ENGLISH NATURE

Creating native woodland in upland England

Practical issues from the Shropshire Hills, the Lake District, and the Forest of Bowland

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John Thompson
Ed Mountford
Will Prestwood
Edward Mills
Rigby Jerram

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Preface

English Nature is committed to the expansion of native woodland in upland England because of the nature conservation benefits this would bring. We recognise however that native woodland expansion is not appropriate or possible everywhere. The key questions are:

- where would new native woodland be most beneficial for nature conservation?
- where is this expansion desirable, feasible and practical?

The following three reports were commissioned by English Nature to help us to answer these questions, and to examine the major factors which are limiting the development of new native woodland. Each report covers a defined project area and the results cannot claim to be representative of upland England generally, although common themes can be identified running through each report. These reports are intended as a practical follow-up to English Nature Research Report No. 230 "Developing new native woodland in the English uplands" by John Good *et al*, which examined the theoretical feasibility of native woodland expansion within selected areas of upland England.

The Shropshire Hills and the Lake District projects both involved project officers encouraging and assisting farmers and other landowners to create new native woodland in appropriate locations. The Bowland project, was a precursor to this stage, and was looking at producing a new native woodland feasibility map in discussion with important stakeholders.

The intention of this document is solely to reproduce the final reports from each of the three projects. There is no supplementary analysis at this stage. The reports are unedited and represent the views of their authors and not necessarily those of English Nature.

Christine Reid
Woodland and Forestry Officer
English Nature

March 1999

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CREATING NEW NATIVE WOODLAND IN THE SHROPSHIRE HILLS

John Thompson
Ed Mountford
Will Prestwood

February 1999

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Creating New Native Woodland in the Shropshire Hills

1. Introduction

1.1 Background

English Nature, in partnership with the Forestry Authority (FA) and the Farming and Rural Conservation Agency (FRCA), is seeking to increase the area of native woodland within the upland areas of Shropshire. In line with government forestry policy and the UK Biodiversity Action Plan, more native woodland would serve to enhance and expand the existing wildlife habitat. In addition new woodland could also, amongst other benefits, provide shelter for livestock, a habitat for game birds, enhance the landscape, produce timber, firewood and other wood products, and provide increased opportunities for informal recreation. On the other hand much of the land which might be considered to be potentially suitable for new native woodland planting is already important in landscape or nature conservation terms and could be impaired by conversion to woodland.

The Shropshire uplands was selected as one of several study areas within a wider project looking at expanding native woodland in the English uplands, An earlier study for EN (EN Research Report No.230 "Developing New native Woodland in the English Uplands 1977") had already concluded that there was considerable scope for new planting but that farmers, in particular, were hesitant about converting land from agriculture to forestry. The present study was designed to explore the issues in more detail and to seek to actually establish some well-designed native woodlands, some of which might be used for demonstration purposes. This would be in line with EN's policies for "Natural Areas".

1.2 Aims and Objectives

The uplands pose particular issues with regard to native woodland creation, and the uplands of Shropshire, which include both the Shropshire Hills and the Clun Environmentally Sensitive Areas (ESA's)(Fig 1), provided an opportunity to examine these issues at the upland-lowland fringe. There were two objectives:

- To identify ten suitable sites for woodland creation and to draw up planting schemes for them.

- To explore and analyse the incentives for creating new native woods; and to identify the issues and ways of enhancing the opportunities for native woodland expansion in the Shropshire uplands.

It was intended that the results would potentially be of use in facilitating further efforts to create additional native woodlands in the Shropshire Hills and might provide demonstration sites for landowners. The analysis of factors would help to inform policy decisions regarding land management funding mechanisms, the

2. How the study was organised

2.1 Personnel

- Two forestry advisers were appointed as "new woodland scouts". They were people already acting as ecological advisers for the Marches Woodland Initiative (MWI)[1] so the work had a close link with similar work that they were already doing for that scheme. Their role was to seek out owners who might be interested in creating new native woodland, to interview them and to try to initiate ten schemes.

One (William Prestwood) is a forestry and environmental consultant with considerable practical experience of woodland creation, a sound knowledge of woodland ecology and with extensive contacts amongst landowners in the study area.

The other (Ed Mountford) is an ecological consultant with a specialised knowledge of native woodlands and had previously worked as the Adviser for the Farming and Wildlife Advisory group (FWAG) in Shropshire.

