of wood to be set out last week; we must defer the business for the present.

7.6 The appointment of William Sadler

An important milestone in the history of Bolton Estate woodland management occurred on April 13 1797, when William Sadler, a friend of John Anderson, was appointed as Agent. His salary was £100 per year:

Mr Sadler assuredly ought to receive not less than one hundred pounds a year for his trouble, this to be understood to be made up to him by land allotted to the use of the Hall which I pointed out to and the remainder whatever falls short to be made up to him in cash as an equivalent to the sum mentioned. [Anderson to Orde, 2nd May 1797].

The influence of Sadler upon the estate woodlands was profound, for he reversed the tide of woodland destruction that had been a feature of the previous decade, and took forward and developed the major programme of new plantation establishment begun by Anderson.

In 1797 Thomas Orde acceded to the peerage, to become the 1st Lord Bolton. This resulted in London becoming his principal place of residence. Despite prolonged absences from his Wensleydale estate, the afforestation programme progressed in the hands of William Sadler, whose regular correspondence kept him informed of developments. Typically, Sadler wrote:

The planting which you set out adjoining to the garden wall is finished and has a good effect, as also the hillside below. These two plantations with that on Leyburn Moor is all that has been done in that time. I flatter myself they will when you see them give satisfaction.

Thomas Siddall remained in his post as estate woodman, principally engaged in valuing, marking and felling timber for sale. In Sadler's letter to Lord Bolton referred to above, the agent interestingly comments that Siddall was planning to fell some plane [sycamore] trees that might be sold to the Lancashire turners, ostensibly for the manufacture of spindles or bobbins, as they

had almost exhausted the wood they purchased three years earlier. The closeness of communication regarding detailed land management is also evident in the letter:

The rest of your directions left here, I shall endeavour to arrange and execute the best I can, and in the course of this week I mean, with T. Siddal, to set out some Plane Trees which I hope to be able to sell pretty well to the Lancashire Turners, who are now here, finishing the wood they bought in 1795, and request another Bargain. I shall likewise endeavour to come at the amount of sale timber, to set out the same, with all convenient speed, which seems to demand in considerable sum for the joint necessary expenses going forward at the Hall, which I wish to keep separated, I should be obliged to you, Sir, for a sketch of any direction you should think necessary respecting levelling and removal of earth about the stable [2152].

7.7 Silviculture: the use of seed or nursery stock

Sadler's reference to the purchase of forest (nursery) trees and acorns for planting during the winter in his letter, dated 8 October 1797, affirms a change of emphasis in the estate's woodland management policy, for the letter is concerned with a new plantation which would be established from nursery stock as opposed to acorns (which were scarce and small), unless Lord Bolton was able to obtain a cask of the same in London:

I last week lett the wall fence to inclose the triangular piece of ground west of Bolton Castle*, and I expect the nursery man here in the course of next week when I shall order some forest trees and planting the same there this winter. Our acorns here are very scarce and pitifully small, would it not be best if they be otherwise with you, to send us a cask.

*The triangular piece of ground in question, Bolton Intake Plantation, is depicted on early 19th century maps as 'Spring' denoting its probable status as a small stand of coppice wood. The site lay within the bounds of Bolton Low Park, situated towards the north-east corner, abutting the castle

In the event, the acorns were not needed, nor the seeds of any other trees, although it is apparent that raising conifers from seed had not been successful, for in Sadler's letter of 26 Oct 1797 congratulating Lord Bolton's access to the peerage he says:

The acorns I requested in my last – you need not send, as we have [enough] with a few Bushels of acres find ours, we shall likewise have a few haws for quicks, beech nut and holly berries etc and we have try'd fir apples twice before, without success.

The new plantation alongside the castle was at the time being fenced and preparatory work at Hell Gill and Preston Lane was in hand:

The fences is now making to the intended plantation west of Bolton Castle, and shall likewise set about this at top of Hell Gill and Preston Lane for planting, and I intend shortly to have a view of the Gill to the east of Wensley Lane – toward Midlam Moor. as I think that would have an early and conspicuous effect.

This last comment suggests that the siting of plantations was subject to a certain amount of ostentation – by placing them where they were clearly visible [2170]. A map of the woodlands around Bolton Hall is shown in Figure 7.3.

1797 was not a good year for beech mast and consequently Sadler was considering asking for a supply of beech nuts to be sent up from London. The garden was now being used as a tree nursery, albeit of limited size. Sadler's letter to Lord Bolton of 10 Nov 1797 stated:

I do not know how necessary it may be to have any beech nuts this year sent down as tho' they may have missed this year here we may have plenty the next, but we have a good many small trees to plant out of this sort this winter – acorns, haws etc – shall prepare for as much garden room for as can be spared [2194].

7.8 Transplanted trees

In addition to raising trees from seed, young self-seeded trees were taken from established woods on the estate and planted in the Bridge Garden nursery where they were grown on in preparation for transplanting into the new plantations. Lord Bolton was clearly more disposed to taking young trees from the wild rather than buying in nursery stock. Sadler's report of 17 November 1797 states:

I will according to your request take care to collect what sycamore seeds and suckers, as well as the other trees you mention, and plant them in the Bridge Garden, as well as remove those young ashes and sycamores which we shall meet with, small enough, in stubbing and clearing the easternmost part of West Woods into the intended Plantations [2202].

In his final letter of 1797, Sadler laments that 'continual hard frosts, snows and thaws keep us entirely from either planting or fencing at present' [2235]. 1798 appears to have opened with a spell of harsh weather. However, the ongoing need to maintain a healthy cashflow in the light of continual repair bills had resulted in £300-worth of timber being set out for sale. In this letter, dated 15 January 1798, it is apparent that there was a certain amount of rivalry and competition in the timing of wood-sales, for a neighbouring estate [Scrope, Danby] appears to have distorted the market for timber by holding a large sale in advance of Bolton's:

We have sorted out, with great care, a few parcells of timber, consisting of Ash, Elm and Plane trees with a few Oaks in the same state, to the value of about £300 to set against repairs. The sales to be on Thursday first the 18th inst at Leyburn. Mr Scroope has stole a march upon us, and sold, by private sale the last week, about £1000 worth, which we fear will affect the warmth of some of our usually best chaps, but shall acquaint your Lordship with our success after said sales. The weather has been so exceedingly intemperate here, that no people could stand out to make wall fences, nor get the materials to the spot, hope we shall now better and shall set to work with all speed for the plantations [2253].

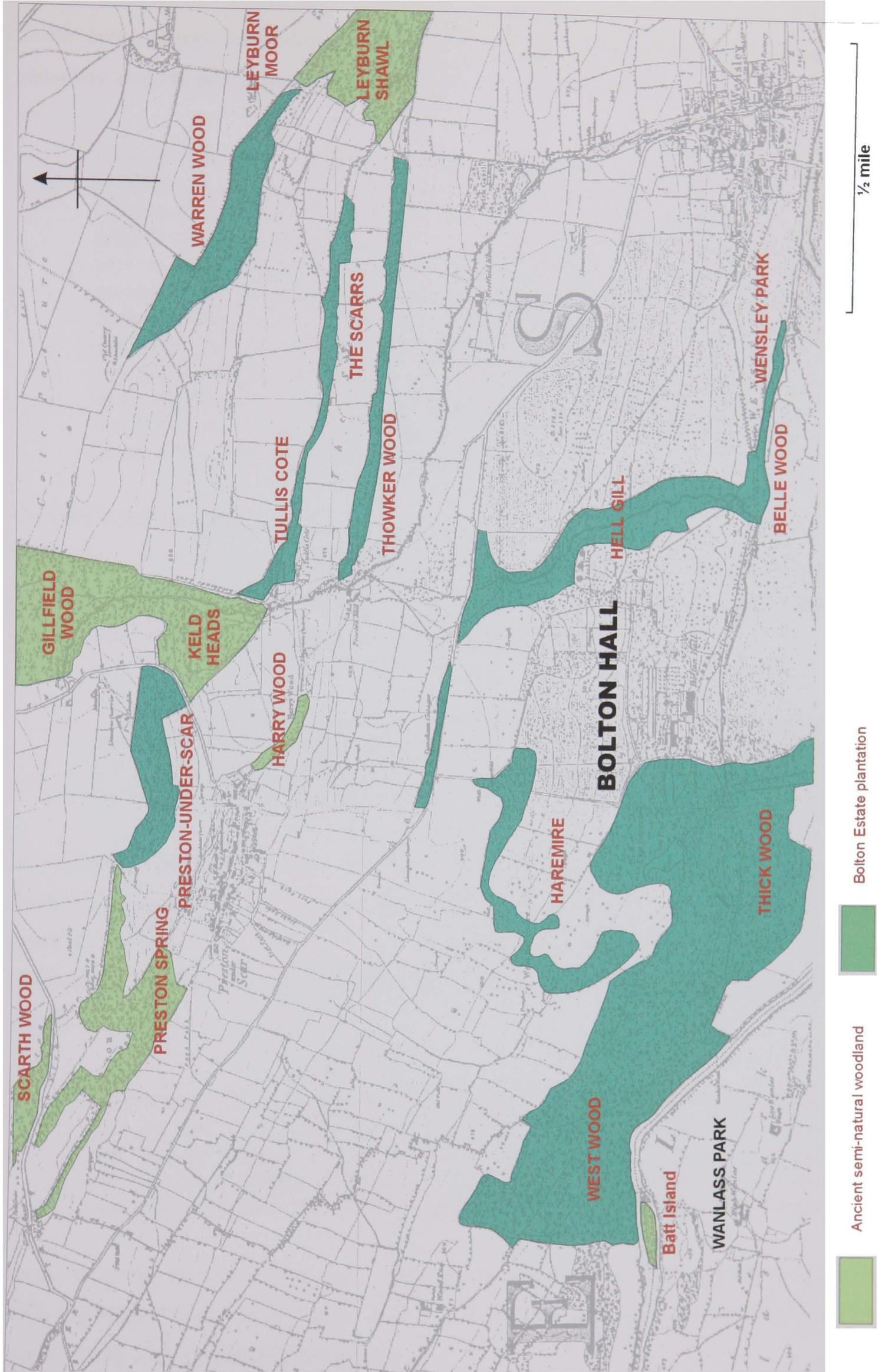


Figure 7.3. Bolton Estate woodlands referred to in the estate correspondence. (Author's annotations superimposed in colour upon a scanned image of the Ordnance Survey First Edition 6-inch map of 1856)

In the event, Scrope's sale depressed the Bolton timber prices as feared, but a large sale of sycamore wood to the Lancashire turners helped to redress this shortfall:

I was with Mr Anderson at Leyburn last market, and upon his mentioning his intention of writing to your Lordship next post, I signified to him briefly the result of our timber sales on the preceding day, which the amount to notify as your Lordship however may wish to have the further particulars, I shall annex here to the amount of said sales – as well as the private sale made of plane trees to the Lancashire Co of Turners, who purchased from us pretty heartily before, and whom we have again indulged with a quantity, when they were over here, as it answers the purpose of whetting our own in this neighbourhood who cannot buy so largely. The sale of the two parcelles was more flat than heretofore and from that of Mr Scroope's happening to near us, and the death of one of our very steady old chaps in and we fell rather short of the valuation by T. Syddall. The weather is now fine and we are going forward . . . the fences for the plantations are in a progressive stage [2283].

7.9 Hell Gill Plantation

In January 1798 work on setting out the new plantation at the north of Hell Gill was underway, although there was apparently some hesitation expressed over its final size. Again, Sadler was seen to seek Lord Bolton's advice as to the desirability of making it bigger:

. . . the fencing of the intended plantation at the head of Hell Gill is stopped at present from a joint opinion [Sadler and Foss, the architect] that it would be better to enlarge it with near a couple of acres to the eastward and striking the land with a much shorter fence wall, and your approbation or otherwise was wished upon the occasion [2289].

By February the cold weather had abated and work was back on schedule, with major landscaping operations and tree-planting underway. Interestingly, some hollies were being planted as amenity trees. John Foss, an architect of note, who was brought in to oversee the landscaping of the grounds around Bolton Hall and to undertake some remodelling of the Hall, wrote:

11 February 1798 . . . the Principal work we are now in hand with, is the new Road from the Bridge to the Hall. Also the common road to Wensley, under the old south wall near the Pasture, the former will be completed in ten or twelve days and I think will very much Please, as the sweep through Foal Close to the Front Door has a very good effect; and what will still add more when a few scatter'd Holly are Planted.

In Sadler's next letter, of 18 February 1798, he continues to discuss the ongoing works at Hell Gill, and suggests that the extra land required to enlarge the new plantation could be taken from an adjoining field, presumably on let land:

. . . our joint opinions respecting the enlarging of the intended plantation at the head of Hell Gill by taking on nearly 2 acres of Mr Tenants front field on the eastern side, and joining the land by a much shorter and less expensive fence [2315].

By March 1798 the new plantation sites were almost fenced and ready for planting. Most of the young forest trees were to come from the estate's Bridge House nursery together with wild trees taken from the woods:

I can only now add that as the weather is pretty favourable and the fences going forward, that I hope shortly to fill the plantations with part of what forest trees we take up to the eastward of the barn towards Wensley and take Mr Anderson's and Mr Foss's opinion of the sorts – distances of planting etc – a few hundred from our little nursery at the Bridge House some Mountain Ash etc from the woods to fill them [2332].

A sale of timber conducted on May Day and Martinmas 1798 for 'repairs at and about Bolton Hall' realised £394. The parcels were itemised as follows:

To Messrs Greens Planetree wood £70
 Messrs Metcalfe ditto £45
 Lord Pomfret for Mr Geo Emmerson sundry oak ash and elm as the 18th inst £136
 Mr Daker Tomlin in sundry ditto £143
 Total £394

Footnote: NB The two last parcels were sold at £3 4s 6d below Mr Syddall's valuation in which heretofore we usually exceeded; but nevertheless we thinks it not all sold.

7.10 The appointment of Edward Harding

In October, the estate engaged Edward Harding to help with the nursery work. He had been woodman to Lord Salisbury and was an experienced valuer of standing timber having valued 'all Mr Shafto's timber which amounted to above £12,000' [MIC 1164/2432]. On October 23, Sadler reported to Lord Bolton:

The young man engaged for the Nursery etc came thither last week, and from the appearance of his setting to work, I hope he will answer the further good accounts of him which were given me last week. We are collecting the different seeds of the season [2441].

The estate had on several occasions sold large quantities of sycamore to the Lancashire Turners, who, in November 1798, approached the estate with a request for a large quantity of holly wood. Sadler, whilst acknowledging Lord Bolton's fondness for holly as an amenity tree, was of the opinion that he could satisfy the demand for wood whilst preserving the trees by pruning them:

The Lancashire Turners, who purchase our sycamore, have been with us, and seem much to wish a lot of Holly Wood. I know your Lordship's tenderness for that tree, but I really think that £50 worth at least of dead topped thin leav'd ends might with care, be easily picked out, and rather do apparent good than harm. Your Lordship will please to

signify your feelings upon such a proceeding, which I will promise should be most carefully attended to [2446].

A rather unexpected indication of one of the end-uses of the Bolton timber, given the distance of the estate from the shipyards at Stockton and Whitby, is revealed in a letter sent by Sadler to Bolton on 25 November 1798, in which he also comments on the fluctuations of the timber market:

Ship timber, indeed, inland oak wood has not been well sold this last year. Indeed as about I know not yet, what to say, for to thin the woods here too much, your Lordship would feel it too forcibly. However I would not doubt but we shall devise some means or other for deviating matters, so desirable to be removed [2452].

7.11 The advent of the Parliamentary Enclosures

The link between the remodelling of the landscape by Parliamentary Enclosure and the establishment of new plantation woodlands becomes apparent when John Tuke, the renowned surveyor and author of the Board of Agriculture Report, *A General View of the Agriculture of the North Riding of Yorkshire* (Tuke 1794) is brought in to oversee enclosure of the estate. The frustrations of the process are apparent in Sadler's letter to Bolton of 4 December 1798:

the arrangement of the estate into regular farms, as proposed, would be a very difficult matter to make perfect at once, as there would be many unforeseen inconveniences interfering with the exchange of land, and that the bare marking out the Lines upon the rough drafts and waiting the sarcacity and feelings of the tenantry [2464].

The plantation works continued amidst the preliminary Enclosure surveys. Walling around plantations was put in hand, the extent of which, as in the case of Capplebank Plantation, was sometimes quite considerable. Sadler's letter of Christmas Eve, 1798 reports:

I am rather afraid that the Capplebank Plantation fence, which I presume is alluded to, will overdo us this winter tho' – it can be taken of upon the map – that the high part which for nearly a mile in length – and I hope we shall be moved now in forwardness to plant it at less expense [2450].

A perennial problem suffered by those trying to raise trees from seed was that of vermin:

Our nurseryman complains heavily of being pestered with mice which destroy the acorns in a deshaping manner – and on he supposes lodge in the old walks about both this Bridge as well as High Gardens – where he has deposited the same [2450].

Thomas Maude died in December 1798. In January 1799 Tuke began laying out the new field boundaries. He calculated that the net rental of the estate after reorganisation would amount to £8,500 including woodlands. Clearly, Sadler was impressed with him, for on 6 January, 1799 he wrote:

I have however the pleasure of informing your lordship that we have got fairly set upon foot in the distribution of lands, and that no attention, time or action is lost in doing it to the conveniences of the smaller tenantry, the greatest part of which fall upon myself and the Mr Tuke of York, whom I mentioned with some dread heretofore, but who proves – as Mr Cleaver held he would do – the most capable, indefatigable and fittest person possible for so complex and arduous a business as the transposition of numberless fields, and to which – with concurring in my wishes, in adding a fit and creditable a person from every Township – who knows every person's convenience or otherwise, I have some hopes, that our labours will be answered with the end intended, at least our fair and impartial endeavours are most consciously engaged upon the occasion [2536].

Further to the problem of mice eating the acorns in the tree nurseries referred to in Sadler's letter of 24 December 1798, the situation was not as bad as first feared, for the nurseryman had only sown one-sixth of his stock. Sadler advised Lord Bolton on 22 January, 1799:

Respecting the acorns, your Lordship may be perfectly easy, for the nurseryman had only sown about 1/6 part of what we had collected, rescuing the rest to the every time your Lordship intentions, and which are kept just as was visited. He says where he has been they have a practice of hazarding a few at the fall of the year.

Another nursery was in preparation:

We are trenching a plot of ground and betwixt the high east wall, and about half way to the great Plane trees, from the garden wall upwards towards the High Pond, and which promises to be very suitable for nursery ground, and where the young plants which deserve an advantage in the winter, from being littered with leaves. The western part on the other side of the trees, is so full of lead pipes and so near the surface that it is much to be feared – a plow cannot work which would have been cheaper preparation, so shall propose this for the present with a few extra men [2556].

By March 1799 the estate nursery was thriving and had about 5-6,000 young trees ready for planting out. However, the output of the nursery was unable to meet the entire requirements of the planting programme and William Sadler was obliged to source forest trees from outside suppliers. Most of these were to come from Thompson's Nursery, at Pickhill, near Thirsk, an establishment of particular note (Harvey 1974). In the first instance the estate bought in 'about 1,000 plants, yearlings and others therein ere long' [2616].

Timber sales continued to represent a valuable source of income to the estate, and where possible, Sadler sought to identify ailing trees for this purpose. In April 1799 he set out a parcel of oak timber for sale 'with the most failing tops and whereof least apparent consequences' hoping that the lateness of the sale would not have an adverse effect upon the prices fetched at auction [2624]. In his letter of 26 May 1799, Sadler reports that he has granted timber to the value of £100 for the colliery. Other timber sales have only amounted to £160 besides '£50 of old bad topped holly wood' [2651]. The planting of holly normally took place in summertime,

which in the wet summer of 1799 ‘suits but too well’ [2784]. Holly was favoured by the Lancashire turners for the hardness of its wood. It was cut during the winter under Sadler’s scrutiny:

The people from Lancashire who bought the holly wood, have wrote earnestly requesting to begin cutting them. I cannot be so much aware of your Lordship’s wishes thereupon. As to know that the least inattention on any part would be harmful and as such, with change any Tree judg’d improper to be taken to the best of my judgment – for as not half of the West Wood were looked thro’ for the quantity agreed for [2850].

7.12 Fencing

The fences for the subdivision of Capplebank were to take the form of quickset (hawthorn) hedges, for there was no spare wood on the estate at the time that could be used for the purpose – any timber fences would involve buying the materials in from outside suppliers. Fencing work on the ‘Home Lands’ was to consist of a new fence ‘from Hell Gill up to the Preston Road and down to the private Preston Road to the Hall’, whilst giving consideration to the enlargement of Hell Gill Wood, and on the west of the Hall, enclosing the woods down to the river (West Wood). In addition, it was proposed to construct a new boundary above Haremire (north-west of Bolton Hall). Additional works proposed including the lowering of the river embankment west of Wensley Bridge and the planting of quicks on the northern slope.

Prior to the building of drystone walls, the boundaries of the new enclosure fields were initially defined by quickset hedges which were flanked on either side by post and rail fences. Again, Sadler was careful in his choice of estate timber for fencing purposes:

The felling of a parcel of bad ashes for the mines and stoops and railings for the new divided allotments above the Wensley Lane in late Mr Maude’s farm parcelled out and which as well as some other divisions of fields previously set out by Mr Cleaver we are now planting with quicks and railing off.

Sadler explains that: ‘the custom is for the Landlord to find quicks, stoops and rails and the tenant to ditch the plants and quicks and set the stoops etc’ [2627].

7.13 The Bolton estate nurseries

Since October 1798 the Bolton estate nursery had been the responsibility of Edward Harding, but there was no dedicated staff under his charge. The estate policy was to utilise its existing labour force of gardeners and labourers to carry out the practical aspects of tree propagation and planting, rather than maintain a staff solely concerned with tree work. Sadler writes:

We have now completed our Nursery Business or nearly so, in which we have been obliged to employ most of those labourers we have had, from the small time we he have

had to work in, since the snow went off the ground, which has exceedingly cramped our operation [2633].

In 1800 new nurseries were set out in the Long Bowling Green 'and that adjoining to the Bridge Garden on the East' [2951]. The trees were two-year-old seedlings which, in somewhat of a novel arrangement, were interplanted with early potatoes. In the autumn of that year, the staff were preparing the planting ground 'behind the great sycamore trees below the ponds, which turns up fair soil'. Sadler bemoans the shortage of acorns adding that if a more plentiful supply were available, 'Jack Humphrey who is going within the woods and fences daily might sow thousands without trouble or disadvantage to his excursions'[3063]. December of that year was mild, and work went ahead, planting trees in the nursery and preparing and making holes for planting trees 'in that steep brow side below and to the east side of the Cote which I hope we shall be able to plant from our own nurseries this year' [3095].

The division of Capplebank Park again features in Sadler's correspondence of December 1800 and January 1801. The plan was to divide the park into three areas – a park at the bottom, pasture land in the middle, and a plantation on the top. It is apparent that there were still a number of deer in the park, and Sadler realised that their number might have to be reduced in accordance with the smaller grazing area:

My mind has been so greatly engaged of late that the deer in Capplebank Park have only just struck and as that most probably you would wish some of them to be killed. I believe Jefferson took several fawns when very young and consequently there will be several Geld Does [3092].

The division of Capplebank Park, by the lines on Mr Cleaver's plans, perhaps could be seldom more cheaply executed in case your Lordship continues under a determination to how it divided into a Park at the bottom as before mentioned, a farm including room for West Witton milk cows therein the middle part and Plantation on the top thereof. Mr Tomlin, the person I heretofore mentioned is wanting to take the same middle part at Mr Cleaver's valuation to graze only in except a single field wished to be taken off on the West End and the Park will appear from house exactly as heretofore, especially from the Park House westward and as two farms are requested the whole length of the park, at least the upper one for the Plantation, he would fence the said Plantation Fence by allowing the said valuation rent thereof as far as is required with closed in for planting [3293].

Sadler wrote in February to advise Lord Bolton of the likely cost of fencing for the reorganisation of Capplebank Park. The detail of this letter is interesting, for it demonstrates the manner in which the estate sought to combine a variety of land-uses within the footprint of the former deerpark:

I rather hasten to write early on return from your lordship's wishes to know the notable expense of fencing on Capplebank before it is begun and which makes it more

peculiarly necessary is that I have ten poor but likely Fellows now willing to make a fence from above Jefferson's house westward on the edge of the Brow for 6/6d per rood, and which supposing it to be about 200 roods of 7 yards wide, amount to £65 – and the dropping it down to the westward of the house and continuing it on to the rock to the eastwards of it a little might I think be done for 10 or 15 guineas more at most and which door, and the deer considered to be saved I confined below that fence (which I should think may confine about 70 acres, and when a little cleared of underwood would be still a pretty park for 50 or 60 deer. Then the upper part for planting might be wanted on the steep hill side by a wall of a trifling height when the deer are away from the middle park – say I think for only third of a deer fence and which might be done of planted gradually year by year with enough hurdles at the end. At any rate the fencing of the lower part appears to me to tend to concerning in future unless your lordship came to a determination to continue the whole a Deerpark when the fencing off the said intended plantation from the Deer would lead only east more than both the fences as maintained before. And the lower fence will be scarcely perceptible from the house and the upper corner of the Park continued as well as the reality of no disbursements arising upon the occasion your Lordship will please to decide as these poor fellows are growing very anxious to know whether to begin the work [3300].

Sadler's letter of 15 March 1801 describes the setting out of Bull Park Plantation, on the rising ground to the north of Bolton Castle. The logic of utilising existing field boundaries to reduce the costs of fencing new plantations is clear, and the letter gives the impression that this new plantation was planted for amenity, perhaps to complement the Anderson [Swinithwaite] woodlands visible on the other side of the valley:

We have completed our fencing and planting below the Cots and at Bolton Castle, as far as we could do this year – there is a fine range of planting to the north of the castle for a long way on the Brow Side which is land of small value and above Messrs Tennants and woods meadows wall, consequently only one side fence to make, and may be made at very small expense from the stone being so very near at hand. This fine range will adorn in the lower grounds for a north shelter towards the height of Mr Anderson's upper plantations on the opposite side, as far as they go throw the mountainous part now into the background, when got up cannot fail of having the good effect [3911].

By the autumn of 1801 the planting programme had gained momentum. New sites mentioned in Sadler's letter of 22 October 1801 are, principally, the Manors and Leyburn Shawl:

We have now ready about 40,000 young Forest Trees for planting out, and if it meet your Lordship's approbation I should recommend our planting for the first three or four years in the most habitable and quick-growing place to as that a couple of 100,000 trees may becoming fast forward for either the Manors (which may yet flourish in our times) as well as the estate which will much want replenishing and I think a beginning of four or five acres of the southeast corner of Capplebank Park and the west end of Cots Wood. From Leyburn Shawl a few acres on the west side of Hell Gill now in pleasing would all fences easily and do well and that near Hell Gill points itself out for filling up and the cortilage of the stone part of the garden wall would to only one loading for a good stone fence [3396].

The nursery occupied a large part of the gardens around the Hall. As the Bolton family only came to the Hall for an annual visit, there was no need to maintain a large kitchen garden. The nursery was well stocked and the rigorous preparatory work appears to have been worthwhile, for maintenance of the nursery beds was now part of the gardeners' routine. In November 1801 Sadler wrote:

The Nurserys ripen and grown considerably – expenses from the labour which attended trenching for young plants, of which we have now a strong succession yearly rising, and which must after this year we attend with but a trifling expense, as we have now, the whole of the ground betwixt the old gardens and the fountain quite up to the Pond under the High Terrace trenched, levelled and a great part sown with acorns and various other seeds which we have had in abundance this year. Respecting gardens – the expense of the Terrace Borders in necessary clearing – taking out the bad channelly stuff and filling them with new and good soil was a very heavy business; but the trenching that and some other places last of the Plain Trees with only part of it brought to the gardens although the cost of labour is put to the articles of repair as above. However a most effectual and useful job and will be a great relief for garden staff on the family's annual visit hither – or until another kitchen garden be provided [3408].