- An "analyst" was appointed to draw the experiences of the scouts together and analyse the factors contributing to the success, or otherwise, of efforts to establish the ten woodlands. He was also required to recommend policy changes that would favour an increase in new native woodland establishment and , thirdly, identify the demonstration potential of the sites for other farmers and landowners.

The person appointed (John Thompson) is an ecological consultant with over thirty five years professional experience in nature conservation and a good knowledge of the study area. He also was an advisor to the MWI.

2.2 Method of working

Following an initial meeting between officers of English Nature (EN), FA, MWI, Farming and Rural Conservation Agency (FRCA), the Scouts and the Analyst, a form (Appendix 1) was devised to gather details of farmers and landowners who it was

1. The Marches Woodland Initiative is a five year project, running from 1997 to 2001, with the aim of "expanding and improving the management of woodlands in the Marches in order to develop their economic potential and enhancing their environmental value". It is a partnership between the Forestry Authority, Countryside Commission, English Nature, Rural Development Commission, Herefordshire County Council, Shropshire County Council and Malvern Hills District Council. It is supported by the European Union Objective 5b programme and the Ministry of Agriculture, Fisheries and Food.

Thought might be interested in the creation of new native woodland on their land. Most of the initial contacts were provided by the two ESA Project Officers. Several others were added by the scouts and the analyst. This gave a contacts list of just over twenty names.

A detailed two-part Site Questionnaire (Appendix II) was then prepared and was used by the Scouts in assembling relevant information about the sites including the existing landscape and wildlife value and their potential for new native woodland creation.

Meanwhile the Analyst, whilst keeping in close contact with the Scouts, concentrated mainly on familiarisation with relevant literature, including previous EN Research Reports, notably No.230"Developing new native woodland in the English uplands". Once the completed questionnaires had been received these were analysed and the provisional findings were identified. The Analyst visited two of the selected sites, in company with one of the Scouts, and had useful discussions with their owners. A series of meetings were then held, with the MWI Project Officer (John Kerr), the ESA Officers (Lucy Roberts and Tony Phillips), the Shropshire County Countryside Officer (John Hughes) and the County Forestry Officer (John Blessington). The Project was also discussed the FWAG Adviser (Alison Jones) by telephone. In these discussions progress was described, the provisional findings aired and helpful comments and information were received.

3. The results of the Scouts activities.

Several of the owners on the contacts list declined to complete the questionnaires or be interviewed as they were not interested in woodland expansion. In two other cases no contact could be established. Of the remainder, ten gave interviews in depth and welcomed the preparation of native woodland planting schemes. These ten cases are summarised below[2].

Site 1

This is a tenanted livestock farm of between 50 and 100 ha in the extremely attractive valley lying between the Stiperstones (NNR) and the Long Mynd(National Trust). The absentee landlord derives his principle income from another business. He is interested in shooting, amenity, landscape and wildlife, and has planted five small broadleaved woods in the past two years. He is keen to plant more woodland and considers that native woodland will meet his needs.

A scheme has been prepared to plant a further 1.4 ha in four separate blocks. Some are on deep, moist sites on valley floors; others are on thin, dry soils on valley sides. Some of it is improved grassland. The valley bottoms are wet grassland with *Juncus.*

2 Names and precise locations are omitted for reasons of confidentiality

One site is dry acid grassland on a formerly wooded slope. All the sites are grazed at present. No unusual species are known to occur but it is believed that Glow-worms may have been recorded nearby.

The intention is to plant Alder and Ash in the valley bottoms and a mixture of Oak and Ash on the slopes. This agrees very closely with the owners own preferences. Planting would be at 1600/ha at a total cost of £5,100. The Woodland Grant Scheme (WGS) would be expected to meet 40% of the planting costs and there would be entitlement to FWPS payments of £84/annum for 15 years.

The new woodland would assist the owners shooting, amenity and wildlife objectives. No financial return is anticipated.

The farm has been in the Shropshire Hills ESA for two years and has already received WGS grants for new planting. The owner does not expect the new planting to affect either his ESA payments or any other production incentives. Neither does he anticipate any significant reduction in livestock production.

The owner is very keen to do this additional planting and it is certain to proceed.

Site 2.

This is a farm of between 100 and 250 ha in extremely attractive countryside just to the north of the Long Mynd (NT). It is a livestock farm and is the principal source of income. The eligible part of the farm (58 ha) has been in the Shropshire Hills ESA since 1996.

The farm already has between 1 and 5 ha of woodland including some Ancient Semi-natural Woodland (ASNW). Several new broadleaved woods have been planted in the past 5 years. Others, planted up to 20 years ago, are mixed. Overall some 80% are broadleaved.

Some of the existing woods are actively managed for timber production. The work is done by contractors. Of those which are unmanaged, some are too small to be economic; others are deliberately left alone to benefit wildlife.

The owners are very keen to plant more broadleaved woodland and consider that native woodland will meet their aspirations for landscape improvement and wildlife habitat. A scheme has been prepared to plant 1.4ha on two virtually contiguous hillsides. These are presently grazed and carry acid grassland with scattered scrub. There are old hedges and some mature trees on the boundaries. Both sites were formerly wooded and the grass sward still contains a variety of woodland herbs including Bluebell, violets and Wood Sorrel. There is some bracken invasion.

The owners vision is to re-create the kind of Sessile Oak woodland with Ash, Rowan, Birch, and Holly with may formerly have existed there. Grazing would be prevented and a good shrub layer would benefit birds, mammals and invertebrates.

A scheme has been prepared to plant Oak(80%), Ash/Birch/Rowan(10%) and woody shrubs (10%) at 1100/ha. Natural regeneration would also be accepted. The planting cost would be £4,070, of which about 50% would be met from WGS grants plus annual payments of £84 pa under the Farm Woodlands Premium Scheme (FWPS).

The land to be planted is presently let for grazing so there would be a small loss of income but no complications with production incentives and no claw-back of ESA payments in anticipated. No financial return would be expected.

Although the owners are extremely keen to proceed with this scheme there are other conflicting priorities on the farm and they are unlikely to plant in the immediate future due to the financial climate.

Site 3.

This farm lies in hilly country to the south of the Stiperstones. It is a beef and sheep enterprise of between 100 and 250 ha. Farming provides the main income. It has been in the Shropshire Hills ESA since its inception. There are presently no woods on the farm.

The owner is proposing to construct a pool and wishes to plant some woodland in conjunction with it. He considers that native woodland would be appropriate as it is "best of wildlife". His vision would be to create an area of Oak-Rowan-Birch woodland, with Alder-Willow scrub adjacent to the proposed pool.

The 1.0 ha site is at present semi-improved grassland, partly damp and rush-infested. There appear to be no important nature conservation features but there is a possibility that Snipe may use it for winter-feeding.

A scheme has been prepared for planting Oak(60%), Ash(10%), Rowan/Birch(10%), Alder/Willow(10%), Shrubs(10%) at 2500/ha. This would fit "quite closely" with the owners own thoughts. The cost of planting would be £2,950. There would be entitlement to WGS grant of 45% and FWPS payment of £60/pa.

The owner expects to forego ESA Tier payments but has not indicated that he would lose any production-based incentives or affect his extensification payments. However stocking levels are finely balanced and careful calculations will be needed before a final decision is made. There would be a very slight loss of production. No income would be expected from the new woodland.

The owner is keen to proceed within two years.

Site 4

A 25 ha livestock farm in the valley of the R. Onny just to the west of the Long Mynd (NT). The farm provides only half of the income, the rest comes from other work. The farm has been in the Shropshire Hills ESA since 1994.
Existing small woods on the farm are valued for amenity and as a source of firewood. No recent planting has been done . Constraints on management include shortage of

labour, uneconomic sizes and the desire to minimise intervention for the sake of the wildlife.

The owners are keen to do some more planting and favour native trees because of their importance to wildlife. A scheme has been drawn up to create 1.0 ha of new native woodland on a valley-side site. 0.6 ha of this is rough grazing with a few scattered oaks; it was formerly woodland and Bluebell, violets and some other woodland flora still survives. The other 0.4 ha is semi-improved pasture. The site is contiguous with existing broadleaved woodland to the south.

The owners vision is to extend the existing woodland by creating a young Oak plantation with sporadic Birch, Rowan, Ash and Holly.

A scheme has been prepared for planting 70% Oak and 30% Birch-Rowan-Ash-Holly at 1100/ha. 60% of the planting cost of £1850 could come from the WGS and there would be an annual payment from the FWPS of £116/annum for 15 years.

Some long-term production of timber and firewood is anticipated. The owner does not know whether his various production-linked incentives would be affected but expects to lose some ESA Tier C payments. No reduction in farm production is expected.

There are good prospects that this scheme will be implemented.