Sadler frequently requested tree seeds from Lord Bolton, or advice as to what species he thought should be planted:

Your Lordship was ever so good as promised us some real 'Plane-tree' chaff or seeds having now in this country' [3469]; Your Lordship once signified that you would be so good as to send a list of what forest seedlings you thought most proper to replant from the nursery men [3480].

The winter of 1802 seems to have caused setbacks to the work, with frost and drought, but by April the planting was back on course again. Sadler had obviously been waiting for Lord Bolton to say what types of trees he wanted planted, and the letter of 5 April 1802 reveals his frustration at Lord Bolton's reluctance to make a decision:

Our principal operation now is planting and fencing which went forward very well till Frost and Drought set in so steadfastly – that we have not been able to put in any plants for some time – except in moist places not having had a Drop of rain here for this six or seven Weeks and the Ground as dry and parched – and as bare of Grass and vegetables as at Christmas – and likely to continue and as we have a good deal of vacant ground now in the Nurserys – I was in hopes of your Lordships mentioning the sort of Trees your Lordship thought best calculated for us here which, as things are perhaps may yet be in time.

[The following is a transcription of NYCRO MIC 1165. The frame numbers are shown in square brackets]

The coal and lead mines created a large demand for wood and timber, frequently described in the documents as 'grove' timber. The Bolton estate, not least through its own mining interests,

used a lot of timber and much was sold to the proprietors of mineral mines beyond the estate. Two such concerns were the Arkengarthdale mines of Easterby Hall & Company, and Lord Pomfret's mines in Swaledale. Clearly, prime timber was not used for mining purposes, but lower grades – in Sadler's words: 'cut from any indifferent wood – fit for little or anything else' [3500]. To these ends, Sadler selected substandard timber from the woodlands with his customary care, accompanied by Thomas Siddall who undertook the valuations. The estate generally used the tops of old trees for mine timber, an indication that many of the trees were affected by crown dieback. In the following example (March 4, 1806), Sadler refers to such trees:

Your Lordship will excuse me for venturing upon setting out a few old coarse ashes and elms that were going back in the Miller's Wood, below Mr Daniels do., the tops of which as well as of all others we now always cut out for sale for mines or coal wood [4241].

The estate's woodlands at Downholme, on the eastern edge of Swaledale, were logistically well placed to supply most of the requirements for grove timber, but it is evident that much was also sourced from Wensleydale. Sadler writes (3 May 1802):

We had a very tolerable or rather good sale to nearly the amount of £250 – in two lots – one of which was bought by a person who usually buys for Lord Pomfret and the other by the wood agent for Messrs Easterby Hall & Co. The former was the bigger parcel from amongst the rocks at Downholm – mostly small Grove timber in the latter, weeded from the woods here such as were dead-topped and growing back and least of consequence in appearance – as your Lordship wished [3504].

The spring of 1802 was dominated by a spell of anticyclonic weather. This gave rise to some anxiety over the effects of late frosts, coupled with droughtiness, on the new conifer plantations. Sadler writes (6 May 1802):

The weather continues invariably frosty on the night and droughty on the day, and I fear much for our new plantations of this spring, as I see our Scotch Firs – as well as other where I have been – giving way [3508].

By August, Sadler's worst fears were substantiated, for although the wet summer had rejuvenated the trees checked by drought, the late frosts had resulted in the loss of 'many Scotch Firs, Holly, etc that were transplanted within the year and coming well forward till then are quite seemingly gone.' The mature trees fared better: 'the grown trees – especially ash – have near yet recovered so much as half their usual leaves, since they were destroyed by the frost' [3551].

Amenity planting on the top of Leyburn Shawl (Plates 7.5, 7.6) was started in December 1802, and a spell of ‘soft and warm’ weather enabled the labourers to complete the planting by the end of the month [3602/3610]. However, the hot, dry summer of the following year proved damaging to the new plantings. Sadler laments:

I am afraid our plantations, particularly those made on the top of Leyburn Shawl, notwithstanding they were done very early in winter, will be much hurt; we have now had three dry and burning summers, but this has been the most excessive, this whole country being almost divested of pasturage [3677].

In January 1803 the focus of tree-planting had shifted to Capplebank Plantation, where ‘12-13,000 plants’ were established in the south-west corner. Below the woodland, a portion of the original parkland had been converted to shared grazing land. It was evident that the deer were being intimidated by cattle on the shared pasture and this made winter foddering difficult. Sadler’s solution was to construct another wall to confine the deer [3612]. He continued to select substandard trees for sale, from both within the Bolton woodlands and also at Downholme:

As there is a number of oaks here and there growing very bad on the Tops both here and at Downholm should your Lordship think it proper a small bargain might be sorted out for sale, besides a few for normal expenses and as soon as things are settled at Swinithwaite we shall mark off a lot – till we hear your Lordship’s pleasure [3653].

In May some oak wood was sold to Easterby Hall & Company. Sadler comments that the wood was affected by ‘shakes’ – a common defect in oak which causes cracking and splitting of the heartwood. Despite the inferior quality of this wood, Sadler was delighted to report that the sale had been very profitable, for ‘Messrs Easterby Hall & Co got it at nearly double its valuation what was – I believe – fairly valued at £170 – fetched £300 10s’ [3656]. Sadler’s delight was, however, somewhat premature, for Easterby Hall were unable to pay for the timber and the agent had to write numerous letters requesting settlement of their account. By the following April (1804) the debt was still partially outstanding. Sadler reports that:

Messrs. Easterby Hall & Co.’s second instalment coming due the 27th Instant – I know depend waiting upon them till that time, when I shall urge their payment of half the debt . . . Including the bark they may have got away with two thirds of the value as their carriageman (either with or without Mr Hall’s knowledge – whilst he had been some time absent at Newcastle) had made very free with it, but which he immediately stopped on his arrival [3945].

The estate held another sale in May that Sadler describes as ‘tolerable . . . considering that Messrs. Easterby. Hall & Co’s wood agent did not attend’ [3953]. A mild November saw the



Plate 7.5. 19th century amenity planting on Leyburn Shawl as depicted by Gordon Home: *Yorkshire Dales and Fells* (1906)



Plate 7.6. Leyburn Shawl - surviving trees from the early 19th century Bolton Estate amenity plantings

gardener engaged in planting and 'beating-up' [filling the gaps left by failed trees] amongst the plantations. Sadler reports: 'We continue to proceed with planting and replacing and have about ten acres in great forwardness with fencing – the weather continues soft and mild' [3991]. But by January 1805, the work was delayed by bad weather: 'Planting, fencing and all other business out of doors has been at a stand, but as we have nearly inclosed about fifteen acres and lett the same to plant, the work will immediately be set agoing on the disappearance of the snow' [4029].

In April 1805 the Enclosure of the Town Pasture of Carperby, Redmire and Preston was proceeding. The relationship of the enclosure process to the setting out of new plantations is seen in Sadler's letter of 5 April 1805, on the matter of the enclosure of Carperby, Redmire and Preston:

Mr Alexander Calvert to divide and allot the same this summer, the completion of which, besides other advantages, will greatly favor, as well as cheapen, the intended plantations. In which business I am happy to say, that we have very nearly completed the operations of this favourable spring, both as to planting and fencing [4081].

Sadler continues: 'As the Spring is so very fine and forward I must no longer omit requesting your Lordship to signify as soon as ever convenient – what quantity of oak timber you wish to fall this season, there being a good many failing-topp'd trees, both here and at Downholm' [4090].

Work on a new plantation in Wensley High Ings was started in October 1805. In his letter of 21 October, Sadler said that the plantation would be sited on an existing woodland site – probably a former coppice – and that the boundary would be formed of a low stone wall and a quickset hedge – a somewhat elaborate and expensive measure:

I have to request your Lordship's advice, with respect to the intended plantation in Wensley High Ings which we are about to begin of – but to make a handsome line of boundary, on the south side, it will be necessary to take a few acres of pasture, which is valued, and left to the Tenant's – but at present mostly covered with under-wood though good land – the part wanted may perhaps be valued at four or five pounds per annum, yet till such time as we have your Lordship's approbation the work is suspended, it will be a pity to cramp it for it will undoubtedly make a noble plantation – I think a low wall (with quicks planted inside) was thought better than rails – it will certainly be a more secure fence, but the expense will be greater than the other mode as the stones will be to bring – from a considerable distance – at least more than usual in this neighbourhood where they are in general so plentiful. As there are several other plantations to make this season could with to know which will be the most desirable to be forwarded first. Whether near Middleham Moor, Capplebank, Bolton Castle or in Preston Pasture below the scars – for this being the best time to plant. I propose writing to the nurseryman to come up immediately [4167].

In his final letter of that year, Sadler mentions the appointment of Samuel Johnson as the estate gardener and nurseryman along with a request from the previous gardener, William Oates, for a plot of land on which to establish a nursery. Johnson was known to Sadler, having been employed by William Thompson's nursery at Pickhill, from which establishment a large number of Yorkshire estates sourced many thousands of forest trees. Sadler reports:

I should signify to your Lordship that we have engaged Samuel Johnson, the person heretofore mentioned (worked for Wm Thompson of Pickhill) as gardener and nurseryman, and William Oates (who has met with several disappointments in his applications in the country below) at present is very desirous and has earnestly requested a piece of ground – anywhere near Leyburn – where in to make and keep a common garden, raise quicks etc and some flowers and trees – if it should be agreeable to your Lordship, if a suitable piece of ground could be found [4223].

It is apparent that Oates' role as the Bolton gardener had not been entirely satisfactory, for Johnson was brought in to reverse shortcomings in the management of the nursery. Sadler writes:

With regard to the plantations, I observed in my last to your Lordship that we had begun upon the Bank side opposite to Wensley, a little way over the River, a place which your Lordship seemed desirous should be done when I mentioned it last year upon the spot, our reasons for first beginning there in preference to the principal boundary above was in the first place the small expense required for fencing and secondly that Wm Oates the late gardener, having omitted to plant out from the nursery's a sufficient number of trees when ready the greater part of them being two or three years older than necessary in consequence of which and growing too close together they had attained a very considerable height and were drawn up small so that had they been planted in a high or exposed situation most likely a very considerable part of them would either have been blown down or greatly injured by severe frosts, but however as there are yet as many remaining as will plant several acres, I thought it would be better perhaps to take advantage of a favourable season early in the spring for the higher grounds – and here I hope your Lordship will excuse me for making an observation concerning the intended Boundary adjoining Middleham Parks [4353].

Samuel Johnson commenced his employment with the Bolton Estate in April 1806 and immediately began to introduce new ideas. Sadler reports:

We have got our new gardener about a week ago. He recommends sundry sorts of seeds for raising forest trees, to be got in town, which cannot here, and which your Lordship will please to note such as you think most proper, or make any addition thereto. We have got Preston Pasture Inclosure and fences nearly finished [4261].

Clearly, by the following year, the stock of young trees in the Bolton estate's own resources had improved markedly. There was now a need for additional plantation sites. Sadler's letter of 27 October 1806 states:

There are at this time in the gardens at Bolton Hall trees sufficient to plant 14 or 15 acres, without any assistance from the nurserymen, so that it will be requisite to appropriate 9 or 10 acres more for immediate effect and your Lordship will be so good as to signify so soon as convenient which places are most desired to be done in perhaps a continuation (in part) of the great line of Boundary adjoining Middleham Parks may be done. There is also the High Knowl or promontory above the Mount Park that will make a fine appearance and also the best end of Capplebank adjoining what has already been done. There are 15 or 20 acres more adjoining to the west side of the road below Scarth or Scar Nick but it will perhaps be advisable to wait the event of a division of Redmire Pasture – now in agitation – which might be proper to extend the wood to the western end under Redmire Scar but this your Lordship can best judge if upon the spot, as it will be a grand and extensive work [4336].

Sadler's correspondence, written in 1807, contains much of interest regarding the management of woodland on the estate. Firstly, there is a reference to the state of the estate fences – as to whether timber for stoops and railings to secure quicksets will be granted. This suggests that the estate's stock of usable timber had become depleted and there was a shortage of timber for repairing old fences and making new ones. Sadler asks: 'Woods and plantation fences old and new, whether his Lordship wish to take upon himself to make or repair for more security?' Clearly, post and rail fencing was the preferred means of establishing new hedges. Secondly, Sadler makes a somewhat derisory reference to the practice of Dry [dead] Hedging in which he remarks: 'It is recommended that all effectual means be used to abolish the practice of Dry Hedging unless for the temporary purpose of protecting quicks or other occasions' [4402].

Above all, Sadler was concerned about the depletion of the estate woodlands. The continual removal of timber trees, albeit ailing ones, had resulted in a scarcity – even the hedgerow timber had disappeared: 'The woods about Bolton Hall are grown thin of ash and elm for common building and repairs, the most failing ones being yearly taken for repair. Husbandry – for which there is a never ceasing, necessary demand, as well as for the mines. The picking and culling of which for either the one or the other, is a most ruinous mode, and has been too long practised if it would be avoided. In the hedgerows, the timber wood is likewise grown scarce, and several Townships quite bare thereof. It is very desirable to know his Lordship's wishes, how far the hedgerow or timber from the woods was most to be preserved and whether the dead-topped and most failing timber in both had not best be marked and numbered in each Township ready to be first taken as occasion requires? [4404].

With the death of Lord Bolton in August 1807, his brother, Sir John Orde, took charge of the estate in association with his widow, Lady Bolton. In his letter to Orde, of 31 August 1807, Sadler intimated that the late Lord Bolton had not prepared a 'regular or perfect plan' for the proper management of the estate. Sadler suggested retaining the older members of the workforce and releasing the younger ones:

What I wished to intimate concerning the labourers was that the six old men only might be retained, the younger ones may find other work, and there will be sufficient employment for them in the nurserys, gardens, walks etc. in case they be continued upon the same plan as usual. Their wages are modest when compared with those generally given in this quarter, and the estimate of the annual expenses was made from the probable number of days of working in the year.

The sums mentioned in the statement are due for planting, drawing plans etc. were for business ordered (and executed only in part) by the late Lord Bolton, for which money has been paid on account as will appear in the next Christmas Accounts. And as to the oak timber, there was no intention of felling a tree until proper directions for the purpose what was said on that subjected related to money due for timber already sold by Lord Bolton's directions, a part of which was to cover the wood used at the Wensley house. The Estate will not admit to annual fellings to any great amount, meaning of such timber as is taken – which consists of oak timber – going back through age. I have beg leave to inform Lady Bolton and yourself that very precise information concerning the welfare of this Estate shall be made and taken, and necessary material collected for any arrangements that may next year take place as directed by the late Lord Bolton, who had maintained the same, and which indeed want putting in execution. No regular or perfect plan having yet been made or system drawn for the proper management thereof [5777].

Sadler wrote to Orde on 29 September 1807 stating that he was nearly 70 years of age and was looking to retire. He would, however, undertake a general survey of the woods prior to his retirement. In reply to Orde's inquiry concerning the stocks of timber in the woodlands, Sadler wrote: 'As to the quantity of different kinds of timber which might annually be sold, I cannot at present form any correct opinion. I will therefore ere long take a general survey of the woods and then transmit a report' [5780].

In his letter to Orde of 23 October 1807, Sadler suggests that there has been a degree of over-exploitation of the woods and provides an estimation of the sustainable yield:

With regard to the woods on the estate, it appears probable that they will not admit of annual fellings to so large an amount as has been frequently made. I concur that oak timber, bark and other small wood for the mines to the value of £250 to £300 may fall yearly without injury to the estate, but further might in a degree affect it; a fall of timber for the mines, will however shortly be fit and come increased at Downholm Park and being a considerable sum in addition [5783].

The prices achieved for bark, oak timber and small wood in 1807 were not insignificant, i.e.:

1807

Aug 10 Recd of I. Simpson for Oak Bark £55 15s 6d

Sep 14 Recd of Frances Outhwaite for Oak timber ½ payment £115

Sept 31 Recd of I. Simpson & T. Robinson for oak timber in part £100

1808

Jan 4 Recd of Ms Atkinson for alder wood £6
 Jan 13 Recd of Messrs Breare for coal timber £34 10s 3d
 28 Recd of Messrs Tomlin and Horner for Oak Bark £21 8s 0d
 Total £332 13s 9d [6540].

7.14 Request for tree seed

A letter from Sadler to Orde includes a list of seeds required for the nursery. It is evident that oak, then beech and horse chestnut formed the basis of the hardwood plantings. These were followed by a list of softwoods, of which larch formed the main species:

A list of the seeds wanted for the ensuing season is inserted below – and as a few seeds of such only as cannot be ripened here will be so likewise for the gardens, which I conceive may not amount to about 20 or 30 shillings annually, you will please say how they are to be provided.

Seeds wanted:

Acorns – 4 bushels
 Beech mast – 1 bushel
 Horse chestnut – 1 bushel
 Larch seed – 8lbs
 Spruce Fir – 2lbs
 Scotch Fir – 1lb
 Balm Gilead – ½lb
 Silver Fir – ½lb
 Portugal Laurel 1lb [5854].

In his letter of 22 October 1808, Sadler elaborates upon the desirability of sourcing tree seeds from the south of the county or better still, London:

Acorns and some other forest tree seeds might certainly be obtained in the southern parts of this county, in favourable seasons, or even here but they are in general procured of superior quality in London and the expence of conveyance by water to thereon is not much. The list of Garden Seeds is enclosed, which does not amount to much as I at first understood. Although timber might be cut at the beginning of October, or even earlier upon emergency, yet it is considered better to be done after that time or in winter, on that account and by reason of the carpenters having been employed in felling the trees at Capplebank and making the roof at Bridge House. I have deferred cutting any as yet, but shall begin shortly when the work will be reported as it is done. A considerable quantity of oak timber might fall at the first season and at Downholm, and part in Hell Gill – that is at full growth; but if too large a quantity was to be cut at once, it would make the woods look bare until the young timber gets up. In this respect the favor of your advice is requested and it will also be necessary for me to inquire if the small or mine timber, of which there is a considerable quantity near the river, (I shewed you) at Downholm and quite fit to fall, is meant to be included if so the same should be immediately valued and sold [5877].

The intended new plantation, which was to be set upon a knoll above Mount Park (to the east of Capplebank) is mentioned in Sadler's letter of 27 October 1808. He also mentions that 'The

fence wall at Capplebank will very shortly be completed, and they are already begun to make holes for the trees, having sent to Mr Jackman to desire that he would lose no time' [5880].

William Sadler's poignant letter of resignation, dated 5 November 1808, implies that his working relationship with Sir John Orde had not been particularly happy:

Sir John, It is with the most painful feelings that I remark from the letter I have had the honour to receive from you, and from the conversation that passed when you were at Bolton, that my efforts to give satisfaction in the Agency to Lady Bolton's estates have been unsuccessful; and I should be very sorry to stand in the way of the appointment of another Agent – provided that step were thought beneficial to her Ladyship's interest [5886].

It would be now agreeable to my feelings (which under the present circumstances are truly uncomfortable) to be accommodated with the House my son now inhabits and with that part of the Home Farm which would not be wanted for the Agent (knowing you do not approve of a farm in the hands of the Steward) than to consider myself as not giving satisfaction to the family; which arrangement – in case of my retirement – I should hope might meet with the approbation of Lady Bolton, yourself and the Trustees, with whose sentiments on the subject I shall be happy to be made acquainted [5886].

The woodlands at Downholme and Hell Gill, together with 'the oak, beech and sycamore in the West Woods' are mentioned in Sadler's letter of 19 November 1808. He describes the oak timber at Downholme and Hell Gill as being in 'a declining state' and that the ash and elm has been felled and brought to the woodyard for repairs [5892]. From the tone of Sadler's correspondence, it is apparent that Sir John Orde was keen to maximise the estate's income from sales of wood and timber. Sadler writes (30 November 1808):

As you had directed an account of timber at Downholm and in Hell Gill to be sent, I did not know how to report it more clearly than by a valuation from Syddal the Woodman at Preston, who annually values the timber before it is sold of the estate, and who has half of the commission charged in my name for his trouble. There is a large oak tree in the new plantation in Capplebank not mentioned before, which should fall as the branches are decayed. Directions are left for taking the ash and elm timber from the West Woods to the woodyard for use, and afterwards further directions to sell it if the price of timber continues good. But as it was all wanted for repairs (Mr Humphrey's granary, the Bridge etc) it was placed there. Indeed the quantity is not nearly sufficient consisting only of a few indifferent trees. The trees at Bolton Castle and many of them down already, and the remainder will be in short time as will also the fir trees. The fence wall at Capplebank has been compleated about a fortnight, and the holes for the trees also. I wrote to Mr Jackson about that time, and expect him daily to commence planting [5896].

The timber at Bolton Castle and what remains elsewhere will be sold by ticket or proposal as is usual here on Friday week at Leyburn, but I fear there will not be a sufficient quantity left for timber at Capplebank and until it is cut up it will be difficult to ascertain how much of it will do, and there will still want a considerable quantity for repair of cottages in the Spring exclusive of the large branches which can only be used.

The labourers have never been taken off the work at the ponds since you left Bolton (except for a day or so to roll wood at Capplebank) until they were sent with the wood, for the season has been so extremely favourable for planting, that we imagined you would wish that business to be done – the first proper opportunity. The holes are nearly all made and a part already planted. The men were brought back to the pond immediately on receipt of your letter. The planting at Capplebank is completed, which appears to be done according to contract, but will shortly examine it now particularly I think it must do well – the season has been so fine [5904].

In December 1808 Sadler prepared a statement of standing timber at Downholme and Hell Gill. This valuation is of particular interest for its reference to bark, a valuable by-product of the woods, upon which the tanning industry depended:

A Statement of oak timber now standing in the woods near Downholme and in Hell Gill which is in a declining state:

In Downholme Woods:

In High Spring 196 trees and cyphers containing about 200ft. On these trees there will be about 13 tons of bark.

In the Water and Wall Wood 6 trees containing about 120ft about 1 ton of bark upon the same.

In the Side Bank Wood 129 trees and cyphers containing about 450ft about 5½ tons of bark upon the same.

In Hell Gill:

15 trees containing about 2 tons of bark and about 460ft.

N.B. There are no trees included here which stand near the low end [5909].

The close timing of tree-cutting for post-and-rail fencing and hedgerow planting is evident in Sadler's letter to Orde, dated 2 January 1809, in which he reports:

With respect to the quantity of wood which may be wanted at Capplebank, it cannot as I observed be ascertained until the trees are cut up into rails which will be proper to be done between this time and Lady Day, for it would not be prudent to plant the quicks till near that time for reasons which I will hereafter explain [5920].

In the event, Sadler discovered that much of the timber in Capplebank was diseased, and consequently there would be a shortfall in supply:

It is certainly my opinion that the timber at Capplebank will be insufficient for the fencing and that it cannot be fully ascertained until it is cut up, on account of many of the trees being much decayed in the middle, or parts which cannot be won but I will have a calculation made as nearly as can be when the snow goes away [5929].

7.15 The Parliamentary Enclosure of the Bolton moorlands and the ensuing afforestation programme under Sir John Orde and Jean Mary Lady Bolton

It is evident from the continuing correspondence between William Sadler and Sir John Orde, that Lady Jean Bolton (the widow of Sir Thomas Orde, 1st Baron Bolton) held a particular enthusiasm for tree-planting and the creation of new woodlands. The autumn of 1808 and the spring of 1809 were particularly significant in terms of woodland management, for during this short space of time there was a dramatic increase in afforestation on the Bolton Estate under her hand, which resulted in the planting of 55,000 trees and the creation of 30 new plantations. It can be demonstrated that the engine of this rapid increase in tree-planting was the Parliamentary Enclosures. The Enclosure Acts for the Bolton estate were passed in May 1809, affecting the townships of Carperby, Askrigg, Wensley, Aysgarth and Redmire. That for Aysgarth included New Pasture, East Sleights, West Sleights, Ox Close and Carperby Moor. The enclosure of Redmire Pasture amounted to 330 acres plus 2,520 acres of open moor.

It was financially advantageous for the Bolton estate to site its new plantations at the intersection of two or more Parliamentary Enclosure field walls, for where these could be incorporated as plantation boundaries, there was a dramatic reduction in the cost of fencing. It was then a simple process to construct the remaining closure walls required and plant up the enclosed area with nursery transplants. This single factor explains the rapid establishment of plantation woodlands on the estate and elsewhere in the Yorkshire Dales during the early 19th century.

Some insight into the nature and extent of the Enclosure-motivated tree-planting initiative of 1808-09 may be gained from a document in the Bolton archive (ZBO IV 8), an extract from which follows. *The reference numbers in square brackets refer to the NYCRO microfilm frame numbers.*

An Account of the Trees Planted in the Different Plantations belonging to the Rt Hon the Lady Bolton in the Autumn of 1808 and Spring of 1809 etc:

For filling up at Mains Moor: Larches 1800, Ashes 1850, Beeches 600, Birches 100, Scotch Fir [Scots Pine] 400, Mountain Ash 400, Oaks 400, Willows and Poplars 300. Total 5560 [646].

Trees Planted in West Wood etc: Oaks 3550, Ashes 6150, Elms 3000, Sycamores 2150, Larches 1900, Spanish Chestnut 550, Mountain Ash 300, Birches 100, Scotch Fir 100, Spruce Fir 50, Beech 50, Horse Chestnut 50. Total 17,950 [647]

Trees Planted in the new plantations in Andrew Bells Pasture etc: Oaks 2000, Ashes 2050, Elms 2000, Larches 2300, Sycamores 2400, Scotch Fir 3150, Spruce Fir 600, Spanish Chestnut 1100. Total 15,600.

Trees Planted North Side of the Gardens etc: Larches 1100, Scotch Fir 400. Total 1500.

Trees for filling up the Plantation at Wensley Ings: Oaks 350, Ashes 350, Elms 350, Sycamores 300, Larches 350, Scotch Fir 250. Total 1,850.

Similarly, Sir John Orde planted the following amenity trees in the pleasure grounds of Bolton Hall: *'At west end of Long Bowling green: Oaks 100, Elms 100, Ornamental trees 20; at North end of Great Pond: Oaks 150, Elms 150, Ornamental trees 60. In Stubbing by the Barn: Oaks 70, Elms 50, Horse Chestnut 50. Total 750; Horse Chestnuts at Tower foot 10, 6 Large Trees at Hell Gill and 17 in Allotment. Total 33.'* All these plantings are shown as a graph in Figure 7.4.