Site 5.

A livestock farm of between 100 and 250 ha in attractive hill country just north of the Long Mynd. The farm is the owners principal source of income. It has been in the Shropshire Hills ESA for 5 years.

There are extensive, adjoining, wooded dingles totalling around 30ha. Almost 100% are broadleaves and there is some ASNW. Some of the woodland is managed, by contractors, for timber and firewood. Others are left unmanaged because they are uneconomic and there is no spare farm labour.

The owner is considering planting some new woodland, for landscape and wildlife benefits and for screening. He feels that native woodland will meet his needs. Two sites, 0.4 and 0.8 ha have been identified. Both are on level ground set within rolling farmland. They consist of improved agricultural grassland and have no existing nature conservation importance. Nor are there felt to be any significant landscape considerations. The larger block is contiguous with a small conifer wood and has links with existing hedgerows.

The proposal is to plant both sites with Oak(60%), Ash (20%), Cherry/Rowan/Birch (10%), and shrubs (10%) at 1600/ha. This agrees very closely with the owners wishes. The work would be done by contractors. The cost of planting would be £3200 per ha,

60% of which could be met by WGS grant. There would be entitlement to annual payments under the FWPS. No foreseeable income would be expected.

The owner does anticipate that the whole range of livestock production incentives could be affected, as well as his extensification and ESA payments. Despite that he considers that there would be no loss of production.

It is expected that the scheme will be implemented without delay.

Site 6.

This is another farm on the northern flanks of the Long Mynd. It is between 100 and 250ha, runs beef and sheep, and grows barley for stock feed. The farm is the principle source of income and has been in the Shropshire Hills ESA since 1995.

There are several small woods on the farm at present, totalling about 5ha. Some are ASNW. None have been planted in the last 20 years. Some of them are actively managed, by farm labour, producing fencing materials and firewood. Shortage of labour is a limiting factor.

The owner wishes to create more woodland partly for livestock shelter, but is also keenly interested in amenity, wildlife and landscape improvement. He feels that native woodland will partly meet his needs, but is keen to plant some conifers for shelter.

Two planting sites have been discussed. One, of 0.5ha, is a sheltered valley side on deep, dry, acid soils. It was formerly wooded but is now mainly rough lightly-grazed semi-improved pasture with Bracken, brambles and a scatter of Hazel and Elder scrub. It adjoins a stream-valley with ancient semi-natural woodland of Sessile Oak, Birch and Holly. One side is flanked by a track with tall unmanaged hedges. Although the site in its present condition is, in effect, a sheltered grassy clearing and could have value for small mammals and invertebrates, there appear to be no scarce species present and, on balance, planting with appropriate native woodlands would be beneficial. The particular advantage is that it will extend an existing extensive dingle of ASNW.

The proposal is to plant Oak(70%) and Birch/Rowan/Holly/Hazel(30%) , of local origin, at 1,100/ha. This will cost £1,000 less 60% WGS grant. As the area is less than 1 ha there would be no entitlement to FWPS payments. No income is foreseen. Some existing production-based payments could be affected. There would be small loss of production.

The other site is larger - 3ha - and consists of unimproved acid grassland with Heather and Bilberry and some species-rich flushes. Part of it is Bracken-dominated. It is on an elevated, exposed, hillside and is quite conspicuous in landscape terms. The owner would welcome native woodland there but feels that a significant conifer component would be necessary in order to meet his requirement for shelter.

The smaller site is likely to proceed, though not immediately in view of the present state of the livestock industry. The larger area will probably not proceed on account of the cost and the potential loss of existing incentive payments.

Site 7

A dairy and livestock farm of between 100 and 250 ha in attractive countryside a few miles north of the Stiperstones. It is the principal source of income and has been in the Shropshire Hills ESA for 3 years.

There are presently four woods on the farm with a total area of between 11 and 20 ha. They are all broadleaved; some of it is ASNW and notified as SSSI. None of the woods are actively managed because of lack of expertise.

The owner is considering carrying out some planting in order to provide shelter for livestock and benefit the shooting. He feels that native woodland will meet those requirements.

A 0.5 ha site of deep moist loam on a valley side has been identified. It is mainly improved grassland but includes a narrow band of unimproved neutral grassland with scattered thorn scrub. There are not thought to be any rare or scarce species present. The new woodland would further extend the existing large area of mainly ASNW in the valley on the edge of the farm as well as linking with a belt of thorn scrub.

Planting would be a mix of Oak, Ash, Cherry and appropriate minor species at 1,600/ha. That would agree very closely with the owners own ideas. Planting cost would be £1,900 less 50% WPS grant. As the area is less than 1 ha there would be no entitlement to FWPS payments.

Some loss of production incentive payments is expected, and extensification and ESA payments could also be affected. No income is anticipated but the additional woodland would increase the sporting value of the farm.

The cost is a constraint and the owner also feels that the management of the existing woods is a higher priority. However the shooting incentive is attractive so the new planting might well proceed.

Site 8

This 10.5 ha small-holding lies in hill country near Newcastle. The owners recently purchased the holding for retirement and derive the bulk of their income from other sources. It has been in the Clun ESA since 1994, but it is difficult to graze this marginal site and it is to be withdrawn from the scheme in 1999.

There is at present one linear mixed woodland of 3.2 ha, on a very steep bank. It is not actively managed because it is too steep and uneconomic. However, the benefits of leaving it undisturbed for the benefit of wildlife are recognised. The owners are prepared to consider planting up all of the improved fields as an alternative to the present grazing management and also to improve the amenity, landscape and wildlife habitat. They would be happy to have native woodland but would like to include a few non-native trees. The constraints are financial, the desire to include some aliens,

the problem of managing the remaining unimproved grassland, and the landscape impact.

The potential planting area thus extends to about 6.3 ha and consists of steep hill slopes and some hill-tops. The soils are acid brown earths and red loams, mostly free-drained but with some local flushes. It is mainly rough grazing with a lot of bracken but there are some areas of unimproved species-rich grassland and some scrub. Some of the grassland contains a reasonable variety of herbs (Harebell, vetches, Cat's ear, Heather, yarrow, etc); and Wood Sorrel and violets occur under the Bracken. (The existing secondary woodland contains a few more woodland herbs suggesting good precursor vegetation). There are not known to be any scarce or local species present but the bracken areas do have the potential to support e.g. fritillary butterflies.

The steep hillside is highly visible in the landscape, requiring an assessment by the MWI Landscape Consultant. Although there are plenty of hedges in the local landscape the site is isolated by improved fields all around. The nearest woodland is a mile away on the other side of the Clun valley.

The owners' vision is to create an "ornament" in the landscape, with changing colours and textures - including some conifers for winter shelter. They wish to create something "for people to admire and visit".

A scheme has been prepared to convert about 5 ha to woodland by a combination of planting and natural regeneration. The remainder would be left unplanted to conserve the best of the grassland habitats. Plantings would be of W8/W10/W11 mixtures according to topographical variations, and include Oak, Birch, Rowan, Hazel, Crab, Ash, Alder and Cherry, all from local provenance if possible. The detailed design takes account of soil and drainage characteristics and the occurrence of patches of good herbaceous vegetation. On the whole this agrees quite closely with the owners ideas and they are prepared to compromise to some extent. The planting cost would be £9,694 but the WGS grant would be £10,620. The FWPS would provide annual payments for 15 years.

Income from grazing would almost disappear and the ESA payments would be lost. No income would be expected from the new woodland, although there is no reason why it should not make some return from thinnings and final crop trees in due course.

This would be quite a large and complex scheme for the owners to undertake and they are not entirely sure whether to do so. From the environmental point of view there would be some loss due to the cessation of grazing on good unimproved grassland. And there is some uncertainty over what exotics might be included.

Site 9

A grass farm of 33.4 ha to the south of Clun. It has been in the Clun ESA since 1996, including Tier2A (Reversion Management). The grazing is let and provides the principal income.

There are presently three woods, totalling 2.6 ha. All mixed broadleaved plantations, created in 1992 with WGS grants and now receiving FWPS payments. They have been maintained by contractors.

The owner is keen to enhance the landscape and improve/increase wildlife habitats. Also to diversify the farm business and to rationalise one of the fields where a badger's sett makes mowing difficult. The creation of new native woodland is preferred as it "provides the best wildlife habitat and landscape". However the constraints are cost, the need to conserve some nice grassland, and the character of the existing farmed landscape.