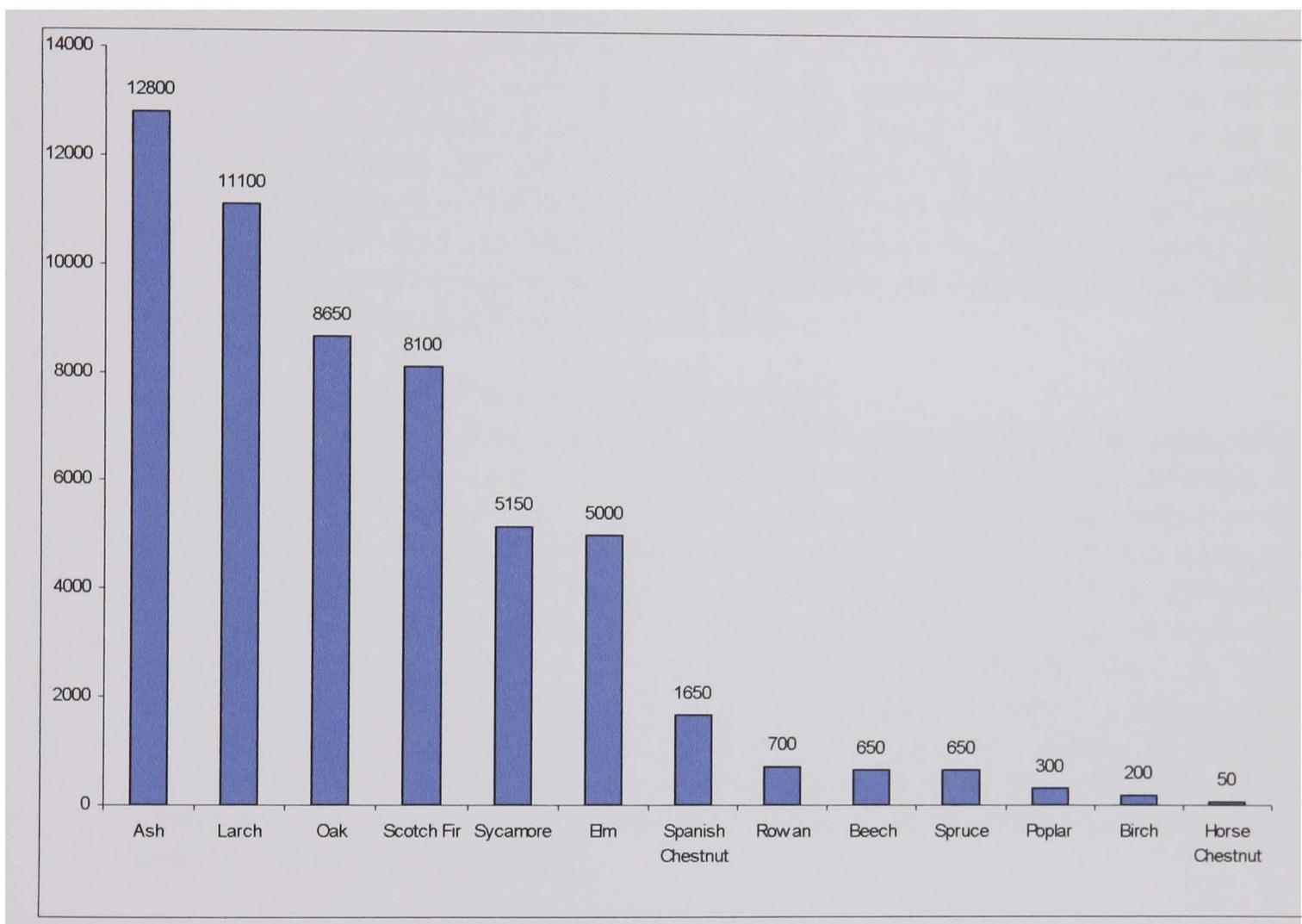


Figure 7.4. Tree-planting on the Bolton Estate, 1809. (Data from NYCRO ZBO IV 8)

A particularly interesting and informative insight into the extent and quality of the Bolton estate plantations is contained in a document [prepared by William Sadler] entitled: 'Several observations concerning Lady Bolton's Yorkshire Estates in 1809 delivered to Frederick Booth Esq' [671]. Pertinent extracts from the document follow. The italicised annotations in square brackets are the writer's.

[with regard to wood sales and new tenancies on reorganised farms following the Parliamentary Enclosure programme]

A quantity of Oak Timber having annually been cut down upon the Bolton Estates for Sale or repairs; it will be proper to determine if that plan is to be presumed as usual or

to what extent? It is necessary to be known if wood for Gates, Gate Posts, Posts and Rails repairing Cow Houses, Barns, etc and other useful repairs with Hedge Booth [hedgebote for tenants?] from the Woods, is to be allowed having due regard to the quantity actually wanted and the proper application of it.

[with regard to the new plantation fences and the dearth of a woodman]

No plantations in the Kingdom can have better or more substantial fences than Lady Bolton's nor are better supported but these want a Woodman this is a great want where there are more than 30 different young Plantations and Woods to attend to. Plantations like every other thing will not thrive without regular and unrelenting attention. Surely the Game keeper and Gardener might have opportunity to see to these things thus effecting it without further charge. Planting by contract I do not approve of there are many strong and obvious objections to the practice. The plan I would recommend is this: Buy your plants of the nurseryman who can sell them full cheap after then you can grow them send a trusty man to choose and see them carefully taken up and packed in proper weather. Let the making of the holes, of proper size, by the piece then employ such men as you know have been at the business before to plant by day having the guidance of other woodmen constantly with them, during the whole time to see the work [done] properly executed and that they do not idle. Lack of all other trees is best calculated for general planting in this neighbourhood oak where the site and situation suits If these two trees are largely planted by gentleness and handled properly many years will not lapse before this kingdom will have an ample supply within itself without a preconceived dependence upon other countries.

[with regard to the suitability of the estate for afforestation]

There are perhaps few, if any, Estates in the Kingdom in proportion to the extent where there are to be found more land adapted for planting, in better conveniences, for accelerating it on that account it was strongly recommended to Sir John Orde who was himself doubtly aware of the advantages which might result from such a measure and accordingly gave directions to commence planting on several parts of the Estate with instructions to follow up with other situations as he might direct about 36 acres have accordingly been compleated during the last Winter and preparations made for more. The chief part of this planting is done by contact but there is always a large stock of nursery plants raised and kept at Bolton Hall for the purpose of filling up defective places in young plantations and also for planting a few acres each year in particular situations for which purpose a person in the capacity of Gardener or Nurseryman is employed to manage the business.

[with regard to new plantations above Bolton East Gill]

There is also a considerable quantity of ground near to the above called Bolton East Gill containing about 100 acres which Sir John Orde meant to have planted the next season but did not leave sufficient directions for the purpose. It will however be necessary to know soon as there is a considerable length of fence to make and repair previous to the planting an estimate may be made (as near as possible for an exact one cannot, on account of the repairs wanted in the old fence) and sent up if required.

[with regard to planting up experimental plots on the newly-enclosed moorlands]

As the moors or commons in the neighbourhood (consisting chiefly of ground covered with heath called Ling here) are about to be Enclosed and divided under the Acts of Parliament lately obtained for the purpose it is strongly recommended that Lady Bolton should plant 20 or 30 acres or more if judged proper to ascertain more closely how trees will grow in such situations many hundred acres of this ground being of little use for any other purpose indeed there is barely enough but they will succeed if planted in large bodies and in a proper manner.

[with regard to the saving in costs by utilising the Enclosure fencing for partial plantation walls]

By this Inclosure, the Commons of East and West Bolton will have two sides fenced without any expense and there will only remain the north side to be done. There is a great advantage to Lady Bolton or whoever may possess the Estate as they may thereby enclose these Commons, which contain upwards of 3000 acres at a very great reduction of expenditure The whole belongs to Lady Bolton except a very small claim for Glebe Land belonging to the Rectory of Wensley of which her Ladyship has the advowson.

[with regard to half shares in Batt Island with the Chaytors]

There is a small island situate in the middle of the River Yore near Wanlass House covered with wood [Batt Island] which wood is alternately cut down and appropriated to the use of the owners of the Bolton and Wanlass Estate the latter now belongs to Mrs Chaytor and as it is very probable that disputes may hereafter (as has doubtless been the case many times already) arise . . . the proper claim for this wood from the distance of time between each cutting it appears very adviseable to endeavor to treat with Mr Chaytor for his share or otherwise for Lady Bolton to dispose of her moiety to him and the former would eventually be the most desirable.

15 July 1809, Signed Mr Sadler, Bolton Hall.

7.16 Amenity planting within the estate villages

Two years after the creation of the new plantations and the ornamental tree-plantings around Bolton Hall, Lady Bolton initiated the planting of a number of amenity and shelter trees at various village locations on the estate. An inventory of these plantings, contained in a document titled 'The situation of ground adapted for planting upon the Dowager of Bolton's Yorkshire Estates in 1811' [838], follows:

Castle Bolton: 90 larch with oak in bottom and low land (ornamental and shelter), 35 larch with oak, 35 larch and Scots Pine, 15 larch and Scots Pine, 2 larch and elm (ornamental), 2 elms with larch in middle (all ornamental).

Bellerby: 5 larch and silver firs (ornamental).

Carperby: 25 larch, oak at bottom (ornamental), 5 larch (ornamental), 5 elm, beech, larch (ornamental).

Downholme: 8 larch with beech (ornamental and shelter), 10 oak.

Harmby: 4 larch and oak (ornamental and shelter).

Leyburn: 50 larch and Scotch Fir (ornamental, ready fenced), 3 ditto and elm (ornamental, with much shelter), 1 larch, beech (ornamental), 2 larch (ornamental), 1½ (ornamental with shelter).

Preston: 20 larch and oak (ornamental, shelter; much fencing), 15 larch and oak (ornamental, part shelter), 12 oak and elm (ornamental), ½ elm and beech (ornamental; a very ragged unsightly place), 6 larch, Scotch Fir (shelter).

Redmire: 5 larch, Scotch Fir (very ornamental with shelter; much fencing), 3 larch, elm and oak (ornamental), 1½ oak, elm and ash (ornamental with part shelter), 2 oak, elm and ash (ornamental with part shelter).

Thornton Steward: 2 oak, larch, Silver Fir (much shelter and ornamental), 1 oak and larch (shelter and ornamental).

Wensley: Whinny Pastures 10 larch, oak, silver fir (very ornamental with shelter), Rea Garth and Nib Dale Reins 3 larch, oak, silver fir (ornamental), Intake Garth, pasture 1½ oak and elm (ornamental), Middle Scar and Mire Heads 3 larch, oak, ash (ornamental), Middle Scar and Mire Heads 3 larch, oak, ash (ornamental), High Ings 2½ elm, beech, ash (ornamental), East End, Gayle Bank 2 oak, larch and ash (ornamental with part shelter), Ings Close 1 oak, larch, ash (ornamental with part shelter), Ash Bank 2 oak (ornamental).

West Witton: Part of Thos Fairbank's Moor Allotment 6 larch and Scotch Fir, Scaw Bank below the Bridge ½ oak, elm, beech (ornamental with part shelter), Capplebank near limekiln 2 larch, oak (ornamental with much shelter). Capplebank, across plain and westward 1½ larch, oak (shelter).

7.17 Seedlings and nursery stock

Earlier in this chapter, it was stated that much of the tree-planting programme engendered by Anderson and Sadler, and latterly Sir John Orde and Lady Bolton, was largely accomplished from the estate's own resources. A number of small nurseries created in the gardens around Bolton Hall raised, in addition to garden plants, seedling trees for stocking the estate woodlands. The following account, prepared by Samuel Johnson, the gardener, illustrates the range of species propagated in the home nurseries:

An Account of Seedlings Planted out into the Different Parts of the Nursery's Planted west of our own seed Beds etc;

Sycamores 4700, Oaks 4400, Larches 1300, Quickwood 1000, Spanish Chestnut 900, Weymouth Pine 200, Balm Giliard Fir 1000, Silver Fir 300, Scotch Fir 1000, Elms 2050, Beeches 1900. Total 18,750.

Whilst the output of the home nurseries was considerable, it was found necessary to purchase additional seedling trees, particularly larches, from commercial growers. William Thompson's renowned tree nursery at Pickhill supplied most of the bought-in stock. Additional trees were purchased from William Oates, Bolton's own former gardener:

Seedlings Bt in etc: Larches 6000, Birches 2000, Beeches 1000, Horse Chestnut 1000 (Mr Thompson)
Oaks 2000, Elms 2000, (Wm Oates)
Total 14,000.

William Thompson supplied the estate with large numbers of two-year-old and larger trees for stocking the new plantations. A number of Thompson's vouchers held in the estate archive [MIC 2489] provide some impression of the scale of planting undertaken in the post-Enclosure period. In 1813 Thompson's supplied: '15,000 larches 2 yrs £9 7s, 5000 Scotch firs 2 yrs £1 10s, 200 larches 4ft 16s' [127]. On November 23, 1814 they supplied '40,000 quicks £21.

20,000 Scotch firs 2yrs £4, 10,000 larches 2 yrs £6 5s, 10,000 elms 2yrs £4, 2 purple beeches 4ft 4d' [594].

The tree-planting continued for a while after the death of Lady Bolton in 1814. Thompson's invoice, dated November 30, 1815 lists: '12,000 larches 2 yrs £6 6s, 10,000 elms 2 yrs £4, 6,500 beeches 2yrs £4 1s 3d, 2,000 larches 2ft, 2,000 oaks 2ft £5, 2,000 elms 2ft £4, 30,000 quicks £15 15s. Total £39 2s 3d [1365]. Two receipts from Thompson's dated April 1815 amounted to £11 19s [128] and £18 11s 9d [129].

William Oates also continued to supply small quantities of trees:

Bill from Wm Oates February 13, 1815 – 300 elms 3ft 12s, 4000 larch 18-20in £5. March 25, 1816. Bill from Wm Oates – 2,800 larch £2 19s, 500 beech £1 5s. April 1, 1816. 1,000 larch £1 10s. Total £5 14s [1365].

In addition to the cost of buying young trees from outside nurserymen, there were also the variable costs of groundworks. These included such diverse tasks as planting hedges, digging holes, planting trees, erecting fences, building walls, felling trees, peeling bark, sawing wood and carriage. As the estate did not employ sufficient staff to undertake these works, outside contractors were extensively used. A selection of receipts and vouchers from the years 1814-1817 in the estate archive [MIC 2849; frame 1502] provides an illustration of the range of operations involved in the establishment and management of the estate plantations together with their costs. These receipts and vouchers provide a valuable and informative body of data that reveals the extent and scale of operations involved in establishing a plantation. Here we see the entire establishment works, ranging from fencing, hole-digging and planting. The range of costs reveals the cost of planting trees as 1s per 100 (to include hole-digging and setting). The references to 'stubbing' may refer to the removal of old pollards in preparation for the planting of new trees. These data are summarised and presented above as Table 7.1.

This chapter has catalogued, interpreted and commented upon the transition from woodland exploitation to forestry management that occurred in a matter of a few years on the Bolton Estate. It has shown how, through the influence of steward John Anderson and agent William Sadler, there was a major change in estate management policy that heralded the rise of forestry in Wensleydale. In this, we see the purposeful establishment of plantations and the employment of silviculture and nursery management. That the estate also experimented with different species in a range of environmental conditions is evident from the siting of a number of its plantations at somewhat unlikely locations that contemporary foresters might question.

1814	Contractor	Task	Location	Cost
August	John Moor	Self and five men cutting wood	Capplebank	7s 6d
	John Moor	4 days man and self felling	Banking Thornton	£1 4s
	John Moor	Felling	Leyburn Shawl	2s
1815				
April	David Thompson & Co	59½ roods of dyke	Wensley Ings	£3 14s 4½d
	David Thompson & Co	Planting quicks	Gale Bank	£3 16s 3d
	David Thompson & Co	Fencing		£7 10s 7½d
May	John Moor	Fencing		£20
July	Thomas Siddall	3 days felling and peeling larch		10s 6d
	Thomas Siddall	3 days felling and peeling larch		10s 6d
	Thomas Siddall	Cutting 80 rails		7s 6d
	Thomas Siddall	Baling of fir wood	West Burton	10s 6d
	Thomas Siddall	Cutting 250 fence posts		19s 6d
July	William Airey	Work on deer park wall		£7 11s
	William Airey	37 cartloads wood	Thornton Steward	£5 11s
	William Airey	Stub 16 oak trees @ 3s 6d		£2 16s
	William Airey	Sawing wood 25,343ft @ 5s 6d per 100ft	Bolton Hall	£69 13s 9d
July	Pearson & Hepple	Planting new fence (2 rows quicks)	Wensley Parks	
	Pearson & Hepple	Set up 3 roods high posts and rails		£9 7s 6d
	Pearson & Hepple	Sawing wood 33,747ft		£96 16s 2d
July	George Scott	5 days walling	'Plantation'	12s 6d
July	Sam Sedgwick	10 days planting/2 days walling	Capplebank Old Plantation	£1 1s
July	James Sedgwick	15 days planting	Capplebank Old Plantation	£1 6s 3s
July	John Sedgwick	14 days planting	Capplebank Old Plantation	£1 4s 6d
July	John Longstaff	9½ days planting	Capplebank Old Plantation	16s 7½d
July	Ralph Scott	13 days planting	Capplebank Old Plantation	£1 2s 9d
July	John Storey & Co	22,400 holes @ 8½d per 100	Capplebank Old Plantation	£7 18s 8d
1816				
April	John Lodge	Making holes	West Witton Deer Park	6s 5½d
		Making holes	Capplebank	£1 2s 0¾d
July	Joseph Atkinson	Removing thistles from quick fence	Capplebank Old Plantation	3s 4d
1817				
January	Christopher Bushby	Leading trees, 3 horses and carts	Bolton Gill	£4 8s
February	Joseph Atkinson	Setting trees	Capplebank Old Plantation	2s
February	Thomas Fawcett	Cleaning, setting and ditching 78 roods of quicks @ 8d per rood		£2 16s
	Thomas Fawcett	Setting trees, 2 days @ 2s per day		4s
April	David Thompson & Co	Stubbing 16½ roods old trees @ 1s 6d		£1 4s 9d
	David Thompson & Co	Stubbing tree		1s 6d
April	G. Gibson & Co	Holing and planting 118,800 trees @ 10s per 1000	East side of Gillfield	£39 8s
	G. Gibson & Co	21½ days cutting wood @ 1s 6d per day	Bankside	£1 12s 3d
April	Henry Rodgers	16,165 holes @ 6d per 100		£4 0s 10d
	Henry Rodgers	24,715 trees planted @ 6d per 100		£6 3s 7d
	Henry Rodgers	12 days filling sods, stones, loading soil for Hollins, making of the holes for, etc.		15s 9d

Table 7.1. Summarised analysis of contractors' invoices for work on Bolton Estate plantations, 1814-1817. (Source: NYCRO MIC 2849; frame 1502)

To a degree, this awakening to the desirability of planting new woodland as opposed to exploiting unplanted stands was a process that was mirrored throughout the north of England, where estates embraced the new ‘spirit of planting’ in the late 18th century. It was, however, a shortlived phenomenon, for by the end of the 19th century it had virtually run its course.

Significantly, the Bolton Estate did not follow this trend but remained committed to its afforestation policy when other estates looked to other methods of income-generation that were not subject to the prolonged payback period inherent with the cultivation of tree crops. Forestry at Bolton has remained the mainstay of estate enterprises and its lengthy pedigree, which has been catalogued in detail in this chapter, can be seen to have validated the commitment of its 18th century pioneers. The questions posed at the beginning of this chapter have been answered by this piece of documentary research and have served to corroborate the writer’s hypothesis that the characteristics of the Yorkshire Dales woodlands are directly influenced by land tenure and end-use.

7.18 Conclusion

In this study, the remodelling of a landscape shaped by medieval hunting into one of commercial forestry characterises the main elements of the woodland history of Wensleydale over the past three centuries. This provides a particularly influential template worthy of further research. The documents create the impression that in the early 18th century, the estate woodlands represented the elements of medieval wood pasture that had fallen into dereliction through lack of management. Germane to this situation is the fact that the landowner was often absent from his estate for long periods of time. For 30 years its management had been devolved to the agent, Thomas Maude, who was not a forester but a former naval surgeon. Similarly, the steward, Francis Earle, was not conversant with woodlands. These two men regarded the estate woodland as a potential source of cash to defray urgent expenses rather than a resource for the future. Their sentiments appear typical of the way in which woodland was regarded at the time. In their desperation to raise cash, Maude and Earle engaged Thomas Siddall as woodman to undertake the tree-felling. Somewhat incredibly, Siddall, with some knowledge of woodland survey and valuation, was virtually given a free hand to do as he pleased. This delegation of decision-making to him was perhaps misplaced, and certainly unusual, in that landowners were normally reluctant to entrust their woodlands to third parties.

The influence of John Anderson, initially as the concerned owner of a neighbouring property and latterly as replacement steward to Francis Earle, can be seen as pivotal to the change of policy that heralded the establishment of new plantations. It is known that Anderson had been involved with tree-planting on his nearby estate at Swinithwaite for some time before he came

to Bolton Hall. The appointment of William Sadler in March 1795 as agent in place of Thomas Maude was made upon the Anderson's recommendation. Although no specific reference is made in the documents to Sadler's background, he appears to have been an extremely competent agent with a working knowledge of woodland management and silviculture.

Although the early forestry of the Bolton Estate had no scientific basis, Sadler, through a process of experimentation, managed to evaluate the suitability of different species for an environment long regarded as being unfit for the growing of timber. However, in view of the afforestation programmes undertaken in Scotland by the Dukes of Atholl, which proved that forestry was a viable prospect in the uplands, Sadler must have possessed a degree of optimism that similar success could be achieved in Wensleydale.

If Anderson and Sadler were jointly the catalyst that instigated the afforestation policy on the Bolton estate, the fact that they were singularly responsible for putting their ideas into action demonstrates the closeness of their relationship with the landowner. Thomas Orde, an infrequent visitor to his Yorkshire estate, seems to have habitually left most of the decision-making in the hands of his steward and agent. Sadler was the generator of ideas and had the authority to put these into effect but interestingly, his correspondence always contains a degree of deference. He always sought his employer's 'approbation' for any suggestions he offered or actualities he instituted.

It is pertinent to consider what influences lay behind Anderson and Sadler's tree-planting revolution. Anderson was a landowner in his own right and probably more aware of the 'Spirit of Planting' that was engaging the owners of large estates during the 18th century than his predecessor. Sadler was similarly conscious of these developments, but whilst most of the developments described are attributable to him, the archive says little about his background. This is not unusual with estate records, which are principally concerned with administration. Beastall (1974) comments that information about the personalities of estate officials is normally hard to find beyond that concerning their salaries, duties and working relationships with employers, estate staff and tenants. In this, the Bolton estate archive is no different. It is, however, evident that Sadler was well acquainted with Anderson before he came to Bolton Hall.

The enthusiasm for planting new woodlands shared by these two men may have been engendered by the Board of Agriculture reports. These drew attention to the potential of unproductive land in general and moorland in particular as sites for planting new woodlands. But it could equally have been due to the fact that the Society of Arts, very soon after its foundation in 1754, started a competition for plantations of forest trees. Although medals were

bestowed upon the owners of prizewinning plantations from 1758, there is no record of the Bolton Estate having been thus recognised. But this may be due to virtually all the celebrated plantations being situated in the midlands and the south.

There seems to have been an element of 'fashion' for planting during the mid-late 18th century, for plantations were becoming established on other estates in the Yorkshire Dales. However, it was the impetus of Parliamentary Enclosure which gave rise to much new woodland. With the cost of walling largely met by the Commissioners, the Bolton Estate found timber growing to be a worthwhile enterprise, having a ready outlet for hardwoods to industrial users and a source of forestry thinnings for use in its own leadmines.

While the Bolton Estate was the first major forestry estate in Wensleydale, its influence may have spread to neighbouring estates in proving that it was possible to raise good timber in the harsh upland environment of the Yorkshire Dales. By the 19th century the Marquis of Ailesbury's Jervaulx Estate at nearby East Witton had become renowned for its forestry enterprise. This saw the planting on Witton Fell of 146,336 Scots pine, larch, spruce and oak trees in 1815. Clearly, this was a forestry enterprise on a large scale, and furthermore, all the trees were raised in the home nursery (NYCRO ZJX 1/76/26).

Parallels with the Bolton Estate may be seen in the periodic absence of the owner, who lived in Wiltshire, and the estate being placed in the hands of an agent, John Claridge. But whilst little is known of Claridge's input into the forestry enterprise, it is pertinent that by the close of the 19th century the estate had engaged John Maughan, a qualified forester, to manage the woodlands. Maughan was a Professional Associate of the Surveyors' Institution and, like many foresters of his time, a Scot. Although his scientific training gave the Jervaulx Estate a considerable advantage, it was Sadler's experimental forestry that revealed the timber-growing potential of Wensleydale.

The death of Lord Bolton in 1807 ushered in a new era in the woodland history of the estate. Although Sadler was still actively managing the estate, Lady Bolton and her brother-in-law, Sir John Orde, took up permanent residence in Yorkshire and assumed a more prominent role in the management of the estate woodlands. Under the direction of Lady Bolton, much of the woodland on tenanted properties was taken back in hand, along with the planting of much of the amenity woodland that still survives today.

The key elements of control, tenure and end-use all figure in this piece of research which demonstrates that vision and hard business sense also have the capacity to shape the landscape. Thus, woodland management on the Bolton Estate was the instrument by which the medieval

hunting landscape evolved into modern forestry. It was not the only estate to have brought about a revolution in landscape management but certainly one of the first. The Bolton Estate established forestry in Wensleydale and demonstrated that the profitable production of good timber was possible in the north of England. The pioneers who had the vision to plant trees when many of their neighbours were clearing theirs were far thinking and perhaps revolutionary. Their influence has been passed down through successive generations of the Bolton family and the estate has come to be regarded as a hallmark of forestry practice.

8. THE END-USES OF MANAGED WOODLAND IN NIDDERDALE AND WENSLEYDALE

This chapter provides an overview of the principal end-uses that were associated with managed woodland in the Yorkshire Dales, making reference to woods examined during the course of this research and the documentary record pertaining to them. In this, the characteristic land-uses of the area are apparent, through the use of wood in agriculture and mining, and also the destination of wood to support industrial activity in the surrounding conurbations.

This research has found that most woods were linked with specific end-uses that provided them with a role or function, and that in some cases, the end-uses provided the justification for their continued presence rather than clearance for another form of land-use. It is also evident that the link between various end-uses and woodland management has been an influential factor in moulding the visual characteristics of many woods in the study area. The perception gained from this research is that distinctive end-uses have been a major influence in differentiating the woodland of the Yorkshire Dales from lowland woods. End-uses are, therefore, of considerable importance in explaining the present status of woodland in the landscape.

8.1 Domestic and agricultural end-uses

Throughout the period covered by this research, the domestic end-uses of managed woodland have included building materials, fuelwood, household utensils and furniture. Agricultural uses have also included building, as well as other diverse needs, ranging from hedging and fencing materials, to tool handles, implements, carts and wheels. In Chapter 3 it was stated that on the Fountains Abbey estate, heavy building timbers were taken from large trees standing in wood pastures, and that after the transition to coppice management, timber for constructional or repair purposes was obtained from standard trees grown within coppice woods for that specific purpose. Rackham (1988, p.71) has demonstrated that whilst large timbers were used in a number of major structures, such as the roofs of churches and cathedrals, much of the timber used in vernacular buildings was in the form of small diameter (<30cm) trees or poles cut from coppiced woodland. It is evident from some documentary sources (Ingilby MSS 2453) that prior to the 'great rebuilding' in stone which occurred in the Yorkshire Dales during the 17th century, vernacular buildings were largely constructed of wood and thatch (Plate 8.1). Many of the materials needed for the construction of cottages and outbuildings were gathered from the common grazing pastures and hedgerows, as managed woodland was the reserve of the manorial lords or religious houses. White (1997, p.102) mentions a grant in which Bridlington Priory was given the right to take wood (without felling trees) to make houses in Swaledale. In



Plate 8.1. A thatched cottage in Colsterdale (reproduced from Bogg, 1906)



Plate 8.2. Demonstration dead hedge in Freeholders Wood, Aysgarth

some instances the tenants of seigneurial or monastic estates were granted the right of ‘firebote’ by which they were entitled to take dead wood for domestic fuel. This wood, in the form of fallen branches, is sometimes referred to in documents as ‘ramell’.

One major use of branchwood was for the construction of dead hedges (Plate 8.2). These were mainly required to contain livestock within a defined area or to exclude grazing animals from areas of newly-cut coppice. In an earlier chapter it was explained that coppice regeneration depended upon the exclusion of grazing animals during the early years of a rotation. In consequence, the provision of stockproof boundaries around newly cut compartments was critical. In the study area, dead hedges were made from thorny and prickly species such as holly and crabapple (often described in documents as ‘garsell’) that grew in coppices. Occasionally tenants were charged with the responsibility of maintaining the hedges around their landlord’s coppice woods. In these cases they might be afforded the right of ‘haybote’ or ‘hedgebote’. In such cases, they were entitled to take wood for making hedges.

8.2 Industrial end-uses

Domestic use of woodland, being largely a matter of rights, was not an end-use that secured the continuation of woodland in the same way as an industrial end-use, where large quantities of a particular commodity formed the principal output, and therefore the purpose, of a given woodland. This aspect of woodland function distinguishes the Dales woodlands from many lowland examples. The lead and coal mining industry was active in the Yorkshire Dales from the medieval period until the late 19th century. Links between woodland and mining in the Dales go back at least as far as the 13th century when, in 1279, Edward I granted John de Eston two acres of wood in his forest of Barden for the upkeep of the mill and the mine of Appletreewick.

In Chapter 3 it was explained that fuel for smelting iron and lead was the principal end-use of the monastic woodland. The large scale of Fountains Abbey’s extractive industry placed huge demands upon its woodlands to deliver a continuous supply of charcoal for smelting iron ore and chopwood for smelting lead. This was only achievable by the application of a strictly regulated coppicing regime in the monastic woodlands. In this, rotational length was closely related to demand. The process of charcoal-making is illustrated in Plates 8.3 – 8.6.

Charcoal was used for smelting iron on account of the high temperatures that could be achieved with its use. It was used in very large quantities – a small blast furnace for smelting iron typically used about 1 ton of charcoal per day; a bloomery could consume around 220lbs



Plate 8.3. The coppice poles are cut to size

Charcoal-making 1: pictures from Edlin (1949)



Plate 8.4. The wood is stacked around a central (motty) peg



Plate 8.5. Burning embers are placed in the centre of the turf-covered clamp to convert the coppiced wood into charcoal

Charcoal-making 2: pictures from Edlin (1949)



Plate 8.6. A charcoal-burner's hut was typically an ephemeral structure made from coppice waste and heather thatch

(100kg) of wood and charcoal per day. Charcoal was made from small roundwood cut from the coppice and gathered up into 'cords', each cord containing around 75ft³ solid volume of wood. A statute cord was reckoned to weigh 2½ imperial tons. One 'load' of charcoal equated to four cords of wood (10 tons). Five loads of charcoal were needed to make one ton of iron. Good charcoal required a wood with strong mechanical properties, a low ash content, and a fine and even grain which prevented the end product from crumbling apart (G. McConnell, pers. comm.). The preferred species for charcoal-making were oak, ash, hazel, lime and alder.

Linnard (2000) states that a well-grown coppice, managed on a 16-year cycle, yielded about 1,200ft³ solid volume of wood per acre. Using Linnard's figures, the writer has calculated that one acre of coppice would generate 16 cords (40 tons) of cut wood, which, when converted into charcoal, would be sufficient to smelt 16cwt (812kg) of iron. The normal coppice rotation for charcoal-making in the lowlands was from seven to ten years, but given the relatively slow growth rates of trees in the Yorkshire Dales, a 15-20 year coppice cycle could be needed to grow wood of a suitable size for charcoal-making. Taking this longer rotation as an example, the small blast furnace referred to above, using 1 ton of charcoal per day, would consume the output of about 10 acres of coppice wood per year. To meet this level of demand, the sustainable yield [output] from a coppice of between 150 and 200 acres (60-80ha) would be required.

In addition to charcoal, which was principally used for smelting iron, many coppice woods were also the source of another fuel known as chopwood or 'white coal' which was widely used for smelting lead until the end of the 18th century. Chopwood differed from charcoal in that the wood was kiln-dried rather than carbonised. It was added to charcoal in the smeltmill furnace to soften, and thereby lessen the intensity of the fire which, if composed solely of charcoal, was considered to be too fierce. Chopwood was a product of coppiced woodland managed on a rotation of between 12 and 25 years. It was the usual procedure for woodmongers or similar individuals to purchase the cutting rights to a coppice wood for an agreed period for the specific purpose of making chopwood and/or charcoal. This procedure has already been described in Chapter 4 with relation to the bargain and sale of cutting rights granted by the Ingilbys in their Dacre woodlands.

Coppice poles destined to become chopwood were cut from the stools, and the smaller branches (lop and top) were converted into charcoal. After the poles had been removed, they were stripped of their bark, which was reserved for the tanners, and cut up into predetermined lengths. The poles were then dried in a stone-lined kiln over a slow-burning fire of brash and trimmings to drive off the sap. When the process was complete, the chopwood was packed into

sacks and delivered to the smelting mills. Chop kilns (occasionally called ‘elling hearths’) are a frequently-seen archaeological feature in the Dales coppice woods where they take the form of circular depressions, measuring about 5m in diameter, set into the woodland floor with a ‘spout’ or linear extension facing downslope. Such features were observed by the writer in Guisecliff Wood, Nidderdale, positioned in close proximity to the principal trackways through the woodland.

The amount of charcoal and chopwood used by the mines and smelting mills was considerable. For example, the Rievaulx ironworks blast furnace in Ryedale used 1 ton of charcoal per day (G. McConnell, pers. comm.). In one year (1701-2) the amount of chopwood used to smelt just over 87 tons of lead at the Grassington Mines was 185 loads from Grass Wood and 432 loads from Bolton Parks, together with 97 loads of coal from Thorpe Colliery. This equates to 2½ loads of chopwood per ton of lead smelted. From an item of ‘wood fuel for smelting 80 tons at 7d per ton’ shown in the account for a Nidderdale lead mine presented as Table 8.1 below, it can be calculated that 12 tons of chopwood were needed to smelt 1 ton of lead ore. By 1760 the annual output from the Grassington smelting mill had reached 600 tons, consuming about 1500 loads of chopwood. As wood supplies dwindled towards the end of the 18th century, the lead smelting mills in Nidderdale, Wensleydale and Swaledale sourced chopwood from woodlands some distance away such as Braithwaite Wood, near Middleham. As wood became increasingly scarce, its price rose to the extent that alternative fuels were sought, and finally there was a switch from wood to peat.

Some of the woods studied for this research project are recorded as having been used for the preparation of chopwood. These include Freeholders Wood and Hawbank, in Wensleydale – the latter now derelict but formerly under intensive management; and Guisecliff Wood, in Nidderdale, where coppice management in relation to the production of chopwood was described in Chapter 4.

Large quantities of wood and timber were used in the mines as grove timber (pit props and shoring wood) for supporting the mine shafts and levels, constructional timber for the mine buildings, and for a diverse range of mining equipment including curves, axle trees, tool handles, shovels and tram bodies. Some interesting detail of wood and timber use in the mines is contained in the Colsterdale coal mine accounts for 1693 (NYCRO: ZS). These detail the monies paid to Wilfred Scaife for making wooden implements, wheels for the mine and other gear. Scaife and another were paid 16s for 12 days work cutting timber, 9s for 200 pick shafts. 2s 6d for 100 punchions and 26s for 12 dozen corfe wheels. Scaife was also paid 13s 4d for delivering 40 loads of timber and punchions to the mine on horseback.

Wood, timber, felling, sawing and carriage were major items of expenditure. This can be seen in an extract from an account for wood-related items at a lead mine in Nidderdale given in Table 8.1 (Ingilby MSS 2661). In this account it will be seen that Sir John Ingilby sold the coppice rights to a parcel of underwood and a parcel of ash wood near the river Nidd for £16. There were additional expenses of £2 17s incurred for eight days work in felling, sawing and carriage of the wood to its point of use, making a total of £18 17s for the wood and timber. The same account mentions oak and fir, amounting to £3 6s and a particularly large sum of £28 for wood fuel [chop wood].

Trades Mens Bills						
	£	s	d	£	s	d
John Ingilby for a parcel of underwood	10	0	0			
Ditto a parcel of ash wood	6	0	0	16	0	0
Thos Moorhouse felling and sawing				2	1	0
William Pullene felling and bearing it from Nidd side 8 days at 2s/day					16	0
Mr William Atkinson for deals for lining shaft and Gin baulks as per bill				11	16	4
John Hardcastle for carriage of timber as per bill				14	12	2
William Friear cutting timber as per bill				8	11	3
Mich Grange for carriage of timber as per bill 93 doz				1	18	9
Mr James Bell for 18½ ft of oak wood	1	3	0			
Ditto 2 more pieces 20ft 18d	1	10	0	2	13	0
William Clarke for carriage of a fir baulk for the Ginn					13	
Mich Grange for carriage of 99yds of boards					4	1½
Mr George Bradley for wood fuel for smelting 80 ton at 7d per ton				28	0	0
Total				87	5	7½

Table 8.1. An account for wood, timber, felling, sawing and carriage for the two-year period: May 1, 1789-May 1, 1791, at West 10 Meers Black Rigg Mine within the Forest of Knaresborough. (Source: Ingilby MSS 2661)

A description of the wide diversity of uses to which wood was put in a coal mine, together with the types of wood from which individual items of mining equipment were made, is contained in two documents from the Swinton archive (NYCRO: ZS). In the first document, an agreement drawn up in February 1710 by Sir Abstrupus Danby (the owner of both mine and woods) and Messrs J. Askwith and J. Shaw of Ellington (Husbandmen), the use of particular species for making wooden implements is specified 'to prevent waste in woods set out for my colliery' (MIC 2818/0819).

This document specifies items of equipment and the wood from which they were to be made. It states that corf trams were to be made of alder and 'luggs of ash' (6s per dozen); shovels were to be sawn out of birch or alder (2s per dozen); corf wheels were to be made of alder or birch (8d per dozen); pickshafts were to be made of ash or hazel (3d per dozen); axle trees were to be made of ash or alder (3d per dozen); puncheons were to be made of alder, birch, hawthorn or

hazel (1s 8d per 100) 'to be sawn into lengths with a saw and not to be cutt of with an axe': corf boards or other boards, 1ft wide, were to be made from alder, ash or elm (1d per yard): turnstakes were to be made from alder, ash or elm (1s 6d per pair).

The document also mentions transport. The rate for carriage of wood gear to the mines was 6d per load 'from any part of the Lord's wood'. The owner of the wood stipulated that there was to be no waste, and only wood set out by him or his agent was to be used for the manufacture of work tools and other mine equipment. Furthermore, the waste material (lop and top and roots) and trees too small for making colliery gear were to be 'preserved in order that it may be burnt to charcoal at the discession of ye said Sir Abstrupus Danby or his Assigns for his or their proper uses'.

The second document, a wood account of 1774 (MIC 2181/964), refers to tool handles, scoops, shovels and pickshafts, and timber and poling for shoring-up the workings. The quantities and prices of the grove timber give an indication of the large volume used and high value of this material. The home woodlands supplied 16,200 lengths of grove timber at 1s 8d per 100 (£13 10s), and 1200 lengths of poling at 6d per hundred (12s). Outside contractors supplied 24,600 lengths of grove timber and 8900 poles. In another section of the same wood account, the quantities and unit prices for a range of utility items are set out, together with an item for another 40,800 lengths of timber and 10,100 poles, amounting to a total of £18 16s 6½d. Items of equipment for use in the mine consisted of:

Croes [crowbars] 6 at 1s 6d = 9s; Scoops 21 at 1s 4d = £1 8s; Shovels 35 at 4d = 12s; Boards 38 at 4d 12s 8d; Wheels 15 doz at 3d = 3s 9d; Axletrees 38 doz at 6d = 19s; Pickshafts 13½ doz at 9d = 19s 1½d.

In January 1797 the mine accounts record the expenditure of £166 8s 6d on wood, which include the sum of £50 12s for cutting and carriage, and the following items of equipment:

Timber 121 hundreds [12,100] valued at 1s 8d = £10 1s 8d; Poling 23 hundreds [2300] valued at 6d = 11s 6d; Scoops 8 valued at 1s 4d = 10s 8d; Boards 38 valued at 4d = 12s 8d; Wheels 6 doz valued at 3d = 1s 6d; Axletrees 5 doz valued at 6d = 2s 6d; Pickshafts 4 doz valued at 9d = 3s; Total £12 3s 6d.

The types of wood purchased by leadmining companies can be gauged from the following example, dated November 1823, where the Sun Side Mining Company of Pateley Bridge bought from the Ingilby Estate for £225:

all the birch, alder, willow, hazle and mountain ash now standing and growing in a certain part of a wood called Wm Friars far wood in the Township of Dacre, also the

same description of wood in the little wood on the south side of Samuel Cary field called High Bale Hill in the said Township (Ingilby MSS 2846/6).

A mention of Harewell Great Wood, described in Chapter 4, occurs in the Ingilby Estate *Wood Book* entries for 1825, gives an indication of the value of standing coppice: '11 acres three of which are vacant ground leaving eight acres of pole wood, suitable for the lead mines. Value eight acres at £6 5s per acre £50' (Ingilby MSS 2846/9).

Grove wood continued to provide a major end-use for woodlands until the demise of the lead-mining industry in the late 19th century. The Surrender and Old Gang Mines sourced mine timber from Fremington Wood Yard in Swaledale and from Wanlass Park in Wensleydale. This included ash timber for packing, planks, battens, sycamore and elm, larch timber for shafts and props, boards and slabs, water hoppers, ash and elm for sleepers, shovel shafts and pick shafts (NYCRO: 2LB 18/4 797, MIC 1385). Similarly, the Coverdale Estate sourced supplies of wood and timber for its mines from woodlands owned by the Bolton and Middleham estates, e.g.:

April 1809: For the use of Ellerton Moor Ltd Mine.
 150 dozen of green timber at 1s 6d foot £11 5s
 57½ feet of ash from Boulton Castel* at 1s 6d ft £4 6s 3d
 13 feet of ash from Middleham for Pick shafts at 2s 6d ft £1 12s 6d
 1260 feet of half inch boards at 1s 6d foot £7 17s 6d
 282 feet of inch boards at 2s foot £2 7s
 Total £27 8s 3d.

*This may have come from Bolton Intake Plantation, the triangular-shaped wood established by William Sadler to the west of Bolton Castle (see Chapter 7, p.193) that was felled around this time.

In addition to the end-uses created by the mining industry, another major outlet for woodlands was tannery bark. This demand came from local tanners and large tanneries in the surrounding conurbations.

8.3 Tannery bark

Oak bark was the main source of tannin for tanning leather until the 1790s and represented a very important end-use of coppice woods (Clarkson 1974). As bark was a by-product of the coppice cycle, it was a commodity whose availability was highly variable, being dependent upon the rotational cutting of coppice woods (Plate 8.7). It was, therefore, subject to an extremely volatile market where prices could fluctuate from as little as 9s to £13 per ton (Clarkson 1974, p.141).

The best quality bark came from young oak trees about 20 years old. This was because the



Plate 8.7. Stripping the branches of a felled oak

Preparation of tannery bark: Pictures taken from Edlin (1949)



Plate 8.8. Loading oak bark from the drying racks for onward transport to the tannery

tannin is contained within the inner bast layers, and the thinner bark of young trees is more tannin-rich than the thicker bark of older trees. Bark was normally only taken from the lowest part of the trunk, but when prices were high, it could be stripped from further up the trunk and even from thin branches of as little as 2.5cm in diameter (Edlin 1949, p.88). The bark was pilled [peeled, stripped] from standing coppice poles with an implement called a barking iron. This took place during the spring – when the bark would ‘run’ – i.e. between April and June, prior to cutting of the coppice during the autumn and winter. After peeling, the bark was put into stacks to be dried. And finally, it was chopped into small pieces and placed into sacks for delivery to the tanners.

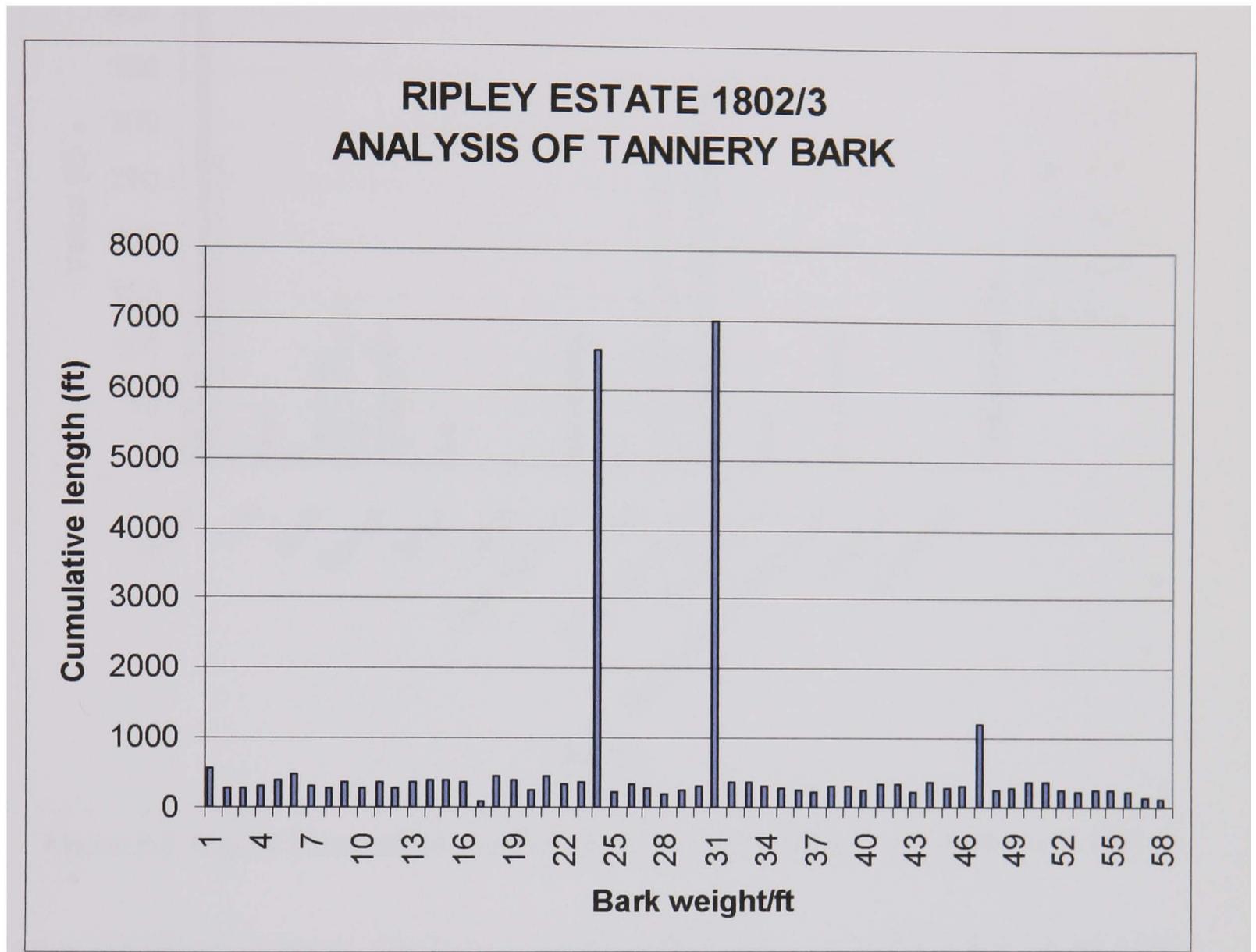
Marshall (1788) observed:

Oak bark is here sold to the tanner ready-prepared for his use. The timber-merchant not only dries it in the wood, but stacks or houses it; and generally shaves and chops it ready for the tan-pit; selling it to the tanner at so much a quarter. This custom appears to be founded on a false basis: the tanner is, or ought to be, the best judge of the mode of preparation, and the operation ought to pass under his eye. The practice of grinding bark does not seem to have yet got footing in the District: whenever it does, it will of course bring the preparation of bark into its proper channel. The medium price of chopt bark, 10s 6d a quarter.

Although oak bark was the first choice of tanners, the bark of other species such as alder, birch and willow, which contained lesser amounts of tannin, could be used as a substitute where oak was scarce. In the 19th century some North Yorkshire estates experimented with larch, whose bark had long been used by tanners in its native Austria (D. Turnbull, pers. comm.). In some parts of the country the demand for tannery bark prolonged the working life of coppices after their principal markets had been captured by coal and some coppices were managed purely for bark. In this instance Edlin (1949, p.87) comments that the stools were grown at 8ft spacing (thus indicating a planted wood) and were cut-over on a 24-year cycle. Some woods associated with the tannery trade can still be identified from their distinctive names. For example, the names of two woods in Nidderdale bear witness to their former role: ‘Bark Cabin Wood’ near Glasshouses, and ‘Tanpit Wood’ near Darley. Pertinently, the site of ‘Bark Cabin Wood’ is now devoid of trees, providing affirmation of the link between end-use, economic viability and continued existence of woodland.

In 1802, 59,609ft of wood was sold by the Ingilby estate for £4,431 together with 21¼ tons of bark. At this date the price of bark was 17 shillings (85p) a quarter. The total bark weight in the above example was 1696qrs, representing a net worth of £1441. A calculation of the relationship between the given bark weight per linear foot sold and the cumulative length of pole wood indicates that the oak trees from which bark had been stripped were of three distinct

age classes. This relationship, presented as a histogram in Figure 8.1, indicates that the trees had come from three even-aged plantations or the compartments of one large plantation. This reveals the occurrence of clear-felling events against a background of small-scale selection cutting and thus the adoption of forestry practice as opposed to woodmanship.



**Figure 8.1. Analysis of the relationship between bark weight and pole length.
Data from Ingilby MSS 2845**

8.4 Sales of wood and timber

It is when an examination of the wood sales documents is made that the afforestation documented in the Ingilby and Bolton estate records can be seen to have had a commercial objective. An analysis of the sales ledger, being *an Account of wood sold from Sir William Ingilby's Yorkshire estates for the period January 1825-May 1831* (Ingilby MSS 2847), provides both a financial record of the wood sold and a detailed impression of its end-uses. These ranged from polewood for the mines and alders for clog-makers, to posts and rails for fencing and bark for tanners. The combined entries for the five years of this record are analysed and presented in graph form as Figure 8.2. This shows that alder, oak and fir polewood formed the largest output in economic terms. In 1825 coniferous polewood, sourced from the estate woodlands at Dacre, made up the largest single commodity sold, being destined for general

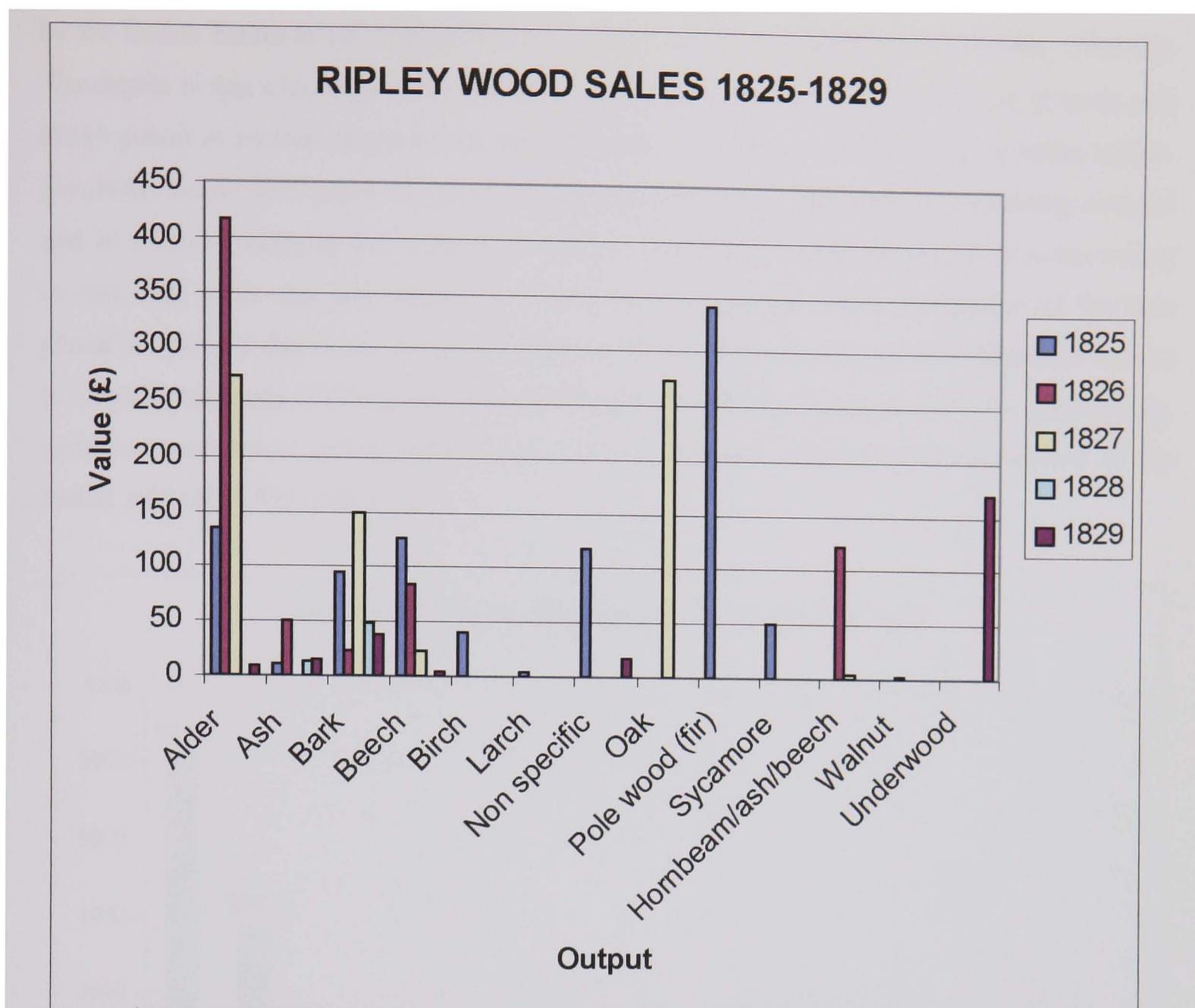


Figure 8.2. Ingilby Estate (Ripley) wood sales 1825-1829. Data from Ingilby MSS 2847

estate and mining purposes. Significantly, £420-worth of alder was sold in 1826. Of this sum, almost £300 is represented by an Otley clog-maker's purchase of alder wood from Haverah Park. By the end of the period (1829) the largest output, realising the sum of £170, was in the form of underwood. This suggests that there was little standing saleable timber left by this time.

One important aspect of this document is that it reveals the diversity of trees under management and, surprisingly, the amount of beech grown on the estate. Also of interest is the inclusion of less common species such as hornbeam and walnut which appear in the returns for 1826. A high peak in the returns for bark in 1827 can be seen to correspond with the high sales figure for oak in the same year. Upon closer investigation it was found that this had resulted from the sale of 15 tons of bark to a tanner named Parkinson from Fewston.

The popularity of larch, which began to be planted in large numbers in the Dales during the 19th century, gave a new impetus to many estate woodlands, the owners of which discovered a ready market for its fast-growing, versatile timber. By the late 19th century some of the early Bolton plantations had matured to the degree that they were ready for felling and sale. An auction held

by the Bolton Estate in 1874 resulted in the sale of 16,000 poles of timber (NYCRO, ZBO IV). The details of this sale are given as a graph in Figure 8.3. Significantly, the amount of larch sold (6114 poles) at auction exceeded all other species – a reflection of its utility as estate timber. Similarly, nearly 4000 poles of ash were sold, representing its importance as a building material and its singular utility in the manufacture of tool handles and dairy equipment. It is interesting to note that more elm was sold than Scotch fir [Scots pine]. This is indicative of the then plentiful status of elm in the Yorkshire Dales, prior to the onset of Dutch Elm Disease that was to virtually eradicate elm from the Dales landscape in the 20th century. In this sale, surprisingly, sycamore and spruce accounted for only 2.4 per cent and 1.25 per cent respectively of the timber sold (NYCRO, ZBO IV).