Two planting sites are under consideration. The first is 1.25 ha in a valley which includes the source of a stream. The soils are mainly well-drained acid brown earths but the stream-side is wet and probably gleyed. The slope has Bracken over rough grassland but some areas are of moderate botanical interest. At present it is part of an extensively grazed field, the remainder of which is of greater botanical interest. There is some marsh vegetation alongside the narrow stream-course. No rare or scarce species are known to occur but there is a badger sett at the top of the slope. The new woodland would be contiguous with one of the existing plantations. It is partly visible from main roads and footpaths.

The owner wishes to create attractive woodland that blends into the landscape, with a mix of native species providing ground cover, bird and butterfly habitats and eventually trees for owls and other woodland birds.

The plan is to create a NVC W10 community on the slope by planting Oak, Holly, Rowan, Cherry, Hazel and Crab; and W6 by the stream with Alder, Downy Birch, Willows, Ash and Guelder Rose. Mixed densities averaging 1100/ha. Part of the stream-side and the badgers sett would be left unplanted.

The second area is a hill-side site of 0.25 ha. It is an agricultural ley of no botanical interest. It is a well-drained acid brown earth over Old Red Sandstone. The new woodland would include a badger sett. It would be planted with a W10 community as above.

The total planting cost would be £4,468, with 40% grant from the WGS. Although there would be entitlement to FWPS payments for 15 years, there would still be a net loss at the end of that period. There would be some loss of grazing rent, ESA payments and various production incentives.

The owner is very keen to plant these areas but is concerned about the net costs and worried that the ESA commitment is a dilemma. There is real possibility that it will not proceed. However, it is interesting to note that the owner would consider planting the entire farm if the funding arrangements were more satisfactory.

Site 10

This is a small-holding of 8.3 ha in a valley a few miles north-west of Newcastle. The owner funs a flock of sheep but his main income is from other sources. The farm has been in the Clun ESA since 1990 including the reversion Tier.

There is at present about 0.5 ha of woodland in three small blocks plus a wooded (but grazed) stream valley. About 70% is mixed, with a strong conifer component, the rest is broadleaved, some of it arguably "ancient". The mixed woodlands have all been planted within the past 20 years. Some of the woods are managed by the farmer himself to produce firewood, but they are too small to be economic and some parts are deliberately left unmanaged for the sake of the wildlife.

The owner is keen to plant more woodland and considers that native woodland will be best for both wildlife and landscape. If the grants were adequate he would consider planting the whole farm.

It is proposed to plant 1.0 ha of native woodland in a narrow stream valley in order to combine the existing native woodland and plantations into one sizeable block. The soils are free-draining neutral to acid red loam over Old Red Sandstone. The present vegetation is a mix of improved and rough grassland with some Gorse and Hawthorn scrub. In the valley bottom these merge into the under-grazed woodland of Birch, Cherry, Hazel, Ash and Sycamore. There is a badger sett and a well-lit, spring-fed, artificial pond. No rare or scarce species are known to occur. The valley is crossed by a public bridleway but is otherwise secluded.

The owner's vision is to create a mixed native broadleaved woodland along the stream corridor, with changing colours and textures, good habitats for wildlife and as a place to walk and enjoy.

It is proposed to plant areas of W10, W8 and W6 woodland, using Oak, Birch, Rowan, Crab, Gean, Ash, hazel, Guelder Rose, Field Maple, Spindle, Alder, Willow and perhaps Small-leaved Lime. Local provenance is available. Natural regeneration would also be accepted. The design would take account of soils and topographic differences, the pond, tracks, the sett and existing trees and scrub. It adheres very closely to the owners own ideas and he is willing to amend his views where necessary.

The cost of planting would be £2,440 less a grant of £1,950 and there would be entitlement to annual FWPS payments of £200 per annum for 15 years.

There would be some loss of production and of headage payments. The owner fears that some ESA payments might be "clawed back".

The owner is keen to proceed but the combination of Reversion grassland, grazed woodland, and young plantations (in need of stock-proofing and management) makes the grants and incentives position unusually complex. There could also be penalties.

It is likely that the owner will decide to concentrate on the management of his existing woods for the time being, leaving new planting until his retirement. He may then plant up a larger area of the farm.