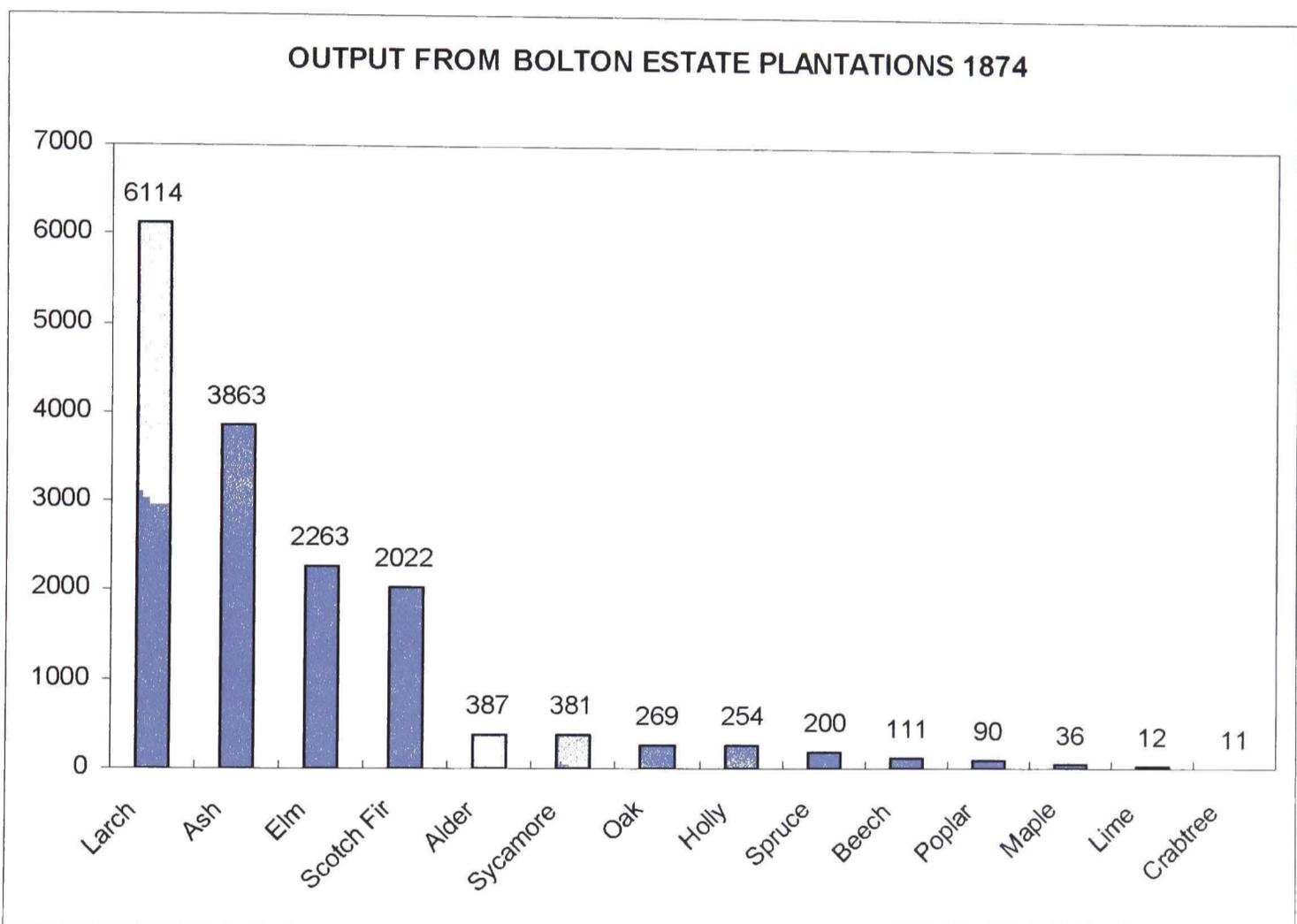


Figure 8.3. Timber output from the Bolton Estate plantations, 1874. Pole quantities shown above blue bars. Data from NYCRO ZBO IV

8.5 Textile equipment

Mention has already been made to the frequency of sycamore (*Acer pseudo-platanus*) in the Dales, particularly in Wensleydale. This species has contributed to the woodland economy in a number of ways, being particularly favoured as the raw material used for the manufacture of rollers and other components for the textile industry. Edlin (1949) explains:

Sycamore is chosen for cloth rollers, because of its clean appearance, and the fact that it wears well, withstands constant moisture, and does not stain the textiles. These rollers vary in size from those of the household mangle to those used in laundries and textile mills, for which straight, well-grown trees must be carefully selected. The demand

exceeds supply, and really good sycamore trees are scarce in the woods since their value per cubic foot rivals that of prime ash or oak, and timber merchants comb the countryside to secure them. In making such rollers, the centre of the tree is usually rejected, baulks being sawn from the surrounding wood only. Each baulk is then re-sawn until it is six-sided or hexagonal in cross-section, and then turned to form a cylinder. Weavers' shuttles, too, were formerly carved from sycamore wood.

Edlin also comments that it was normal practice to fell sycamore during the winter in order to ensure that the cut surfaces were clean and free from stain. The Lancashire Turners twice sourced plain trees [sycamores] from the Bolton Estate for this purpose. There is also a reference to holly for a similar end-use. Sycamore was also long favoured as the material from which butter pats and prints, chemists' pestles and violin backs were made. It was a wood that was sought by wood turners for its free-cutting qualities.

8.6 Dairy equipment

One example of an end-use based upon a particular type of woodland is the local industry based upon ash woodland that existed at West Witton in Wensleydale during the 17th century. Speight (1897) refers to the village having a local industry making butter-tubs and other ancillary equipment:

We also gather from an incident that happened in the year 1681 that the making of butter-tubs etc was at that time a rather large business in West Witton. It is stated in the Quarter Sessions Records, on the certificate of the minister and all or most of the inhabitants of the place, that a disastrous fire broke out and burnt down a firkin-maker's house, and that all his household goods, together with a quantity of firkin-wood, perished in the flames. The whole loss amounted to £50 or thereabouts.

Marshall (1788) comments that:

Ash timber is chiefly worked up by the cartwrights, and by coopers into butter-firkins and dairy utensils. The price is one shilling to eighteen pence a foot in the stick. This similarity of price between ash and oak is owing to several causes: the present want of demand for oak; the present scarcity of ash; and to the circumstance of ash timber being, on the spot, at its principal market; whereas oak requires to be carried twenty miles before it can be placed in a similar situation.

In view of the extensive scale of dairy farming in Wensleydale, it is envisaged that there was a large demand for equipment made from ash wood, particularly in relation to cheese-making activities.

8.7 Bobbins for the flax industry

The rise of the flax industry around Summerbridge in Nidderdale during the 19th century presented a new role for Guisecliffe Wood on the Ingilby Estate. The demand for turned wooden bobbins initiated the construction of a number of water-powered mills in this area. These mills served to manufacture bobbins from coppice wood and thinnings taken from the local woodland. The most suitable wood for the purpose was birch on account of its free turning qualities. Fortuitously, birch had become dominant in the woodland after most of the oak had been cut down and sold following the decline in demand for chopwood and charcoal. Although hazel and holly were abundant in the woods, they were considered too hard for turning and were therefore not used for making bobbins. This new end-use, which served to extend the useful commercial life of the Dacre woodlands, and hence their survival, was also mirrored in the Lake District, where woodlands whose former role was charcoal production for the iron industry, gained a new, if short-lived function. The use of birch coppice for bobbin-making represents an elegant use of a relatively fast-growing and renewable resource, particularly where steam power was used to power the lathes and other machinery. In such cases, the coppice was fully utilised by using the offcuts and other waste materials as fuel for the steam engine. Some mills produced a range of turned items such as cotton reels and cable drums on specialised lathes. This end-use was only recently eclipsed by the substitution of plastics for coppice wood.

8.8 Clog-making

In both Nidderdale and Wensleydale, carr is a commonly occurring type of wet woodland. Carr woodland is synonymous with specialist trees such as alder, willow and birch, that can withstand periods of seasonal or permanent waterlogging. Where carr woodland was accessible, alder and birch trees were sometimes coppiced for the manufacture of clog soles and besoms. Although both species were used by clog-makers, alder was preferred to birch for its superior resistance to rot.

Whilst clog-making was an activity that generally took place in towns and villages, some clog-makers chose to operate within woodlands at the source of their raw materials. In Nidderdale, Thomas Kirkbright, of Raven's Nest, near Pateley Bridge, is thought to have operated from the woodland in Middle Tongue Bank, where he cut and stored the birch used for making clog soles (L. Dent, pers. comm.). In some instances cloggers had rights to coppice particular woods and would occasionally give seasonal employment to gipsies in felling trees. The cutting period was between April and October, after which the wood would be cut up into suitable lengths and roughly shaped. The wood was then stacked in bee-hived shaped piles to be dried and seasoned before use. The process is illustrated in Plates 8.9 and 8.10 overleaf.



Plate 8.9. Cross-cutting the alder poles

Clog-making: Pictures taken from Edlin (1949)



Plate 8.10. The finished sole blocks are stacked for seasoning

By the first quarter of the 19th century, it is apparent that the Ingilby estate had virtually exhausted its stock of saleable timber trees, for most of the sale documents are concerned with underwood. Haverah Park contained a considerable quantity of alder, growing along the margins of a watercourse, and large numbers of these were cut down and sold to local clog-makers. In February 1825, Austin Dibb, an Otley clog- and patten-maker, bought 'forty tons of alder wood which is now standing and growing on the Haverah Park Estate at eight pence per foot' (Ingilby MSS 2846/11). In July 1825 the same purchaser bought 'the whole of the alders at Haverah Park, which are now standing and growing on each side of the beck, extending from the west side of James Eddies farm, at eight pence a foot' (Ingilby MSS 2846/3). Dibb was given leave to peel 1,000 trees on site. The cash book for the period shows his purchases amounted to £298 17s 4d. Joseph Myers, a shoe, clog, last and pattenmaker from Darley similarly bought 20 tons of alder from Haverah Park in January 1825. The sale agreement specified that 'All the alders which square 3 inches are to be included in the measurement' (Ingilby MSS 2846/15).

Clog-making was an industry whose extent was considerable, due to the large demand that existed for clogs from the industrial areas close to Nidderdale during the 19th century. This industry leaves few tangible traces in woodland and consequently, the large scale of this end-use of woodland is not widely appreciated.

8.9 Pottery glazes

An unusual end-use for underwood taken from the Dacre and Harewell woodlands is revealed in three separate accounts of wood sold to Messrs Hartley Greens & Company, proprietors of the Leeds Pottery. Under a memorandum of sale for wood at Low Hall Wood, Dacre, dated 11 February 1820, Hartley Greens purchased 'all the under wood consisting of alder birch and hazels in a certain wood called Low Hall Wood containing twenty three acres . . . for the sum of two hundred and ten pounds' (Ingilby MSS 2846/5).

The underwood sold to Leeds Pottery was destined to become wood ash, for making pottery glazes. Ash has been used for many years as a constituent of high temperature glazes, and has the ability to produce attractive mottling effects. Cooper (1992) notes that 'wood ash is a complex material, high in fluxes and silica – almost a glaze in itself. Simple combinations of wood ash and ball clay, or wood ash and feldspar are particularly effective at bringing out the characteristic qualities of wood ash'.

On 31 January 1825, the same company, purchased 'all the alder, willow, hazle, birch and mountain ash now standing or growing in Thatch Pitts and Gill Woods, in the Township of

Dacre, containing 33a:12r:14p [14.61ha] for the sum of one hundred and sixty pounds' (Ingilby MSS 2846/4). A woodland valuation carried out in January 1825 by Henry Robinson shows that the returns from this woodland were variable, with Gill Wood commanding a higher unit price:

Thatch Pits. 30 acres ten of which appear to be vacant ground leaving about 20 acres of pole wood suitable for the potteries. Value 20 acres at £4 10s per acre . . . £85.0.0. Gill Wood contains 7 acres three acres of which appear to be vacant ground leaving 4 acres of pole wood suitable for the pottery. Value 4 acres at £6 per acre . . . £24.0.0 (Ingilby MSS 2846/9).

The buyer negotiated a price of £110 for the underwood, comprising 'alder, hazle, birch, saph and mountain ash standing and growing in Thatch Pitts and Gill Woods in the Township of Dacre containing 33a:12r:16p'. The next sale of wood to the Leeds Pottery, which took place on 15 March 1833, comprised 'all the alder, willow, hazle, birch and mountain ash now standing and growing in a wood called or known by the name of Low Hall Wood in the Township of Dacre, containing 28a:1r:29p [11.51ha] for the sum of fifty five pounds' (Ingilby MSS 2846/2). It will be noted that the underwood had a very low value in this sale, realising less than £2 per acre, whereas the previous sale of underwood from the same wood in 1820 had realised £210 – just over £9 per acre. This unusual end-use provided a means of utilising the less valuable products of the coppice cycle and in so doing extended the usefulness of the woodland.

8.10 Game cover

The use of woodland for sporting purposes should not be underestimated, for it is due to this aspect of end-use that many woods owe their continued existence. Whilst many small broadleaved plantations of 19th century date, particularly in Wensleydale, were established as shelter belts for livestock or windbreaks around farmhouses and other property, many were also created for 'sporting' purposes, to provide fox coverts and cover for the rearing of pheasants. Typically, many of these small sporting woods bear the name 'Covert'. Rackham explains that pheasant-rearing became a more common form of land-use from the late 18th century, and that the pheasant 'filled a vacuum which the decline of woodmanship was leaving' (1986, p.51). Some gamekeepers perpetuated the coppicing of woodland in order to maintain a suitable habitat for pheasants (Rackham 1986, p.93). This use, perhaps, has seen most application in the woodlands studied for this research, for today, most woodlands in the Yorkshire Dales have a dual end-use, in that plantations and semi-natural woods are commonly used for the rearing of pheasants as part of the shelterwood forestry cycle.

8.11 Conclusion

Timber production has, after drastic wartime fellings and subsequent replanting, developed into a major enterprise on the estates studied during this research. It now forms the fundamental end-use of woodlands that have been converted into plantations. In this, the conversion of many old broadleaved woods into softwood plantations may have perpetuated some woodland sites, albeit in a fundamentally different form, that could have been cleared of trees and converted to agricultural land.

It is because of end-uses that woods remain in the landscape rather than being grubbed out for other forms of land-use. To facilitate the end-uses there were many woodland-based industries which employed large numbers of people in the manufacture of wooden artefacts. Much of this work was undertaken within coppice woodland and the photographs which accompany this chapter provide an impression of the very primitive working conditions and equipment used. But whilst this activity appears alien to modern eyes, it represented a major source of employment for many hundreds of rural people. Many of those engaged in these rural crafts were accomplished woodland managers – it was in their interest to maintain the woodland to ensure that there would always be a source of raw materials for their use. In this, the sustainable use of a natural resource was responsible for the survival of woodland.

There is, therefore, a positive relationship between end-use and woodland survival. In this, the myth that woods were exploited to destruction by ironmasters and other industrialists is exposed. In the Lake District area of Furness, the woodland was intensively managed to ensure an unbroken supply of fuel for the blast furnaces (Bowden 2000) and the legacy of that industry is some of the finest oak woodland in the north of England. In the Dales, small woods were vulnerable; their fate was invariably linked to the fortunes of the end-use for which they were managed. If a new end-use could be found to replace the loss of a traditional one, there was a reason to maintain active management of a wood. But in the absence of a viable end-use, woodland management was often abandoned and woods became victim to the depredations of grazing livestock and consequent dereliction.

This factor has, regrettably, set the fate of many former coppice woods in the Yorkshire Dales, and elsewhere, as for example, in Kent, where the substitution of woodpulp made from recycled newspapers as a feedstock for the papermills, robbed the coppice woods of their principal end-use. In consequence, the long-term future of that woodland has been compromised. In the Yorkshire Dales, the loss of markets and end-uses has been a much more insidious process. Woodland has become derelict over a very long period through the neglect of boundaries and the abandonment of traditional management. In consequence, such woodland has become

undervalued. Recently, a more enlightened attitude, generated by an enthusiasm for environmental issues and the desirability of maintaining existing and planting new woodlands, has sought to find replacements for those end-uses that have been extinguished by market failures. These new end-uses, whilst still economic in concept, increasingly take the form of environmental incentive schemes. In this, woodlands gain new end-uses as wildlife habitats or amenity as opposed to the source of raw materials or artefacts. And further, more appropriate forms of management are applied to deliver a specific end-use. Thus we see the management of coppice woods being the means by which a specified habitat is created and perpetuated, and the identification of new end-uses to ensure that the woodland, which has served a useful role over the past five centuries, retains a continuing purpose in the landscape of the future.

9. WOODLAND RESOURCES AND THE RURAL COMMUNITY

This research has challenged the assumption that the absence of a tradition of woodland management in the Yorkshire Dales has resulted in a lack of woodland in the present landscape (Barber and Cooke 1990). The originators of this hypothesis appear to be unaware of the profusion of trees, if not woods, that is a feature of Nidderdale and middle to lower Wensleydale. Their theory rests on the assumption that, in an area having plentiful supplies of stone for construction, there was not the imperative to manage woodland as carefully there as in stone-poor areas, where wood and timber were the prime building materials. In consequence, Barber and Cook say the woodland of the Dales was undervalued, with little concern given to its sustainable management.

The fundamental flaw in this hypothesis is largely the result of very little research having been directed towards the woodland of the Yorkshire Dales. Furthermore, the theoretical basis for woodland history is largely influenced by the study of lowland woods, whose historical role differed significantly from that of upland woodlands. As many woodlands in the Yorkshire Dales were a key component of industrial activity linked with the smelting of mineral ores, the superimposition of a theoretical framework drawn from a study of non-industrial lowland woods is inappropriate and misleading.

Trees and woodland have long been recognised as a precious resource in the Yorkshire Dales, requiring careful management to ensure their perpetuation. A climate that was less benign than that of lowland areas occasioned a high and consistent demand for domestic woodfuel that could only be satisfied through careful management of woodland resources. There was also the need to generate large volumes of wood-derived fuel, such as charcoal and chopwood, upon which the extractive industries depended. These end-uses alone placed a huge demand upon the woodlands which could only be met by their systematic management.

In an area having a copious supply of building stone, it is tempting to underestimate the role of wood and timber as construction materials. But whilst the Yorkshire Dales does not have the same tradition of timber building as other areas having greater reserves of woodland as, for example, the Weald of Sussex and Kent, East Anglia or the Welsh Marches, prior to the great 'rebuilding' of the 17th century, timber was the most common building material in use in the Dales. Some timber-framed buildings have survived – a number of cruck construction – and more are identifiable from documentary sources (Ingilby MSS 2453). This research has demonstrated that in the Dales there were the same requirements for wood and timber as in other areas and that woodland management was related to a number of specific end-uses that

were largely the preserve of upland woods. In these, we see close associations with the extractive industries and land-uses that were linked to hunting.

It is tempting to take a simplistic view of woodland management, and having challenged the assumption of 'no management', to suppose that similar forms of woodland management were applied in a blanket manner throughout the Yorkshire Dales. Here, one encounters a major pitfall, in that the 'Yorkshire Dales', as a geographical entity, is heterogeneous. Thus, at the macro level, one may perceive the woodland management techniques employed as virtually identical; at the micro level subtle variations are detectable, directly related to land-use.

9.1 Land tenure

The first major influence that has been defined in this research is that of tenure. In comparing Nidderdale with Wensleydale it is apparent that the role of woodland (and its management) was historically dissimilar, because of differences in land tenure. It has been explained that in the 15th century, much of Nidderdale was in the hands of Fountains Abbey, under whose control woodland was managed as a precious resource which supported the abbey's mining activities. At the same time, much of Wensleydale functioned as a hunting preserve for seigneurial families; an environment in which trees and woodland formed the stage and provided cover for the chase. These two different, though similarly exclusive, forms of land tenure gave rise to local variations in woodland management whose purpose was to deliver in the first example, a vital resource, and in the second, a specific environment.

It must be appreciated that Nidderdale was a monastic demesne landscape in which grange properties were acquired for specific purposes. After the Dissolution Nidderdale became a dale of small freeholder customary tenancies and large estates. In contrast, Wensleydale was an aggregation of hunting parks and nucleated settlements where a long tradition of communality and stinted grazing was the major determinant of land-use right up to the 19th century. Within these two discrete tenurial frameworks, woodland management reflected land-use, as intensive coppice in Nidderdale and extensive wood pasture and woodland grazing on the stinted pastures and parks in Wensleydale and small coppice woods in the valley bottom.

9.2 End-use

The second influence defined by this research is end-use. It can be demonstrated that there is a positive relationship between woodland management, woodland survival and end-use. Contrary to some opinions, industrial use did not result in the extinction of woodland. For rather than causing woods to disappear through over-exploitation, it was vital to perpetuate the key resource upon which industrial processes were reliant. Evidence of this may be seen in the prolific

woodlands that still clothe parts of the Lake District, where the production of industrial charcoal probably exceeded that in the Yorkshire Dales (Bowden, 2000).

These two fundamental influences – tenure and end-use – have determined the methodology and application of woodland management in the Yorkshire Dales. The depletion of woodland has resulted from changes in tenure and the extinction of end-uses (market failures) rather than the absence of a woodland management tradition.

The field evidence for past woodland management practices is still evident in much of the remaining woodland, and has thus shaped the characteristics of that woodland. Clearly, the alternative hypothesis that the Yorkshire Dales does not possess a tradition of woodland management has been propounded without the benefit of field observation and supporting documentary study.

9.3 Historical accounts of wood shortage

The present perception of parts of the Yorkshire Dales as a landscape devoid of woodland is not a new phenomenon. In the 16th century John Leland observed that: ‘In these dales and the mountainous country between them there is very little woodland, or none at all’. That the question of woodland was something of an emotive issue is apparent from the fact that poor woodland management was being used as a justification for the Dissolution of the monasteries. Even Fountains Abbey was accused of failing to keep its woodland in good order, in a letter addressed to Thomas Cromwell just prior to the Dissolution which stated that: ‘. . . the abbot of Fountayns hath so greatly dilapidated his house, wasted ye woods’ (Pennant 1804).

Although Sherbrook (1959) comments that there was no evidence to indicate that the monasteries had managed their woodland any more assiduously than laymen, the Fountains Abbey leases demonstrate the careful management of woodland resources right up to the advent of the Dissolution (Michelmores 1981). That the abbey’s woodlands were under a strict management regime is also evident from the valuation document (Walbran 1863) discussed in an earlier chapter.

There was an acute wood and timber shortage following the Dissolution of the monasteries. According to some commentators this situation may have been largely the result of careless squandering of former monastic woodland which was immediately felled by the purchasers in order to pay for the land they had just bought (Smith 1970, p.22), an activity that would be described in present parlance as ‘asset-stripping’. Sherbrook’s transcription of *Tudor Treatises* states that:

There hath been such sale of great Woods, which Abbeys saved and nourished in every Country: whereas sithence [since] the Fall of Abbeys no Man hath regarded them that must come after them, so they must make a present Gain. Insomuch that Wood is come to such a Dearth, that a poor Husbandman is not able to buy Wood to maintain his Housing and his Husbandry geare; as Plows, Waynes, Carts, Harrows and such Like (Sherbrook 1959, p.129).

Wood was in short supply nationally between the 16th-18th centuries. The scarcity of naval timber prompted John Evelyn to write his *Sylva, or a Discourse of Forest Trees and the Propagation of Timber in his Majesty's Dominions* in 1664, a book whose appearance spurred the rise of forestry in the British Isles. The paucity of trees in Wensleydale is vividly sketched in a 'Terrier for the Chapelry of Castle Bolton made June 1st 1784':

The Wood upon this Glebe is scarcely sufficient to make and repair the Gates and Cowhouse upon it. Between East and New House Field and Thompson's Thoroughgill there runs a deep Gill, wherein grows a quantity of small Mine Timber, value about 5s; in Thompson's Thoroughgill 6 ashes 6s; in Horn's Thoroughgill 6 ashes 5s; in East New House Field 9 ashes 6s and 1 oak 5s. Several trees have been cut for repairs. In Near West Ing grow 18 small ashes worth 10s and 10 plane trees 10s. In West Ing grow 11 small ashes valued at 5s. In New Ing grow 6 ash trees, valued at 6s in Ripley's Thoroughgill 13 ashes 9s, Mine Timber 6s in West Newhouse Field 6 ashes 4s in East and West Low Newhouse Field 7 ashes 7s in ye Spring 1 elm 1s and 12 ashes 6s on ye Hill End 3 oaks £1 5s (NYCRO PR/BOL 4/3, MIC 1259/1743).

Another return, contained in a 'Terrier of the Chapelry of Redmire in the Parish of Wensley, made July 11th 1778', provides a similarly dismal impression of the same woodland:

West Scafton: In Low Ing grow 9 ash trees valued at 14s; in Ripley's Thoroughgill 10 ashes £1, Mine Timber 2s; in New House Field 11 ashes, 12s; in East and West Low New House Fields 9 ashes 13s and 3 elms 5s; in the Spring 6 elms 17s and 3 ashes 4s; on the Hill End 4 oaks £1 3s 5d.

9.4 Access to woodland

Whilst the theoretical basis of lowland woodland does not transfer easily to upland woodland, on account of the reasons already given, one area of similarity is that of access. Woodland was, in the words of Rackham: 'a minority land-use in the Middle Ages' (O. Rackham, pers. comm.). In this, Rackham asserts that woodland was almost entirely the preserve of the manorial lords and was, therefore, a resource to which the peasantry had little or no access. Excursions into the lord's woodland for the purpose of gathering firewood invariably invoked the risk of pecuniary punishment in the manorial courts. Similarly, as has been demonstrated in the discussion and interpretation of the leases of Fountains Abbey, stringent controls were applied to safeguard monastic woodlands. Miscreants were liable to be presented at the abbey courts and punished by fines, or in cases involving the abbey's tenants, their leases could be withdrawn.

In the case study of Ellington Firth (Chapter 5, p.130), a wooded common situated on the southern fringe of Wensleydale, it was found from documentary study that the rights to take wood were strictly limited to a small number of stinholders, and that unauthorised woodcutting was a punishable offence. The practice of limiting rights within grazed woodland was widespread and generally the legal right to gather wood in such places as Carperby Ox Close was a privilege enjoyed by a few freeholders who owned 'gates' [permission to graze a given number of animals] there. It may reasonably be assumed, therefore, that the majority of the population had no access to a reliable wood supply and had to gather their requirements from wherever they could. However, as the population was largely estate tenants, they were, in some cases, provided with an annual allowance or entitlement from the estate woodlands. This form of annual firewood grant is first seen in the monastic leases either in the form of tenants having free access to branchwood for 'firebote' or 'hedgebote' – ancient rights that provided tenants with a supply of firewood or materials for mending their hedges – or 'brusyngge', which was probably the right to take leafy branches from pollarded or shredded trees for foddering their animals. In the post-Dissolution period it is evident that much of the wording of the monastic leases, especially that relating to woodland, was replicated in the leases of the large estates – a form of *largesse* whose provision ensured that tenants only availed themselves of that which was provided by the squire or landlord.

9.5 Wood Pasture

It is believed that wood pasture was once a common feature of the Dales landscape (O. Rackham, pers. comm.), but its identification is not as straightforward there as in other parts of the country that benefit from a comprehensive Domesday record. In many instances Domesday Book provides an assessment of the extent of wood pasture (*silva pastilis*), either by area or by the capacity of a woodland for pannage in terms of the number of pigs that might be accommodated. But in the Yorkshire Dales, the total absence or incompleteness of this prime source of documentary evidence compels researchers to investigate other sources such as later estate records and fieldwork to evaluate the former extent of wood pasture.

In Wensleydale, the identification of former wood pasture has to be based upon subjectivity and deduction, for the available documentary sources are never as specific as Domesday Book. In some instances, botanical evidence may provide some affirmation of a postulated area of former wood pasture, where grasses as opposed to herbs dominate a woodland floor. And in a few cases, small numbers of relict pollarded trees may provide some weight to such an identification. Where these no longer exist, an interpretation of the wording of estate records, particularly those involving the survey of timber to be felled, may afford the researcher with some confidence that a modern plantation, or an area of cleared woodland was, at some time, an

area of wood pasture. Examples of this process can be seen in the description of South Leighton Park (Chapter 5, p.125) and Capplebank Plantation (Chapter 7, p.203).

The fact that the parks and chases of the nobility occupied so much of Wensleydale indicates that during the Middle Ages wood pasture would have formed the predominant type of land-use. In the numerous deer parks the most common trees on the extensive launds would have been pollards. Some impression of the large number of deer parks can be gained from historic maps, such as Saxton's Map of Yorkshire (1610) which depicts the parks as paled enclosures. The concentration of parks around Middleham, associated with the Neville family was a particular feature of the Wensleydale landscape. Along with Cotescue (Coverdale), Penhill, Capplebank, and Wanlass Parks and Woodhall Chase in the hinterland of Middleham Castle, these areas formed an enormous tract of managed woodland whose primary purpose was for the hunting of deer.

Beyond the hunting grounds of the Lords of Middleham, which were all located south of the river Ure, on the northern bank of the river lay the hunting parks of the Scropes, whose vast estate was based upon the medieval Bolton Castle. Here, in close proximity to the castle, a suite of hunting parks was established to provide entertainment for guests and a source of fresh meat. As has been described in an earlier chapter, the imparkment and enclosure of these areas denied access to ancient stands of alder woodland that had provided an accessible source of firewood for the peasantry. Our knowledge of the parks and chases of Wensleydale is well documented (Fieldhouse and Jennings 1978) through the writings of John Leland and their depiction on 17th century maps.

Today the parks are largely devoid of trees, but their former boundaries are still discernible from maps and fieldwork. But whilst the maps provide some impression of the distribution of parks, their locational accuracy cannot be assumed. For example, Wanlass Park is depicted as extending either side of the river Ure, which it cannot have done as it was a property of the Neville family (S. Moorhouse, pers. comm.). It is, however, apparent from this research, that the enclosed land to the north of the river, immediately above Wanlass Park may be a separate entity, lying in the domain of the Scropes. This would suggest that there were originally two parks which the cartographer has mistakenly interpreted as one. The unidentified parkland appears to have existed to the east of Redmire in West Wood, in the township of Wensley.

Beyond the parks and chases, small stands of wood pasture existed elsewhere on the township cow pastures. It is important to appreciate that all common pastures in the Dales were grazed under a stintage system, where the number of grazing animals was strictly controlled in

accordance with a headage system of 'gates' which set a limit to the numbers of animals that could be grazed there. Because of the duality of land-use, the woodland on the common pastures was likely to have been wood pasture. Tenants with rights of common were responsible for the upkeep of the pastures, and their obligations extended to stubbing, gripping and clearing of grazing land. These tasks were deemed necessary to maximise the grazing potential of the land, by attending to drainage, scrub clearance and the prevention of any increase in tree cover (NYCRO ZBO: Low Wood, *Carperby Remarks Book*, 1764).

In Wensleydale, wood pasture probably persisted within deer parks and chases until the early 18th century. After this time it disappeared rapidly following general clearance for pasture, landscaping, Parliamentary Enclosure, and the establishment of new plantations. On the former Fountains Abbey estate in Nidderdale, it had started to disappear in the early 16th century, and by the time of the Dissolution it had become confined to two areas in the Abbot's home park and at one satellite grange. Pollarding as a woodland management technique was, however, extensively practised outside wood pastures, principally upon standard trees in hedgerows. In both Nidderdale and Wensleydale solitary pollarded field trees are a common feature of the landscape, and in many instances these trees are found to be the relicts of boundary hedgerows. In a recent survey of 200 oak pollards in Nidderdale, it was revealed that 68 per cent stood in extant hedgerows, while the remainder were a relict of grubbed hedgerows (Muir 2000a). Thus the ancient oak pollards in Ripley Park were found to be relicts of an earlier hedged fieldscape that had been incorporated into Ripley Park in the mid-16th century (Muir 2001, p.55).

9.6 Coppice woods

In an earlier chapter, the writer commented that although wood pasture had been widespread in Wensleydale and Nidderdale during the 11th-12th centuries, visible indications of its former extent were now quite rare, for apart from a few isolated fragments, the only evidence took the form of veteran pollarded field trees, field names such as 'Park' and indications from archival sources. Conversely, indications of former coppiced woodland are more obvious, because the practice continued up to the early years of the 20th century in the Dales, and recognisable areas of former coppice are still quite widespread. Notwithstanding the considerable area of coppice that was either grubbed for agriculture, cut down during the two world wars, or replanted as conifer plantation, a few small stands still remain. One notable example is Old Spring Wood, Summerbridge, which also has an even-aged population of oaks, that originate from a post-World War II replanting phase. Some old coppices are included in the Inventory of Ancient Woodland, but many are too small to meet the minimum size criterion of two hectares. Some local place-names provide a useful indicator of former coppice woodland. The examples of 'spring', 'hagg' and 'copp' are particularly frequent, but principally, evidence is in the form of

overgrown coppice stools and, in some cases, a relict groundflora of indicator species. Occasionally, the residual earthworks of former coppice compartments survive, as at Healey Spring Wood in Colsterdale, but there is by no means the almost ubiquitous peripheral woodbank that is a feature of lowland coppice woods.

The rarity of woodbanks around woodlands in the Vale of York was noted by Gulliver (1989) and it is apparent too that the upland woods were similarly devoid of external woodbanks. From the documentary sources studied during the course of this research, it is evident that dead hedging, utilising thorn-bearing species such as crabapple, hawthorn and holly, was employed in preference to the construction of permanent earthworks around coppice woods. The frequent references to 'garsell' [branchwood used for making dead hedges] in the documents give weight to this theory, and the many instances of 'hedge-breaking' in the manor court rolls, where people were fined for stealing hedges for firewood, add further credence to this interpretation. Boundaries around woodland seem to have been initially represented by a ditch and a hedge. In many cases watercourses form a useful defence against browsing animals and this form of woodland boundary is very common. In the Dales, in due course, much woodland on landed estates acquired permanent peripheral boundaries in the form of drystone walls, particularly in the early 19th century.

Whilst an assessment of the extent of managed woodland in Nidderdale is aided by the survival of the Dissolution valuation documents, in Wensleydale a comparable assessment is hindered by the fundamental difference in land tenure and the incomplete survival of supporting documentation. Because of this, it is difficult to assess the amount of woodland that was accessible to estate tenants for the purposes of gathering firewood and small wood for fencing and repairs. A common feature of leasehold tenure was that the landlord reserved sole rights to the woodland. He could also compel his tenants to plant trees if he so desired. Fieldhouse and Jennings (1978, p.155) offer an example from Swaledale, where, in 1677 Lord Wharton 'directed his steward to survey his woods throughout the dale, to discover who was responsible for cutting timber without licence and to persuade the tenants to 'spring' [coppice] the dale and preserve the woods'. It was common practice for tenants to be allowed to gather hedgewood for firewood and repairs. In situations where tenants were responsible for the repair and maintenance of their leasehold property, the hedgerow timber was the principal source of raw materials.

Formal coppice rotations were employed in woodlands owned by large landowners, but on the common pastures, from where most people gathered their fuelwood, coppicing was not applied in an organised manner but the systematic cutting of trees resulted in the formation of coppice

stools in many cases. Some of these areas are described in the documents as being ‘busky’ or ‘woody’, and the common field-name ‘Scrogg’ was often given to areas covered by thicket and scrub. In such places, grazing was not so vigorously opposed, and we find evidence of livestock being tethered in woods as part of the rural economy. A notable example of this multiple use of woodland existed in Freeholders Wood at Aysgarth in Wensleydale, where some 30 households in the nearby village of Carperby had the right to take firewood from the wood and also to keep a cow there. Similarly, in Preston-under-Scar, another village on the Bolton Estate, the Spring also served as the town pasture. Some discussion of this woodland has already been covered in an earlier chapter. An impression of wood-gatherers in the Bolton woods is shown in Figure 9.1.



Figure 9.1. Wood-gatherers in Bolton Woods. Illustration from Bogg (1909)

Woods containing hazel were especially favoured for their seasonal nut harvest, and this is known to have been a feature of many Wensleydale coppice woods, of which Freeholders Wood, near Carperby is the largest surviving example (Hartley and Ingilby 1991). Riparian woodland also made a significant contribution to the rural economy, and a very common form of woodland in the Dales, particularly in those that fringe the numerous gills and becks, was alder coppice. Favoured for its wide range of utility – from gunpowder charcoal to the soles of clogs – alder was probably the most widely exploited of the indigenous trees by the occupants of villages and other small settlements. When observed during fieldwork, it has been seen to have been pollarded, laid (as in a hedge), but primarily coppiced. Notable alder woods, such as Hall Wood in Colsterdale, and Sepperdin Wood in Wensleydale still portray the evidence of former management in vigorous coppice stools. Local variations in coppicing technique have been noted, particularly in Wensleydale, where cutting at about 60cm from ground level has

been practised around Redmire. In most other places, the line of cut was made lower – generally at, or a little above, ground level.

Birch woodland now occupies many sites that were once the preserve of oak. This is particularly notable in Nidderdale, where former oak coppices, such as Guisecliff Wood, and other woods near Dacre Banks are now composed of birch that has naturally regenerated following the removal of the oak. There are indications that birch has always formed a component of the coppice regime, particularly in the documentary references to its diversity of end-uses, but its short life-span means that the stools are rarely old, and are unlikely to exceed 50 years in age. Coppicing is now undertaken as a habitat management technique by conservation bodies in birch woods around Brimham and Dacre.

Coppicing went into decline in the late 19th century. This was primarily due to a changed economic and social environment in which the market for the products of coppiced woodlands declined. Access to fuelwood alternatives, such as coal and coke, was made easier by the advent of railway transport. The loss of common land to the Enclosures and the collapse of the lead industry resulted in a dramatic exodus of the rural population to the surrounding industrial conurbations or to emigration. In consequence, there was insufficient manpower in the rural environment to perpetuate a labour-intensive form of woodland management and this, together with the loss of outlets for their products, rendered most coppices redundant.

The manifestation of this collapse in the viability of coppice management is still visible in many woodlands, where the lapse in active management has resulted in the coppiced stools resembling multi-stemmed trees with poles of often very large diameters. Another frequent occurrence is derelict coppiced woodland where, following cessation of active woodland management regime, the boundaries have become dilapidated and unable to exclude grazing livestock. In consequence, many former coppice woods are now routinely grazed over and regeneration is virtually non-existent. A typical example is Haw Bank Wood, near Carperby, in Wensleydale (Plate 9.1), where an ancient semi-natural ash wood has become derelict following of the demise of the lead mine in the valley bottom and the enclosure of Carperby Ox Close, of which it was a part.



Plate 9.1. Derelict woodland - Hawbank, Carperby



Plate 9.2. Swinithwaite, Wensleydale - standard trees mark the line of a hedgerow that predated the drystone wall

9.7 Holly woods

There are frequent place-name references in both Nidderdale (17) and Wensleydale (6) to holly (*Ilex aquifolium*). Holly was a common species of underwood, and is often found in former coppices, where its original purpose may have served to protect the newly-cut stools. Its use for foddering both deer and domestic livestock in winter has been discussed by Radley (1961) and Spray (1981) and it is mentioned in the Fountains Abbey leases (Michelmore 1981). In the Dales, stands of holly, or places associated with holly, are often known as ‘hollins’, and this word has lent its name to a number of places where holly has been of local importance. A particularly notable concentration of holly was situated in the township of Hartwith, in Nidderdale, to the extent that the tenant of Hartwith Grange was charged an additional rent of 12d for its use. After the Dissolution of Fountains Abbey, this same holly wood is mentioned in several of the Ingilby documents, where it is known as *My Lord's Hollins* (Ingilby MSS 441, 443, 739). Whilst holly is indigenous to the area, its distribution may be linked to former woodland management practices, in that it appears to be more plentiful in Nidderdale than Wensleydale. This is perhaps due to it having been planted as a nurse or for hedging purposes. If this is the case, it is apparent that the larger area of coppice woodland in Nidderdale may have some significance. In Wensleydale it is more commonly a species of hedgerow than woodland. In one location it has assumed an almost wood-like appearance, fringing a section of the minor road that connects Wensley (Wensleydale) with Agglethorpe (Coverdale) at SE 092882.

9.8 Hedgerows and hedgerow trees

Hedgerows provide the most convincing evidence of former woodland management in many parts of Nidderdale and Wensleydale for their visible remains of coppiced and pollarded trees. They are not immediately recognised as being a feature of the Yorkshire Dales – an area where all the field boundaries appear to be formed of drystone walls. The walls are certainly more widespread in the higher and more exposed fell country, where tree growth is disadvantaged by adverse environmental conditions, but in the lower, and more sheltered areas, hedgerows form many field boundaries. There is considerable evidence in the frequent existence of residual hedgebanks beneath stone walls to support the theory that many field walls stand on the site of former hedgerows and are later replacements for hedgerows (Faull and Moorhouse 1981). This is confirmed by the writer's observations made during the course of fieldwork, that many boundary walls, particularly in Wensleydale, incorporate former hedgerow trees (e.g. Plate 9.2), and in such cases, it may be reasonably surmised that such walls were constructed to replace earlier hedgerows.

The archival sources consulted for this research add further weight to the existence of a hedgerow tradition in the Dales, particularly in the descriptions of live- and dead-hedging

around coppices and stinted grazings, and the frequent mention in manor court rolls of hedge-breaking and hedge-stealing offences. In the Wensley and West Witton areas of Wensleydale, the piecemeal enclosure of former open fields, which had taken place by the 16th century was entirely defined by hedged boundaries. This is evidenced by the depiction on Godson's Bolton Estate map of 1737 of hedged strips that had been incorporated into the pleasure grounds and parkland surrounding Bolton Hall when the Marquess of Winchester enclosed his 100ha (248-acre) Home Park in 1685 (Plate 9.3). A NYCRO offprint notes that:

he allotted two arable lands . . . lying and being in the West field of Wensley, within two Raines*, and running westward up to the headland, from the way crossing the middle of the said field' in compensation for the loss of parts of six other riggs or lands formerly lying in the West field and now enclosed in the park. This is a clear description both of the survival of an open field at Wensley and its diminution by the creation of the new park in 1685 (NYCRO 1976).

*The word 'raines' is a vernacular term for strip lynchets, which seem normally to have had arable cultivation on the 'treads' and animals tethered on the 'risers' (R. Muir, pers. comm.).

In the fields that adjoin the Ure riverbank at West Witton, many hedgebanks and the stumps of hedgerow standards attest to a former hedged landscape that has now largely disappeared. Similarly, hedgerows formed many field boundaries in Nidderdale. In the earlier discussion topic of pollarded trees, reference was made to Muir's research (Muir 2000a) in which a number of field and parkland pollarded trees were identified as remnants of former boundary hedges. Muir argues that as wooded commons retreated, so hedgerow pollards in the enclosed area compensated for their losses. Further evidence is contained in the Bolton estate correspondence presented earlier in which there are frequent references to hedgerows as a source of timber trees.

If woodland had become diminished to the degree quoted above, there is no doubt that alternative sources would have been sought. In this respect the common grazings were exploited together, with a considerable stock of wood and timber represented by hedgerow trees. The extent of the hedgerow landscape during the 16-17th centuries has perhaps been unappreciated. There had been a shift from arable to pastoral farming at the end of the Middle Ages. Hedgerows were established to fence the piecemeal enclosures of the open field strips, and in view that enclosure of the former open fields of Wensleydale was virtually complete by the 17th century, the landscape is likely to have resembled that of Shropshire today – with a profusion of small fields separated by hedges. Standard trees were incorporated in hedgerows as a matter of course, and these would, within a period of 50 years, have become a prime source of wood and timber. This visualisation of a landscape of hedges as opposed to stone walls can be seen in the Godson estate map of 1737, which clearly shows boundary hedges around all fields over the entire Bolton Estate (Plate 9.4).



Plate 9.3. The hedged strips of the West Field of Wensley incorporated into the home park of Bolton Hall (Godson Estate map, 1737)

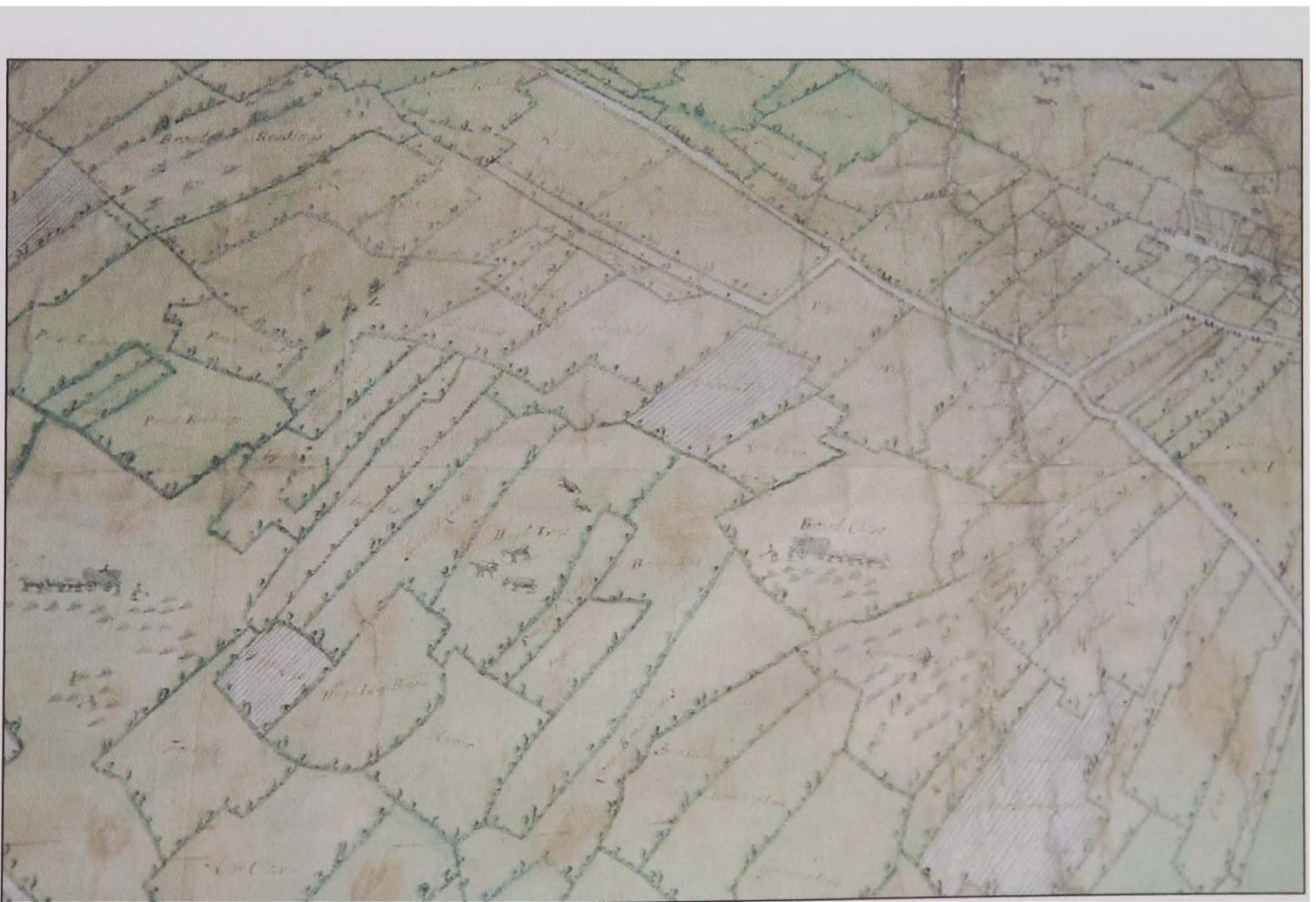


Plate 9.4. The hedged landscape of mid-Wensleydale, as portrayed on the Godson map of 1737. Of particular note is the profusion of hedgerow trees

9.9 The availability of wood and the amount of firewood consumed per household

In undertaking research upon a relatively sparsely wooded area such as the Yorkshire Dales, it is useful to attempt an estimation of the scale of demand for domestic fuelwood and the area of woodland needed for its satisfaction. It is suggested by the writer that this can be approximated by the use of documentary sources coupled with forestry mensuration calculations. Many documents that refer to grants of wood to households often express the entitlement as 'four cartloads'. Monastic landlords may have initially set this quantity, and a similar amount is repeatedly found in secular leases of the post-Dissolution period. It is difficult to translate a rather imprecise statement of quantity into a definite volume and weight, but the writer has measured a typical small farm cart of the type that would have been in use during the 18th/19th centuries and calculated its capacity as 27ft³ (0.76m³) (Plate 9.5). As a cart of this type would invariably have been charged with a load that extended above its sides, a payload of 30ft³ (0.85m³) may be a more realistic estimate. By using this payload per cart, it is calculated that the volume of a typical annual firewood entitlement would have been about 120ft³ (3.4m³).

The amount of air dry wood required to provide a continuous supply of fuel for heating a modern 3-bedroom house has been calculated as seven tonnes per year (P. G. Buckley, pers. comm.). Given the differentials in lifestyle and accommodation over the last 400 years, it is reasonable to reduce this figure by half, so that a quantity of 3.5 tonnes/yr⁻¹ might represent a fair approximation of the annual amount of wood needed for cooking and heating in a small rural habitation. Firewood was classified as 'wood' rather than 'timber', the differentiation being that wood was measured by weight and timber by length. In view of this, it is useful to express the amount of firewood used per annum by weight rather than volume. An estimate of this is possible, by the use of forestry mensuration techniques that are based upon density (Hamilton 1988). The green density of freshly felled wood is a known factor, that varies between species. Green density is defined as the sum of two components: the nominal specific gravity of a species (its basic density) and the moisture content of the felled wood. Whilst it is not possible to differentiate between regions, calculation factors are available for different species. In consequence, it must be appreciated that green density is only an estimate. A function of green density is the volume/weight ratio (cubic metres/tonne). This figure, which has been defined at species level, can be used to provide a basis for estimating the weight of a given volume of wood. In view of the indigenous species that occur in the research area, the following factors are applicable:

	Cubic metres per tonne
Oak	0.94
Ash	1.28



Plate 9.5. Small cart of the type used to deliver wood to farmhouses



Plate 9.6. A relic of the hedgerow landscape of mid-Wensleydale near West Burton

Using these factors, it is calculated that 3.4 cubic metres of oak would weigh 3.2 tonnes: and the same volume of ash 2.65 tonnes.

The volume of wood that a species accumulates over a given period determines its yield class. In the Yorkshire Dales, oak and ash are likely to be in yield class 4, given the constraints of climate and exposure. To satisfy a firewood requirement of 3.5 tonnes per household per year, each unit of consumption would be reliant upon an area of 3.7 acres (1.5ha) of coppice in yield class 4. The Hearth Tax returns of 1673 provide the earliest reliable indication of the number of households in existence (given that the 14th century Poll Tax returns are regarded as an underestimate). These returns can be used to calculate an estimate of the annual amount of firewood in terms of volume and weight that would have been required. The Hearth Tax tabulates the number of hearths and the returns indicate the range of house sizes: eg 1 hearth = small house; 2-3 hearths = medium house; >4 hearths = large house. The calculated demand for domestic fuelwood and coppice area equivalents needed to satisfy that demand are presented in Table 9.1 below. This calculation uses the 1673 Hearth Tax, returns for a sample of Wensleydale and Nidderdale townships to provide an estimation of the weight of wood consumed per annum.

Given the large areas of coppice woodland that would be required to sustain this level of demand do not exist in the research area (particularly in Wensleydale), it is useful to explore the mismatch between the above data and the known woodland resources.

9.10 An estimation of historical woodland resources

It is not possible to gain a clear impression of historical woodland resources until the advent of the Tithe maps in the 19th century. These provide an overview of land-use areas. By assembling woodland-derived fieldnames from the accompanying awards, and assessing given land-uses, it is possible to construct an impression of the former extent of woodland. All the Tithe map awards provide a summary total of areas under different land-uses. These are principally: arable, meadow/pasture, woodland and common. An analysis of field-names and their areas taken from Tithe map awards, has been applied to provide an impression of the range of land-uses within the study area, particularly with reference to woodland. The analysis is based upon the Tithe map awards for six Dales townships: Redmire, Carperby and Leyburn (in Wensleydale), and Ripley, Bewerley and Fountains Earth (in Nidderdale).

WENSLEYDALE HEARTH TAX 1673

Township	Hearths	Households	Wood volume/ weight (t)	Coppice area equivalent: acres (ha)
Aysgarth	64	51	178.5	189 (76.5)
Askrigg	173	106	371	393 (159)
Bainbridge	539	391	1368.5	1450 (587)
East and West Bolton	43	38	133	140 (57)
Burton cum Walden	100	78	273	289 (117)
Caldbergh	40	37	129.5	138 (56)
Carperby	54	46	161	170 (69)
Coverham	55	23	80.5	85 (34.5)
East Witton	163	112	392	415 (168)
Leyburn	98	62	217	230 (93)
Middleham	216	107	374.5	396 (160.5)
Newbiggin	132	90	315	334 (135)
Wensley	101	71	248.5	263 (106.5)
Redmire	82	76	266	282 (114)
West Witton	89	54	189	200 (81)
Preston	84	57	199.5	211 (85.5)

NIDDERDALE HEARTH TAX 1673

Township	Hearths	Households	Wood volume/ weight (t)	Coppice area equivalent: acres (ha)
Aldburgh	88	65	227.5	240 (97.5)
Haverah Park	17	11	38.5	41 (16.5)
Bishopside	169	91	318.5	337 (136.5)
Birstwith	82	57	199.5	211 (85.5)
Brearton	36	24	84	89 (36)
Bewerley	89	57	199.5	211 (85.5)
Clint	86	55	192.5	204 (82.5)
Dacre	124	71	248.5	263 (106.5)
Fountains Earth	72	41	143.5	152 (61.5)
Hampsthwaite	61	36	126	133 (54)
Hartwith	109	57	199.5	211 (85.5)
Killinghall	85	49	171.5	181 (73.5)
Nidd	48	22	77	442 (179)
Ripley	103	38	133	140 (57)
Stonebeck Up	71	46	161	170 (69)
Stonebeck Down	103	72	252	267 (108)

Table 9.1. Calculated demand for domestic fuelwood and coppice area equivalents, based upon the Hearth Tax, 1673. (Source: Hearth Tax Returns 1673, Ripon Historical Society)

It will be seen from the graph in Figure 9.2 that pasture or common occupied the greatest area in all six townships, reflecting their upland locations and the predominance of pastoral farming there. Only Ripley had more land under arable than pasture, a factor that was due to its location in Lower Nidderdale where the edaphic and climatic conditions were more suitable for the cultivation of arable crops. In virtually all the townships, the amount of woodland was very small; only Bewerley had a significant amount in 350 acres (141ha). Interestingly, the 40 acres (16.19ha) of common land in Carperby corresponded with Freeholders Wood, albeit restricted to 30 households, but providing some confirmation that common land was frequently the principal source of fuelwood for Dales communities.