The sites are summarised in the following table:

Site	Size (Ha)	Cost	WGS	FWPS
1 a-d	1.4	£5,100	£1,890	£84 x 15yrs
2 a,b	1.4	£4,070	£1,890	£84 x 15yrs
3	1.0	£2,950	£1,350	£60 x 15yrs
4	1.0	£1,850	£1,350	£116 x 15yrs
5 a,b	1.2	£3,840	£1,620	£72 x 15yrs
6a	0.5	£1,000	£675	N/A
7	0.5	£1,900	£975	N/A
8	5.0	£9,694	£10,620	£902 x 15yrs
9 a,b	1.5	£4,468	£2,325	£110 x 15yrs
10	1.0	£2,440	£1,950	£200 x 15yrs
Totals	14.5	£37,312	£24,645	-

4. Analysis

The facts which emerge from the interviews and site investigations are:-

- The cases examined cannot be construed as being in any way indicative of the attitudes or desires of hill farmers generally. They were all approached on the basis that they were thought likely to be interested in creating new native woodland, or at least would be prepared to discuss it. Indeed several were already in touch with advisers (some through MWI) about that. Nevertheless the study does reflect the sort of aspirations and anxieties amongst those who have an existing interest in planting woodlands.

- Despite being selected in that way a number still declined, politely, to be involved in the study. In fact about half of the names put forward by the two ESA Officers on the basis of their personal knowledge of them and their farms proved not to be interested.

- The study took place at a time when farming - and livestock farming in particular - was at a particularly low ebb. The combination of the BSE crisis, the strong pound, the drastic reductions in live sheep and calf exports, and the apparent collapse of the Russian market for sheepskins had led to a massive drop in prices and incomes. As one of the interviewees put it "Farmers will not plant trees when times are hard".

- On the whole there was considerable enthusiasm for native woodland rather than exotics although one farmer would have wished to include a proportion of conifers to enhance the sheltering effect; and another was keen to include a few aliens to add colour and texture.

- There was almost universal acceptance that native trees are best for both wildlife and landscape.

- Although shooting was an important motive in a few cases it was generally accepted that small native woodlands on difficult sites would be unlikely to produce any tangible return in the form of timber or other woodland products.

- There was some confusion about which organisation does what in the countryside. The proliferation of official and voluntary bodies and advisers caused concern in many cases.

- All of the owners were in an ESA and although several expressed dissatisfaction with the levels of payment they all praised the scheme and found the ESA officers very helpful.

- There was real concern, and considerable confusion, about the extent to which existing production incentives and ESA payments might be affected if even small areas of land were taken out of the "forage area".

- In those cases where the farm was not the principal income there was a far greater willingness to convert grassland to woodland. In fact three such owners said they would consider converting the whole farm if they had the resources and the grants were more adequate.

- Most owners said they would employ contractors to do the planting. This was partly due to lack of expertise but most cited shortage of labour as a limiting factor. The same applies to the management of existing woodlands.

- Most of the sites examined appeared to have relatively little botanical or zoological interest and would be improved, at least in wildlife terms, if planted with suitable native woodland. Clashes of interest were few.

- In the majority of cases the plantings would extend or reinforce existing woodland, scrub or hedgerow habitats. In a few cases they would be contiguous with ASNW.

- Although the production of firewood was mentioned by several interviewees none of them appear to have thought about the possibility of coppicing new woodland for firewood production.

5. Discussion

Although this has been a limited study, the results of the interviews - taken together with the discussions with other parties - do give a considerable insight into the factors influencing the planting of new native woodland in the Shropshire Hills and, arguably, in hill country more generally.

5.1 Incentives

Ten of the owners who were targeted were sufficiently keen that they specified actual sites and welcomed the preparation of schemes and the submissions of WGS and FWPS applications. Their motives varied to some extent but, without exception, they expressed a desire to maintain or enhance the landscape and accepted that native woodland was best for that purpose. Almost everyone mentioned the creation of wildlife habitats as an important motive. Two wanted to include some conifers for shelter despite evidence that too-solid a barrier can cause draughts and that wind is best checked by "filtering" rather than blocking. One was particularly keen to include a proportion of exotics to create colour and texture. A few said they would hope to get firewood from the new woodland, but although one or two mentioned the possibility of some harvestable timber in the long term, no-one expected any commercial return. The improvement of game shooting was mentioned in a few cases, and one owner mentioned an interst in (fox) hunting. Notwithstanding these various other motives and aspirations the overwhelming evidence was that owners wanted to create new native woodland for mainly altruistic reasons.

It is in some ways unfortunate that owners are so unconcerned about future income from woodland produce. Many of these woods will eventually produce thinnings and some valuable timber and it will often be necessary to find an economic return in order to carry out fellings which are desirable from a nature conservation perspective. The perception that native woodland is unproductive needs to be addressed by agencies and advisers.