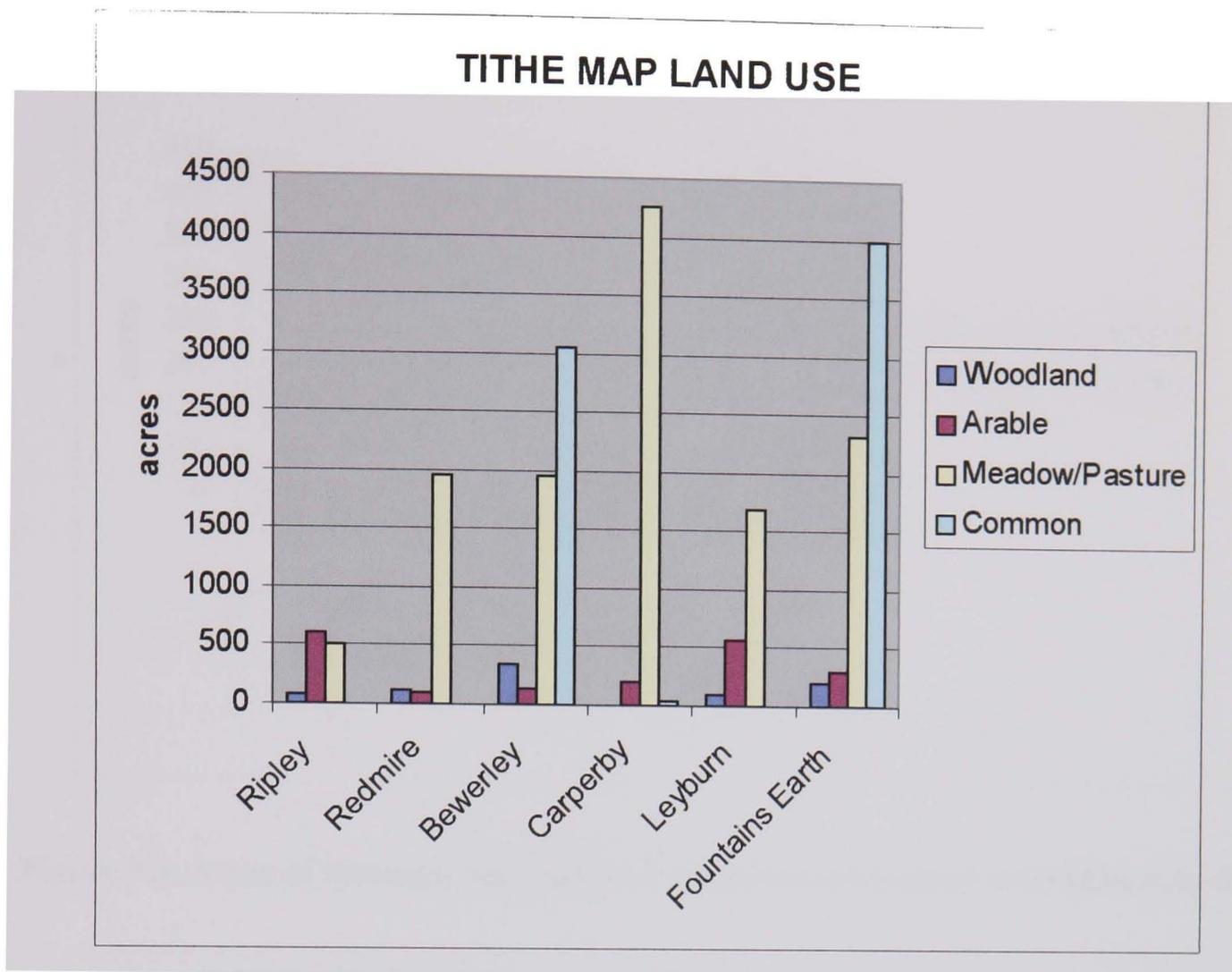


Figure 9.2. Land-use descriptions compiled from tithe maps held at North Yorkshire County Record Office, Northallerton and West Yorkshire Archive Service, Leeds

It is at the next stage of analysis – of individual land-uses set out alongside the field-names and areas – that a clearer impression of woodland is gained, for the blanket areas of ‘woodland’ given at the head of the apportionments are misleading. Clearly, some areas of pasture, meadow or even arable appear to have had a woodland element, and a great amount of the areas stated as ‘woodland’ was also grazed. This duality of woodland as grazing land is illustrated by a range of descriptive terms, including ‘pasture and wood’ (Bewerley, Fountains Earth, Carperby); ‘pasture and brushwood’ (Redmire); ‘wood and pasture’ (Bewerley, Redmire). In the case of Fountains Earth, some surprising combinations include: ‘arable and wood’, ‘arable/wood and meadow’ and ‘meadow and wood’ suggesting that these might have been areas of former wood pasture that were rotationally sown with arable crops or managed as grass leys cut for hay. The disproportionate area of ‘pasture and wood’ recorded at Carperby is due to the inclusion of Carperby Ox Close and Woody Pasture in that category, together extending to 254 acres (102.92ha). The areas of pastured woodland are of particular interest, for it is difficult to perceive a coppicing regime existing amidst a mixture of conflicting land-uses, and hence it may be surmised that these areas of woodland were not subject to any form of recognised or regular management. The distribution and extent of the managed and pastured woodland is shown as a graph in Figure 9.3.

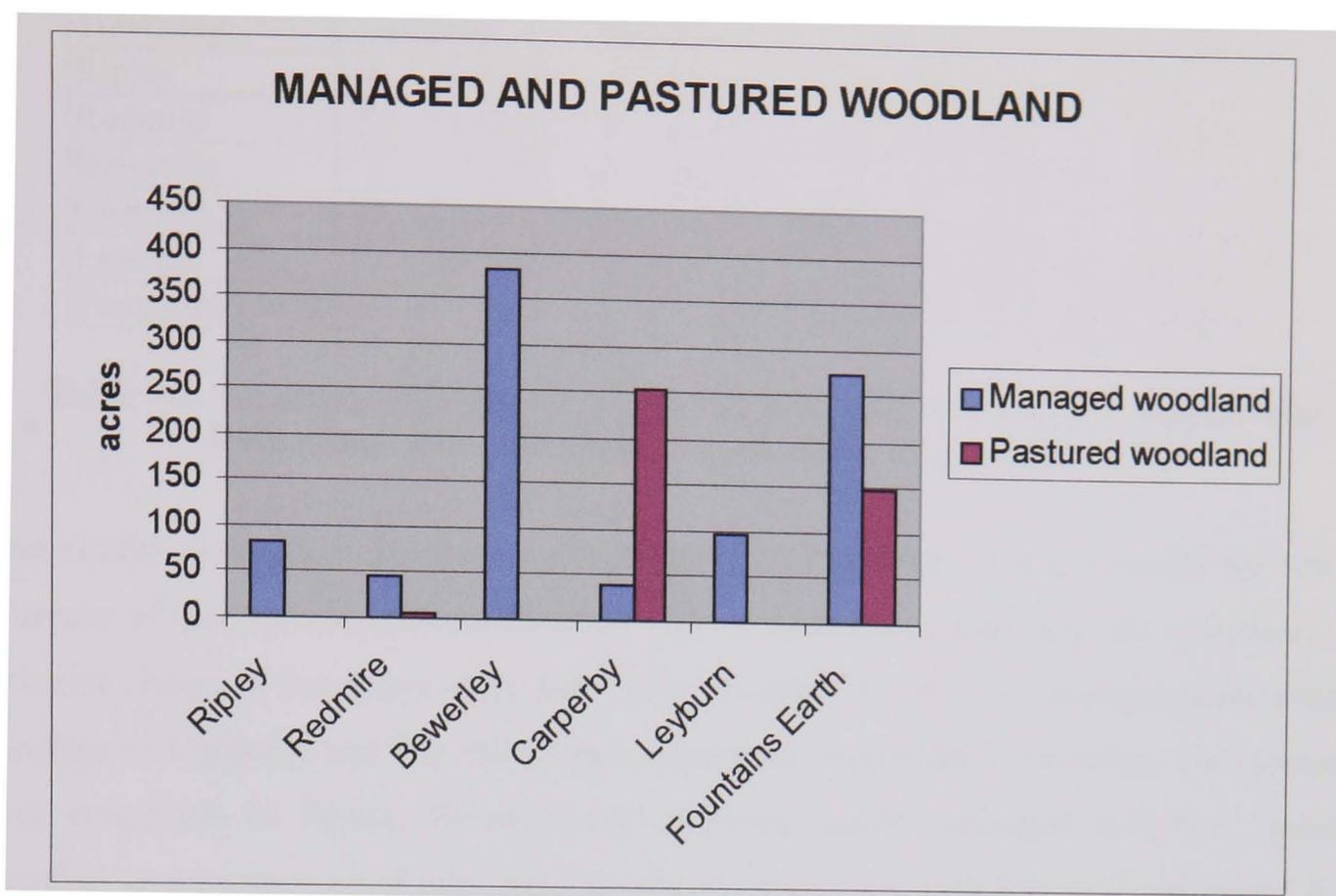


Figure 9.3. Areas of managed and pastured woodland (calculated from tithe map data)

9.11 Land-uses on cleared woodlands

Examination of field boundaries and field-names can provide an indication of areas of former woodland that were cleared for agriculture, through the medieval ‘assarting’ process, that was particularly widespread in the late 13th-early 14th centuries, or as a result of later landscape rationalisation. An analysis of fieldnames that indicate former woodland, e.g. ‘Ridding’, ‘Stubbing’, ‘Bank’, ‘Scrogg’, ‘Eller’, ‘Carr’, ‘Ashes’, ‘Woody’, ‘Holling’ was undertaken to provide an assessment of the amount of cleared woodland in each of the six townships, and the forms of replacement land-use that existed during the mid-19th century. It will be seen that in most cases cleared woodland was under grazing pasture. The land-take at Carperby is particularly extensive, where 1397 acres (565ha) of woodland was cleared for pasture. Fountains Earth similarly had an area of pasture extending to 280 acres (113.71ha) that had been created from cleared woodland. Arable and meadow land was on a smaller scale at Ripley, Redmire and Bewerley, in comparison with the other three townships. The land-take for plantations is of interest, with the influence of the Bolton and Riddell families’ forestry initiatives being particularly significant in the return for Leyburn. Overall, the areas of cleared woodland under all types of replacement land-use are as follows:

	acres	(ha)		acres	(ha)
Carperby	1508	(610.61)	Bewerley	192	(77.86)
Fountains Earth	442	(178.98)	Redmire	150	(60.57)
Leyburn	370	(149.94)	Ripley	66	(26.92)

The detailed results of this analysis are given in Table 9.2 below.

Township	Arable	Meadow	Pasture	Plantation
Ripley	6 (2.34)	5 (2.13)	5 (2.13)	50 (20.32)
Redmire	23 (9.59)	16 (6.48)	39 (15.83)	70 (28.67)
Bewerley	5 (2.18)	10 (4.04)	92 (37.19)	85 (34.45)
Carperby	33 (13.61)	64 (26.18)	1397 (565.41)	13 (5.41)
Leyburn	57 (23.34)	119 (48.29)	103 (41.88)	90 (36.43)
Fountains Earth	78 (31.78)	82 (33.47)	281 (113.71)	0.02 (0.01)

Table 9.2. An interpretation of replacement land-uses on cleared woodland sites. Data taken from tithe map awards. Areas in acres (hectares)

These results give some credence to the theoretical framework of this research that the twin influences of land tenure and end-use have been critical in characterising the woodland of the Yorkshire Dales. In the above examples shown in Table 9.2, the two predominantly moorland townships of Carperby and Fountains Earth converted large areas of woodland into pastures at lower elevations. In Ripley, Redmire and Fountains Earth, reclaimed land from woodland clearance, as a percentage of total area, is seen to range from 5.60-6.82 per cent (mean 6.2 per cent). These data are presented below in Table 9.3.

Carperby is of particular interest because it is the sole township where a major woodland resource was managed by a group of persons (freeholders) having the right of estovers. This 40-acre (16.19ha) hazel coppice was shared between about 30 freeholders, which means that each was entitled to the output of 1.3 acres (0.52ha) of coppice wood, cut over in rotation. As has been demonstrated from the Hearth Tax data, an anticipated yearly quantity of 3.5 tonnes of fuelwood per household would have been required, and given its extent, Freeholders Wood would not have been able to satisfy this level of demand. Furthermore, as the number of households exceeded the number of freeholds by sixteen in 1673, and was considerably greater in number during the ensuing two centuries when the lead-mining industry was at its height, additional sources of fuelwood would have been required. It is suggested that these sources lay in peat from the surrounding moorland, and hedgerow timber and wood from the profusion of field boundary hedgerows that were present until the move to drystone walls engendered by the Parliamentary Enclosures in the 18th century.

Township	Tithe map extent: acres (ha)	Area reclaimed from Woodland: acres (ha)	%
Ripley	1194 (483.49)	66 (26.92)	5.60
Redmire	2193 (887.60)	149 (60.57)	6.82
Bewerley	5812 (2352.44)	192 (77.86)	3.30
Carperby	4496 (1819.55)	1508 (610.61)	33.55
Leyburn	2371 (959.72)	370 (149.94)	15.62
Fountains Earth	6833 (2765.34)	442 (178.98)	6.47

Table 9.3. Calculation of areas reclaimed from woodland for agricultural uses. Data taken from tithe map awards

9.12 Hedgerows – the vital source of domestic fuelwood and timber

It is evident from the calculated areas of woodland and the mismatch between demand for domestic fuelwood and timber and accessible woodland sources from which fuelwood could be gathered that another source must have been exploited. This research indicates that the main alternative source of domestic fuelwood lay in hedgerows, and that until the advent of the Parliamentary Enclosures, which saw a widespread switch to drystone walls, hedgerows formed the predominant type of field boundary in Wensleydale and parts of Nidderdale. The extent to which hedgerows featured in the landscape can be clearly seen in Godson's map of the Bolton Estate (1737), where every field boundary depicted on this map is a hedgerow. All have large numbers of standard trees growing within them. Other disaggregated alignments of trees shown on the map that are interpreted as the residues of hedgerows that surrounded the enclosed strips (Plate 9.4). The appearance of this intricately hedged landscape must have been stunning. William Marshall, writing in 1788 commented that: 'The old-inclosed parts of this neighbourhood, when seen at some distance, have the appearance of woodlands; the inclosures being mostly narrow and full of hedgerow timber'. Harwood Long (1964) notes that: 'The hedgerow timber in those days consisted mainly of oak, ash, and elm, and on the higher ground, birch and alder'. Relict hedgerows near West Burton (shown in Plate 9.6) give an impression of such a landscape.

The management of such a vast network of hedgerows would have been dependent upon a large labour force, for it is evident from relict hedgerows that most were laid or coppiced, and the standard trees pollarded (Plate 9.7). Indeed the profusion of twin-stemmed trees in the Dales is largely associated with old hedgerows. The presence of coppiced hedgerow trees as recently as the 18th century is confirmed in a pertinent remark by John Tuke (1794) in which he observed that: 'Twin trees and double stemmed trees are deemed dangerous to stock because cattle and even horses have been known to get their heads locked in them'. Hedgerow management seems to have been a somewhat undisciplined matter, for other contemporary accounts from the same time indicate that many were allowed to grow unchecked. For example, Marshall (1788) noted: 'The training of young oaks, and the general management of hedge-row timber, cannot, with any degree of prudence, be left to a mere occupier. Viewing hedges as nurseries of timber, a hedgeman becomes essentially necessary to every landed estate'. Tuke (1794) commented:

A neglect of planting trees in the hedge-rows, and of a proper management of those which are now growing there is very evident. Tenants on some estates are suffered to lop the hedge-row timber; in doing which, large boughs are frequently cut off in a very rough manner, so as to retain water. This causes the heart of the stool or the branch to decay, and in a few years, water penetrates the main trunk, whereby the timber is greatly injured. The great quantity of wood which has lately been cut down out of the hedge-rows, makes the country much less fertile, both in appearance and in reality. The society of trees in hedge-rows, in my opinion, tend greatly to sweeten the northern climate.



Plate 9.7. Alder pollard standing in a hedgerow near West Burton

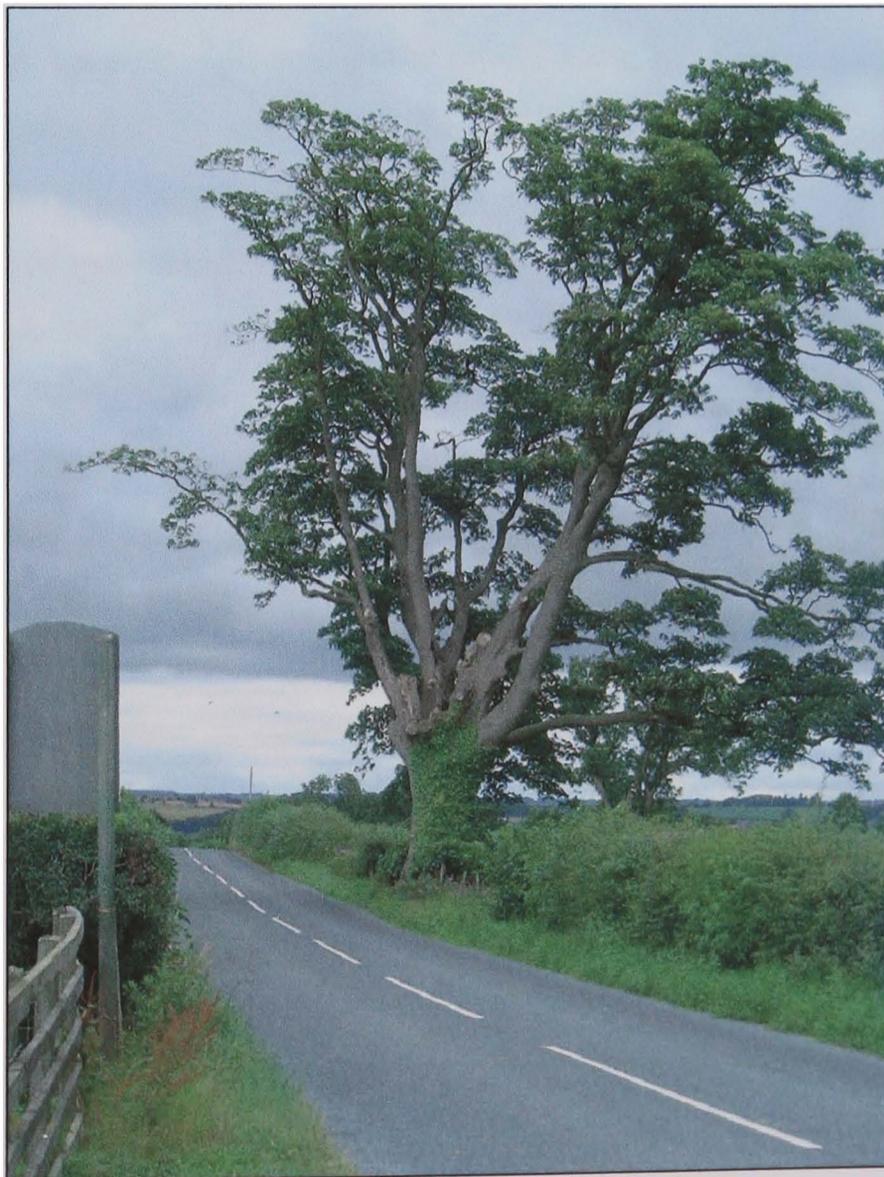


Plate 9.8. A pollarded roadside sycamore near High Jervaulx, Wensleydale

The value of hedgerows as a source of timber, did not go unnoticed by some 18th century agricultural commentators. Marshall (1788) observed:

The age, on a par, is about fifty years. In half a century more, the value of the timber of some parts of it, if suffered to stand, will probably be equal to the value of the land: a circumstance this of no small import to the owner.

Clearly, tall hedgerows were the norm, although Marshall expresses caution in pointing out that such hedgerows could be harmful to growing crops by casting shade and rainwater drips: ‘ . . . the detriment to the occupier requires to be considered’.

Away from arable areas, Marshall had no problem with tall hedges:

In this country, it seems to be a general idea, founded perhaps on experience, that lofty hedgerows are beneficial to grassland: increasing its productiveness by their warmth and giving shelter and shade to pasturing-stock. The roots, even of the ash, are considered as inoffensive to land in a state of grass; in which state the grounds thus loaded with hedges and timber-trees is almost universally kept.

Given the first-hand evidence of an extensive hedged landscape that was well established by the 18th century, this research has identified hedgerows as the vital resource from which most domestic fuelwood was gathered by those members of society who were denied rights in demesne and other private woodland. Whilst it is impossible to calculate the area and volume of wood that was present upon the common grazings, the quantity of wood that was present in the hedgerows can be quantified by calculating the volume of wood in a typical hedgerow and multiplying the result by its length. Assuming that 10 per cent of the wood in a hedgerow was cut during the course of annual maintenance, it follows that a 1m length of hedgerow measuring 2.5m high by 2m wide could produce $0.5\text{m}^3/\text{yr}^{-1}$ of wood per year, or 0.25t/m in weight. Thus the wood cut from a length of hedgerow of between 14 and 25m would largely satisfy a cottager’s annual requirement for domestic fuelwood. In this source it is possible to reconcile the mismatch between demand and available sources, whereas the output of the meagre woodlands was largely destined for non-domestic end-uses.

The role of hedgerows as a facet of woodland management cannot be underestimated, for as has been seen in Muir’s research upon pollards in Nidderdale (2000a), a large number of such trees are relicts of former hedgerows. Pollarding was until the early 20th century, the prime means of managing trees in hedgerows, fields and urban spaces. In this, one may see a continuity of woodland management in the contemporary landscape of the Yorkshire Dales, where numerous pollards line the verges of roads and lanes (Plate 9.8). Many pollards still occupy focal points in settlements, such as the ancient oak at Redmire in Wensleydale and the pollarded sycamores at Ramsgill in Nidderdale, which were planted to commemorate the Diamond Jubilee of Queen Victoria in 1897. This suggests that even after the demise of wood pasture, the practice of

pollarding hedgerow trees persisted as a small-scale tradition of woodland management in pockets of the Dales countryside, where a useful source of small wood for fuel or leaf fodder was regularly cut by tenant farmers.

9.13 Conclusion

In an area where woodland was principally managed to meet industrial end-uses in fuel and minewood, it is reasonable to question the extent and availability of the domestic firewood resource that would have been required to support the rural population. The accounts of 16th century commentators such as Leland generate an impression of a landscape devoid of woodland. But such accounts must be inaccurate, as a landscape as bare of woodland as Leland describes could not have sustained the known population levels. Although wood and timber were in short supply in the Dales, there was never a complete absence of wood. This resource, which for the rural population lay mainly on the commons and Cow Pastures, would have come under enormous pressure concomitant with the rapid increase in population that occurred during the 15-16th centuries. Understandably, the population would have faced serious fuel shortages, particularly during hard winters and, perhaps in desperation, less accessible sources of fuelwood including alder carr and similar wet woods are likely to have been exploited.

There is no evidence to suggest that benign landowners allowed unhindered access to their woods for the dalespeople to gather domestic firewood and, clearly, not everyone had the right to gather wood from the commons or Cow Pastures. For those townships that were situated within close proximity to the moorlands, peat offered an alternative to wood. But for settlements on the valley floor, not having the right of turbarry (the right to cut peat on the commons), this option did not exist.

This chapter postulates that an imbalance in supply and demand could have been overcome by using wood cut from hedgerows and hedgerow trees, and the calculations presented provide a degree of affirmation that this resource was present in sufficient quantity to support the number of households tabulated in the Hearth Tax returns. The outcome of this exercise in resource management finds confirmation in documentary sources concerning rented property, where it is clearly evident that whilst wood and timber were reserved to the landowner on account of its monetary value, hedge-wood was regarded as a utility to which tenants were freely entitled.

Evidence of this is can be seen in the wording of the standard Bolton Estate leases, which states:

Lord Bolton reserves for himself, his heirs and assigns, full power and liberty at any time to enter upon the premises to cut down, stub, bark, erect saw-pits, saw up, and carry away any timber or other wood (**except hedge-wood necessary for the farm**) from off the premises, and to lead or cart any other articles or materials across or

through any part of the premises when necessary. *Extract from page two of Rules and Regulations etc to be observed by the tenants of The Right Honourable Lord Bolton upon the farms of His Lordship's Yorkshire Estates* [NYCRO ZBO IV 8 1461-63]

Such was the value of hedgerows that it was in the tenants' interest to ensure that they were managed carefully in order to maintain their effectiveness as stockproof field boundaries, whilst providing a continuous supply of firewood. The field evidence for such extensive hedgerow management is visible in the widespread remains of laid and coppiced hedges and the very many pollarded former hedgerow trees that dot the landscape of mid-Wensleydale. Such trees and relict hedgerows portray a landscape that has now largely disappeared beneath the stone Parliamentary Enclosure walls.

The 18th century landscape depicted on Godson's map of the Bolton Estate was an amalgam of woodland management, evident in the plantations of the wealthy landowner and the profusion of hedgerows and hedgerow trees which supported the less affluent population. This close relationship between landscape and society is, perhaps significant, in that the hedgerow landscape was dependent upon a large agricultural population for its prolonged maintenance. The fact that it virtually disappeared under a remodelled landscape of amalgamated fields and stone walls mirrors the decline in rural population that occurred in the Dales from the middle of the 19th century.

The disappearance of the wooded commons and Cow Pastures through Parliamentary Enclosure represented a denial of a traditional woodland resource to the rural population. Such woodland, which had provided a source of fuel to countless generations was, not infrequently, replaced by new walled plantations of broadleaved trees, representing perhaps, a 'privatisation' of the commoners' woods by the gentry. The woodland resource remained one characterised by exclusion, particularly where sporting interests were concerned. By the end of the 19th century the woodland resource had entered a decline phase. This saw the disappearance of the hedgerows and other woodland resources upon which the rural population was, for centuries, totally dependent. Thus, the woodland resource may be viewed as a reflection of demographic change – a market failure, in which the outlet for its products has largely disappeared.

10. RESEARCH CONCLUSIONS

This research has questioned a common perception that the absence of a woodland management tradition has been responsible for the lack of woodland in the Yorkshire Dales. It has shown that this perception is both flawed and indiscriminate in failing to recognise the cultural distinctiveness of the area as a whole and the natural and cultural characteristics of individual Dales. In this chapter, the theoretical framework of lowland woods, popularised by Rackham (1976; 1980; 1986), is shown to be inconsistent with the quite different cultural and industrial circumstances that have influenced the Dales woodlands. This theoretical framework, informed by the focused research of a few scholars in the English midlands and East Anglia, is largely based upon standardised woodlands with a long documentary pedigree. In contrast, few woods in the Yorkshire Dales possess an extensive archive or conform to a regular format. In this concluding chapter, the writer's perception that woodland is a reflection of the structure and dynamics of rural communities, is supported by the main conclusions of the research. These provide an alternative hypothesis to the 'common perception', and attempt to correct established misconceptions.

The writer has shown that the sparsity of woodland in the contemporary Dales landscape belies a rich history of woodland management that is detectable in fragments of woodland, individual trees, woodland place-names, documentary sources and in the landscape itself. Nidderdale and Wensleydale – two quite different landscapes, separated only by the Colsterdale interfluvium – are distinguished by geology, vegetation, settlement and former land-use. These distinctions are reflected in the native woodland. For example, the influence of geology can be seen in the woodland of Nidderdale, where the Millstone Grit has provided an environment especially suited to the sessile oak (*Quercus petraea*). By contrast, the alkaline soils developed over the Carboniferous Limestone in Wensleydale are favoured by the ash (*Fraxinus excelsior*). Settlement and former land-use influence the management of woodland and this is reflected in the appearance and characteristics of trees and woodland.

In Nidderdale, monastic land-use gave distinction to the woodland through coppice management. The economy of Fountains Abbey was dependent upon the effective management of woodland to secure a dependable source of raw materials. The coppice cycles were geared to the production of charcoal and in this, the limitations of an upland environment upon tree growth can be seen in the extended coppice cycles of 20 years or more employed by the monastery, in comparison with the 10-14 year cycles that were commonplace in lowland woods. To overcome the lesser productivity of upland oak woodland, coppices were managed very carefully to achieve the maximum output level possible. With a mixed economy, consisting of

pastoral agriculture, iron-working and lead-mining, the resourceful organisation of monastic land-use is evident, in achieving a balance between areas reserved as woodland and those as pasture. Wensleydale, by contrast, owes its less-wooded appearance to a different form of land tenure and land-use, characterised by small tenanted farms and a complex of medieval parks and chases, in which woodland was managed as wood pasture with small compartments of coppice, as seen in the example of Middleham West Park. This was predominantly a recreational, as opposed to an industrial, landscape that translated into a landscape of trees and grazing pasture, distinctively managed to maximising the enjoyment of the chase. Thus the emparkment of woods, rather than the planting of coppice, is a feature of the more open landscape of Wensleydale, where woodland today is largely relegated to the dalesides.

In today's predominantly pastoral landscape, the pattern of past woodland management, in the relict parkland boundaries, hedgerows and field trees provides a narrative upon which a reconstruction of this former landscape of parks, tenanted farms and common grazing pastures can be based. In both Nidderdale and Wensleydale, the hand of the large landowner is evident. In Nidderdale, a single landowner perpetuated the woodland management heritage of Fountains Abbey by managing large extents of the former monastic estate as a discrete unit, albeit based upon the manorialised former grange units. In Wensleydale there was a greater fragmentation of landholding, but similarly extensive areas were in the ownership of big estates. Large landowner influence is reflected in the landscape today as large stands of relict coppice and plantations on former coppice sites in Nidderdale, and the geometric outlines of estate plantations in Wensleydale.

Colsterdale, which forms the interface between these two landscapes, is of especial interest for the variety of woodland that it supports and for the copious survival of past management features. In this compact zone all the elements of former woodland management systems that existed in the northern and eastern Dales can be seen in microcosm. These include parkland wood pasture, coppice woods and alder wood pasture. Of particular significance is the almost abrupt interface between units of monastic and secular tenure, in which the monastic coppiced gill woods abut the wall enclosing the wood pasture of South Leighton deer park. Within the entire study area, the interfluvial zone is prominent for its historical and ecological qualities, and is identified by this research as having exceptional potential for further research.

By the 18th century the role of woodland had lessened in importance as coal and peat became more widely available as alternative fuels to wood. The clearance or truncation of woodland for agricultural use observed in this research is diagnostic of a change in attitude on the part of some large landowners. In this, the Ingilbys differed from the Boltons in their adherence to

coppicing, whereas the latter estate regarded its woodland as a cash crop destined to become mine timber. A lower regard for woodland is also perceptible from the decreasing level of fines being handed down by the manor courts at this time despite a more protective attitude to woodland being shown outside the research area. Thus it is from the 18th century that a decline in traditional woodland management begins, also due in part to an exodus of that component of the rural population not involved in lead-mining to the burgeoning industrial towns of the West Riding.

Of significance to this study of woodland history is the writer's perception that wood pasture was still present in the landscape of Wensleydale and the interfluvial area during the 18th century. This is inferred from the many references to the felling of old trees for sale as minewood in the Bolton archive and the depiction of large areas of wood pasture on Godson's map of the Bolton Estate (1737). Similarly, the woodland detail shown on the maps that accompany Chambers' Survey of Mashamshire (1788) indicate that wood pasture was also present in Colsterdale at that time, an important fragment of which still survives at Leighton. But whilst it is apparent from the 1540 Fountains Abbey Dissolution survey that little wood pasture remained on the monastic estate at that time, the study of sale agreements undertaken by the writer has shown that stands of wood pasture were still present in Nidderdale after the Dissolution. This perception is supported by Wray's 1611 map of Harewell, which depicts the 'Great Wood' in a style that suggests wood pasture, coupled with the fact that no coppice woodland was recorded at Dacre/Harewell in the 1540 Dissolution survey. It is apparent that stands of wood pasture persisted on the commons and Cow Pastures in Wensleydale, and that such woodland persisted longer there because of the lateness of Parliamentary Enclosure relative to other areas. In the given example of Ellington Firth, fragments of wood pasture survived into the 20th century, only to be cleared during the Second World War.

The history of woodland management concerns people and the uses to which wood and timber were put. In this respect, the woodland management traditions of the Yorkshire Dales are as rich as anywhere else. In Chapter 1 it was explained that the indigenous population of the Yorkshire Dales was made up of small farmers who, prior to the fundamental changes in Fountains Abbey and the sale of the Lordship of Middleham, were principally the tenants of monastic and secular estates. In Wensleydale the organisation of settlement and society followed the established feudal pattern, under which, woodland was a communal resource that could be taken from the waste, although ultimate ownership of that resource was held by the manorial lord. In Nidderdale a similar arrangement existed under monastic landownership.

The purposeful exclusion of one element of the rural population from a vital resource controlled by another typifies the social framework within which woodland was managed. Here, the fundamental concept of control is central to the management of woodlands, in which management is both a function of tenure (control) and end-use (purpose). It was commonplace for the lord or principal landowner to assume ownership of the woodland and to reserve its control and management to himself. This template was replicated on the Fountains Abbey estate, where the element of control is visible in the restrictive clauses inserted into monastic leases, and in the Abbot's readiness to prosecute offenders in the manor courts. However, there was a recognition that tenants needed a source of wood for heating, small wood for repairing hedges, and fodder for their livestock during the winter months and, in consequence, the monastery permitted tenants limited access to its woodlands as a privilege rather than a right.

The element of control was particularly evident in woodlands under secular ownership. Those at the top of the social hierarchy presumed that the rural community could not be entrusted with the care of woodland, and in consequence, that role was invariably assumed by the squire or lord of the manor. Whilst for most people the only accessible woodland was the 'waste', the common, or the stinted pastures, these resources were subject to a system of rights. The passage of 'ancient rights' into many tenancies after the 17th century is an indication of the need to preserve access to a vital resource (B. Harrison, pers. comm.). Occasionally common rights extended to permitting a small amount of grazing within woodland, as seen in the given examples of Freeholders Wood and Preston Spring, in Wensleydale. The element of control in privately-owned woodland could extend to complete exclusion, as witnessed in the manor court returns for Healey, where all rights of passage through Healey Spring Wood were denied. There was a constant need for domestic firewood, and for those members of the population denied the right to take wood from the stinted pastures, a resort to illegal woodcutting was commonplace. In this, the frequent offence of 'hedge-breaking' cited in court rolls is an indication of the desperate situation faced by a significant element of the rural population in finding fuel for domestic purposes.

In the Dales, woodland management functioned at two levels which, for simplicity, can be referred to as 'macro' and 'micro'. At the macro scale, woodland management could be a highly organised activity involving the rotational cutting of large areas of coppice woodland, or the lopping of trees to provide poles, firewood or winter fodder for captive deer in a hunting park. At the micro scale it might be little more than a smallholder's means of satisfying an immediate need for wood. A need might be an essential, such as domestic firewood for cooking and heating. It might be something related to agriculture, such as branchwood for making or repairing a dead hedge, or sticks for making tool handles. It could also be livestock-related in

leafy browse or holly branches for additional winter fodder. In all these cases, wood could be taken *ad lib* from any source that happened to be growing in a convenient location. Brushwood, riverside trees, field trees and hedgerows would all have represented potential sources of wood, and there is no doubt that their contribution in meeting small-scale needs for wood was considerable. This type of activity can be described as ‘low-level’ or *ad hoc* management, and may be seen in the form of small riverside alder coppices, relict laid hedgerows, isolated pollards, the remains of coppiced hedgerows, and coppards (trees that appear to have been managed by both coppicing and pollarding). From this range of managed tree forms, it is apparent that at this scale, there was no established rule as to how trees should be managed, and this has left a visible legacy of former ‘low-level’ woodland management for which parallels are not readily identifiable.

This is perhaps best exemplified in the stand of pollarded alders discovered by the writer in Arnagill (Colsterdale) and a group of similar trees in Upper Nidderdale. If these weird trees that stand in remote areas of former summer grazing pasture are interpreted as an indication of ‘low-level’ management by farmers over many centuries, they can be seen to have provided a useful source of sticks and poles for general farm and domestic use. Here is an indication of duality in land-use, with the trees fulfilling a role as summer shade in a seasonal grazing pasture and a source of raw materials. The actual forms that alder pollards take follows no prescribed template, and it is notable that the Arnagill pollards are not the same as those found by Fleming at West Arngill Wood in Swaledale (Fleming 1998) – surely an indication of local *ad hoc* management. But alder wood pastures in the Yorkshire Dales might be more than simple *ad hoc* woodland management – a Scottish parallel ‘Slope Alder Wood Pasture’ is identified as a cultural landscape in its own right (Quelch 2001). Here, the closeness of fit is remarkable – an unenclosed upland pasture, having alder, rowan and birch and a ground flora composed of rush pasture and flushes.

Although pollarding is still visible, indications of tree-shredding have long disappeared from the countryside. The recognition, through this research, that tree-shredding was practised in Nidderdale accords with the image of ‘low-level’ management offered above, and importantly, tree-shredding has parallels in the Lake District and Scotland where there is a long history of leafy boughs being fed to livestock during the winter. Quelch (2001, p.14) offers a fascinating comparison between old Norse traditions in the Lake District and very similar traditions in western Norway, citing Austad (1988), and it is thus possible that this cultural link could also apply to parts of the Yorkshire Dales colonised by the Norse. However, the fact that grazing livestock find the leaves of alder unpalatable (Godwin 1984, p.264) makes leaf fodder an

unlikely end-use for the Dales pollarded alders. Firewood and sticks are a more probable end-use for this system, but clearly, this is a topic worthy of further research.

Whilst coppice woodland characterised Nidderdale to a greater extent than Wensleydale because of the purposeful woodland management instituted by Fountains Abbey, there were small stands of coppice woodland in Wensleydale within the compartmented parks and on the valley sides. These were utilised as a source of raw materials for the lead-mines in mid-Wensleydale and those on the Wensleydale-Swaledale interfluvium. The level of coppice management here appears to have been less intensive than which took place in Nidderdale, where coppice management was geared to secure a constant supply of woodfuel for Fountains Abbey.

This research has shown how the monastic coppice woods were organised as areas of management and the rotational lengths employed. It has discovered that there was such a high demand for charcoal to feed the monastic smelting mills that even the Abbot's deer park was converted into a coppice wood. It may be postulated that conversion from wood pasture to coppice would have involved a substantial amount of tree-planting, but it is not possible to deduce from the 1574 woodland valuation (Walbran 1863) whether the 'young trees' or 'spires' tabulated arose from planting or natural regeneration. The level of sophistication and detail displayed in the 1574 valuation is remarkable and worthy of further research to establish the means by which the surveyors acquired their skills.

This research has found that coppice woodland in Nidderdale was characterised by peripheral ditches and hedges as opposed to the woodbanks associated with lowland woods (Rackham 1976). In many cases natural watercourses were also utilised as external woodland boundaries, and occasionally these appear to form the boundaries of coppice compartments. It was normal practice to surround newly-cut coppice compartments with hedges formed of live or dead spiny shrubs, set to one side of a ditch. A 'fence-time' of seven years was observed in Nidderdale, during which time all livestock were excluded from young coppices. While this matches the duration of the 'closed period' observed in other parts of the country, there is a major distinction between upland and lowland coppice woods in the provision of access to grazing livestock after the completion of 'fence time'. The high occurrence of holly observed by the writer in Nidderdale coppice woods might reflect its former use as a 'nurse' species to protect young coppice stools.

It is apparent from measurements taken during the course of the writer's fieldwork that the intensive management of coppice woodlands, hedgerows and field trees entered a sharp decline

phase about a century ago. This accords with the substantial reduction in the population following the demise of the lead industry, the contraction of farming, and the effects of the First World War. After this time the size of the rural workforce was insufficient to perpetuate the labour-intensive woodland management techniques that had been commonplace during the previous 400 years. The effect of this can be seen in the woodlands today in the form of overgrown pollards and coppice stools, derelict woodlands and hedgerows. With the demise of coppicing, many former coppice woods were clearfelled and replanted as softwood plantations in the 1950s/60s by the Forestry Commission, in accordance with a misguided system of grants and tax benefits. But whilst many estates viewed replanting as an economically advantageous way of managing their woodlands, it was not the only option, and a number of landowners took a different course of action by converting their coppice woodland to high forest. This was achieved by a process known as 'singling', where one or two vigorous stems on each coppice stool were selected to grow on as standard trees. The unwanted regrowth on each stool was cut away regularly in order to favour the selected stems.

Contrary to the opinion of Barber and Cooke (1990) which stated that there was no evidence for singling in the Yorkshire Dales, this research has observed extensive evidence of the practice in both Nidderdale and Wensleydale, with large numbers of single- and double-stemmed trees growing from bulbous boles. Their identification is aided by the trees' characteristic architecture (Plates 10.1 and 10.2). It is noticeable however, that singling is more commonly observed in former hedgerow trees and within small woods occupying sheltered situations, for a major disadvantage of the practice is that the singled trees are rendered more prone to windthrow than uncut coppice or maiden trees. Singling is, therefore, both a relic of former hedgerow management and a later development of coppice management whose application in the Yorkshire Dales has until now been unrecognised.

The results of this research are important for their contribution to an understanding of the function and characteristics of upland woods. Here, the research complements that undertaken in the Lake District, in a study of the Furness iron industry (Bowden 2000), wood pasture in Scotland (Quelch 2001), and Linnard's work on Welsh woodlands (Linnard 2000). The research demonstrates that the Dales woods were multi-purpose: providing a source of fuel and raw materials, a location for industries such as charcoal burning and clog-making, and as shelter for grazing livestock.

It has been explained in this thesis that the different forms of woodland management that were practised in the Dales were intended to satisfy specific industrial, agricultural or estate end-uses.



Plate 10.1. Old coppiced ash stool with two selected stems in North Wood, Colsterdale



Plate 10.2 Singled ash stool at Aysgarth, Wensleydale

For example, the extractive industry in Wensleydale relied heavily upon nearby woodland resources for supplies of grove wood and raw materials whilst there was a demand for domestic fuelwood and building timber. Similarly, in Nidderdale, copious quantities of wood were consumed by the lead-mines. These demands made inroads into the stocks of timber trees to the effect that an excessive amount of hardwood was cut down and sold by farmers and estate owners for industrial use. In addition to chopwood and peat, which formed the basic smeltpill fuels, there was a need for gunpowder charcoal, for which alder coppice was commonly managed, elm, as a building timber, and ash wood, from which tool handles were made. A constant demand for tannery bark represented a lucrative outlet for a by-product of the Nidderdale oak coppices. A number of small Dales-based industries presented yet another focus of demand, in their requirement for raw materials for the manufacture of a diversity of objects, ranging from carts and wheels, to dairy equipment, textile machinery and clogs.

The forestry enterprise of the Bolton Estate, examined in detail in Chapter 7, marked an important development in the woodland history of Wensleydale. This revolution in management which introduced commercial forestry into the Dale at the end of the 18th century, set the pattern of future land-use on a number of neighbouring estates. On the Bolton Estate afforestation was made possible by income generated from estate rentals and lead-mining. Many hundreds of trees from were raised from seed in the estate's own nursery and very large numbers of young trees were purchased from commercial growers, of whom William Thompson's nursery, at Pickhill, was pre-eminent. There was also a degree of experimentation to investigate the suitability of different tree species for the Dales environment. The activities of the Bolton Estate were highly influential, both locally and nationally, and interestingly, there appears to have been an element of one-upmanship, in which neighbouring landowners vied to establish conspicuous new plantations in the reorganised landscape of Parliamentary Enclosure.

This research project has demonstrated the usefulness of a multi-disciplinary approach in gaining an understanding of the history of woodland at a landscape scale. In this, the presented reconstructions of woodlands in Colsterdale, Dacre, Wensley, Healey and Middleham and Capplebank Parks provide a basis for further work and a methodology that could be extended to other upland areas. In particular, the use of quantitative analysis to assess the extent of a resource, as used in the discourse on hedgerow wood, is offered as a novel approach that could be replicated elsewhere. Similarly, a detailed analysis of land-use from tithe map data rather than field-names provides a means of quantifying former woodland.

This research has shown that some commonly held perceptions concerning the history of trees and woodland in the Yorkshire Dales are flawed. These fail to recognise the need for a reliable

wood supply to meet the needs of a population significantly larger than that of the present day. Whilst lead-mining was a major user of wood and timber in the Dales, there is no evidence to support the perception that it was responsible for the present scarcity of woodland in the landscape. Indeed, extractive industries were rarely responsible for the loss of woodland. This is borne out by the well-wooded landscape of Furness in the Lake District where a major iron industry thrived over many centuries, using a fuel supply taken from the local coppiced woodlands (Bowden 2000). Similarly, in Nidderdale, the monastic lead-smelting activity did not lead to the loss of woodland. In fact, the reverse is true, for the monks and their secular successors were assiduous in their management of the woodland.

This research has added confirmation to Fleming's (1998) work in Swaledale, by the recognition of a localised pollarding tradition in Nidderdale and Colsterdale. It has identified the previously unknown practice of tree-shredding in Nidderdale. This research rests comfortably within the theoretical frameworks of Cistercian woodland management (Linnard 2000) and upland wood pasture (Quelch 2001). The socio-economic aspect of the research accords neatly with Winchester's work upon the rural economy of Northern England and Scotland (2000).

The identification by the writer of a previously unrecognised 18th century hedgerow landscape in mid-Wensleydale poses some fundamental questions with regard to the origins of many stone field boundary walls. The survival of many fragments of laid hedgerow in the contemporary landscape and the large number of former hedgerow trees, now isolated and out of context, provides confirmation of the former role of hedgerows as a vital resource of wood in Wensleydale. Hedgerows were more extensive in Nidderdale than previously thought, for significantly, most of the pollarded trees that still remain in the Dale have been identified as former hedgerow trees (Muir 2000a), and many relict hawthorns that stand in field boundaries in upper Nidderdale originated as hedgerow shrubs. This aspect of the research is particularly significant in that it challenges some commonly held assertions concerning the Dales landscape.

Where a change in land tenure resulted in woodlands coming into the hands of tenant farmers, the resulting tension between competing land-uses and the unfamiliarity of the tenants with woodland management has, in some cases, resulted in a marked deterioration of such woodland. Similarly, where a market for the products of woodland declined, the role of the woodland changed. Hence, the substitution of coal for wood and peat, aided by the construction of railways in Nidderdale and Wensleydale, initiated a loss of end-use for much woodland in the mid-19th century. This led in due course to the abandonment of former managed woodland to dereliction.

But woodland had begun to disappear from the landscape before this time. In common with many other regions, a shortage of naval shipbuilding timber prompted the government during the 17th century to address this by instituting a 'spirit of planting'. John Tuke's remark aptly described the situation in the Dales: 'It appears to me that from the most accurate observations, that in less than a century, there will be a great scarcity of wood in the North Riding of York. The axe is often heard, but the planter is seldom seen'. Initiated by the writings of John Evelyn, diarist and court official in the reigns of Charles I and Charles II, there was an awakening that gave rise to the plantation movement – an initiative that had a profound effect upon the owners of landed estates, and in the Yorkshire Dales, was evident in the afforestation programmes instituted by the Ingilbys at Ripley and the Boltons in Wensleydale.

This thesis has demonstrated that the field and documentary evidence discredits the popular assumption that the low amount of woodland cover in the contemporary landscape is due to the lack of a tradition of woodland management. It has been shown that the monastic communities instituted rigorous woodland management regimes that mirrored those of medieval seigneurial demesnes. These practices were perpetuated after the Dissolution by the new owners of the former monastic estate. Thus, the management of woodland lay at the core of estate management after the Reformation and beyond, into the industrial phase of the 17th-19th century. The importance of land tenure in shaping the characteristics of woodland has been stressed, in conjunction with the critical concepts of control, by which management was effected, and of end-use in defining an outlet and purpose for woodlands. The conclusion of this research is that these factors, in combination, have been responsible for determining the character and presence of woodland in the landscape.

The writer has shown that in the Yorkshire Dales, woodland management was a response to a local need. It was practised both on a large scale, to meet the demands of industrial end-uses, and, more discreetly, to fulfil local requirements in the form of small wood and fuel for farming purposes. Because of this, the woodland of the Dales sits uneasily within any theoretical framework but it is possible, with an appreciation of woodland management practices, land tenure and end-uses, to conceptualise former woodland from the characteristics of surviving woods. The extent and distribution of woodland in both Wensleydale and Nidderdale is related to past land tenure and end-use. Fundamental changes to these determinants can be seen to have the capacity to reduce woodland cover.

In the Dales landscape, the combination of a harsh climate and unproductive land makes the financial returns from agriculture distinctly marginal. In such conditions there are tensions between different forms of land-use represented by hill grazing and woodland. Here, woodland

represents a land-use whose benefits are marginal to the principal farming enterprise, and in consequence, the lack of a tangible end-use leads to the neglect of woodland boundaries. Through this process many woods become an extension to the grazing pastures with the result that they fail to regenerate and become derelict. Although this process provides an explanation for the loss of woodland, it is not invariably the reason for the lack of woodland. Here, the absence of a planting tradition, and hence the lack of woodland, can be seen to be related to land tenure. In a situation where tenanted farms were in the majority there was not the incentive for tenant farmers to plant trees. Confirmation of this can be gained from the 18th century agricultural commentator, William Marshall, who wrote: 'If a customary tenant plants wood, he cannot cut it without leave of the lord; in some cases, the lord claims it as his own; which sufficiently explains why occupiers do not plant wood.'

Woodland management is practised where there is a tangible benefit or end-use. It is a labour-intensive practice that is dependent upon a sizeable workforce. In Nidderdale and Wensleydale, changing demography in the form of a diminishing rural working population, coupled with changes in land-use, have given impetus to the transition from traditional woodland (coppice) management to high forestry. This might be justifiably seen as the industrialisation of the woodlands, with monoculture plantations, and capital (in the form of plant and machinery) substituted for labour. In the same way, the indications of a once-extensive tradition of hedgelaying and pollarding of hedgerow trees provide a reminder of the critical role of hedgerows in the Dales, both as stockproof boundaries around crops and coppices, and as a source of wood for the rural population. The different forms of woodland management discussed in the foregoing chapters of this thesis gave a characteristic to the managed woodlands of the landed estates, the common stinted pastures of the townships and the hedgerows of the rural workforce, to form an entity called the Dales woodlands. The fortunes and misfortunes of these woodlands mirror demographic fluctuations and peaks and troughs in the rural economy. Woodlands are, therefore, a window through which the dynamics of the rural environment and society can be viewed. This representation is invariably cryptic and sometimes incomplete, but sufficient clues remain to enable the landscape historian to reconstruct former countrysides. This research has developed this process further with the application of techniques more familiar with present managers of woodlands, to conceptualise and quantify woodlands that have either vanished or whose form has been fundamentally altered. It has attempted to look beyond popular assumptions to provide some understanding of why the Dales woodlands have acquired their distinctive character and distribution in these revered upland landscapes. In this, it is hoped that this research will be regarded as a useful contribution both to the discipline of landscape history and to an appreciation of the former role of woodland management in two Yorkshire Dales.

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Bolton Estate archive (Ref. ZBO): North Yorkshire County Record Office, Northallerton

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Ingilby Estate (Ingilby MSS): West Yorkshire Archive Service, Sheepscar Library, Leeds.

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Middleham Manor, papers 1677-1856 (Ref. Z.775): North Yorkshire County Record Office, Northallerton

Swinton Estate archive (Ref. ZS): North Yorkshire County Record Office, Northallerton

Estate map:

William Godson's map of the Bolton Estate (1737): held at Bolton Hall, Wensley

Tithe maps and awards:

At West Yorkshire Archive Service, Sheepscar Library, Leeds

- Bewerley (RD/RT 22)
- Carperby (RD/RT 45)
- Fountains Earth (RD/RT 91/3)
- Leyburn (RD/RT 143)
- Redmire (RD/RT 195)
- Ripley (RD/RT 198)
- West Witton (RD/RT 244)

At North Yorkshire County Record Office, Northallerton

- Aysgarth (MIC 1771)
- Caldbergh (MIC 1790)
- Dacre (MIC 1825)
- Healey (MIC 1794)
- Ilton-cum-Pott (MIC 1795)
- Middleham (MIC 1797)
- Preston-under-Scar (MIC 1799)
- Swinton with Warthermarske (MIC 1801)
- Wensley (MIC 1508)

APPENDIX – SAMPLE PRINTOUT OF MAIN DATABASE

Area	Grid ref	Location	Name	Access	AW Inv	OS 1st Ed	Soil group	Bounds	Cover	Grad (%)	Altitude (m)	Aspect	Notes
Nidderdale	SE 152682	Bewerley	Cow Close Wood	NPA	Y	Y	541g	W	MP	18	220	SW	
Nidderdale	SE 154646	Bewerley	Fishpond Wood	PROW	Y	Y	721c	W	M	11	160	NW	
Nidderdale	SE 133662	Bewerley	Low Wood	NPA	Y	Y	541g	W	M	20	200	N	
Nidderdale	SE 154641	Bewerley	Skrikes Wood	PROW	Y	Y	721c	WR	M	23	170	N	
Nidderdale	SE 150643	Bewerley	White Wood, Middle Tongue	NPA	N	Y	721c	W	M	40	200	SE	
Nidderdale	SE 241605	Birstwith	Catstone Wood	PROW	Y	Y	711p	W	M	11	100	SW	With Hagg Wood
Nidderdale	SE 223595	Birstwith	Reynard Crag Wood	PROW	N	Y		N	B	16	150	NW	
Nidderdale	SE 132713	Bouthwaite	Barn Wood	NPA	N	Y	541g	W	C	40	260	SW	Bouthwaite Grange
Nidderdale	SE 136707	Bouthwaite	Byerbeck Gill Wood	NPA	Y	Y	541g	N	M	27	250	SW	
Nidderdale	SE 130714	Bouthwaite	Quarry Wood	NPA	N	N	541g	W	C	16	240	SW	
Nidderdale	SE 204641	Brimham	High Wood	PROW	Y	Y	711p	N	M	8	220	W	
Nidderdale	SE 272599	Clint	Hollybank Wood	PROW	Y	Y	711p	W	M	13	90	SW	Unclear on AW map
Nidderdale	SE 256596	Clint	Wilk's Wood	NPA	Y	Y	711p	W	M	18	90	SW	
Nidderdale	SE 185634	Dacre	Hawkshaw Gill Wood/Lead Wath Wood	PROW	Y	Y	711p	W	C	14	170	NE	
Nidderdale	SE 197609	Dacre	Low Hall Wood	PROW	Y	Y	711p	W	B	12	100	E	
Nidderdale	SE 169635	Dacre	Parker Wood/Guisecliff Wood/Bark Cabin Wood	PROW	Y	Y	651a	W	B	29	200	NE	
Nidderdale	SE 194626	Dacre Banks	Gill Wood/Spring Wood	PROW	N	Y	711p	W	B	5	110	NE	
Nidderdale	SE 194634	Dacre Banks	Hazel Bank, Low Laithe	PROW	N	N	561c	W	B	20	140	SW	
Nidderdale	SE 169641	Dacre Banks	Woodland at Hollin Farm	PROW	Y	Y	541g	W	C	13	150	NE	Hollins
Nidderdale	SE 205603	Darley	Manor House Wood	PROW	Y	Y	711p	W	B	15	100	SW	
Nidderdale	SE 209602	Darley	Willie's Wood	PROW	Y	Y	711p	W	M	11	100	SW	
Nidderdale	SE 115639	Greenhow	Anon wood	PROW	N	N	721c	W	M	L	430	NE	
Nidderdale	SE 247585	Hampsthwaite	Gormires Wood	PROW	Y	Y	713g	W	M	18	100	N	
Nidderdale	SE 208619	Hartwith	Ell Knowle Wood	NPA	N	Y	711p	W	B	15	160	W	
Nidderdale	SE 224602	Hartwith	Hardcastle Garth Wood	NPA	N	Y	711p	W	M	10	80	SE	
Nidderdale	SE 223618	Hartwith	South Wood	PROW	Y	Y	711p	W	M	11	160	SW	
Nidderdale	SE 225622	Hartwith	Spring House Wood	PROW	Y	Y	711p	W	B	9	170	SW	
Nidderdale	SE 110738	Lofthouse	Backstone Gill	NPA	Y	Y	721c	N	B	27	300	SW	
Nidderdale	SE 113731	Lofthouse	Sikes	NPA	N	Y	721c	N	B	30	250	SW	
Nidderdale	SE 111739	Lofthouse	Woodland at Backstone Gill	NPA	Y	Y	721c	W2S	B	29	250	SW	