At first sight the proportion of owners who were keen to create new native woodland, at roughly 50% of those approached, is surprisingly high. However in interpreting that figure it has been borne in mind that this was not in any sense a random sample The interviewees were selected as being likely to be interested. The study therefore throws no light on how representative these attitudes and aspirations are amongst farmers and other owners in the hills generally. Rather, what it does do is explore the factors influencing decisions about what, when and where to plant this type of woodland on the part of those who are keen to do so. If it also results in the actual creation of some well-designed native woodland - and all the indications are that it will - that is a significant benefit.

5.2 Disincentives

5.2.1 Cost:

The reasons for not creating new woodlands - whether native or exotic - are many and various. They are mainly linked to the cost, the reduction of "forage area" and the potential loss of ESA payments and/or a whole range of production incentives.

The WGS pays part of the cost of new woodland creation, whether by planting or by natural regeneration., Payments are considerably higher for broadleaves than conifers and so tend to encourage native trees rather than aliens. The payments for natural regeneration also have the effect of encouraging natives. Nevertheless the fact remains that there is almost always a net cost to be borne. Because the payments for planting are area-based rather than based on actual costs this can be a greater disincentive on hill land than on level land. This is because ground preparation, fencing and planting costs are often higher in difficult terrain. On the other hand the WGS will, in certain circumstances (e.g. for native woodland planting), accept a lower stocking density (1100/ha) and this tends to reduce costs. Each case is different but in general it would often be to the owners advantage if planting costs were based on costs rather than area.

A number of cash supplements are also available, One of these is a "Better Land Supplement" designed to encourage planting on arable and improved grassland and so act as a compensatory payment for reduced production. It could be argued that if more woodland is needed in the hills there should be a supplement for planting on poor land as costs are often higher and there are often penalties to be paid (see below). However that might encourage owners to plant on areas which are vitally important for wildlife or landscape - such as bogs, marshes, heathland and other "unimproved" habitats, although the consultation process should, in theory, avoid this.

The "Community Woodland Supplement" hardly applies in the Shropshire Hills and the present "Locational Supplement" is not relevant.

Most farmers who meet the requirements of the WGS will also be able to apply for annual payments under the FWPS. The level of payment will depend on whether the land is "arable", "other improved" or "unimproved", also whether it is a Less Favoured Area (LFA) and whether it is classed as "disadvantaged" (DA) or "severely disadvantaged"(SDA). In the case of native broadleaves the payments can continue for 15 years. These FWPS payments do tend to compensate, to some extent, for the loss of production payments consequent on reducing the "forage area" (see below) but they do not go on for ever. Again, as with the WGS grants, an owner gets a higher FWPS payment for the best land. The reason for this is understandable but, as with WGS, it could be argued that it discourages planting on hill land.

5.2.2. Reduction in forage area:

Turning now to what might be termed the "penalties" for taking land out of grazing and converting it to woodland. Hill farmers presently receive various Area Aid payments via The Integrated Administration and Control System (IACS). Under this system livestock farmers may apply for Beef Special Premium(BSPS), Suckler Cow

Premium(SCPS), Hill Livestock Compensatory Allowances (HLCA) and Sheep Annual Premium (SAPS). In addition they may be entitled to supplements via the Extensification Premium if their number of Livestock Units per hectare of forage area is below certain thresholds. Entitlements under these various schemes relate to the declared "forage area" of the holding. That is the area of land available for feeding or grazing livestock. It cannot normally include woodlands but "grazeable woodlands" can be included if "an appropriate area is deducted to take account of the trees".

The total of such payments will often represent a very significant part of a farmers income. Therefore farmers are understandably reluctant to do anything which affects them. The creation of woodlands automatically reduces the "forage area" and this has a knock-on effect on some Area Aid payments. For example it could lift the calculated stocking rate on the rest of the farm above the threshold of 1.0 LUs/ha, so reducing the payment per eligible animal from 52ECU to 36 ECU[3]. If it rose above 1.4LU the entitlement would be lost altogether. The Extensification payments do not have to be claimed - the calculations are made automatically - so it is very easy for a farmer to slip unwittingly from one level of payment to a lower level, or none at all. What makes it even worse is that if, when the calculations are made, the "regional ceiling" has been exceeded, the extensification payments will be reduced in proportion. This all sounds very complicated and uncertain but it serves to illustrate the sort of dilemma a farmer can be in when faced with the decision whether to convert forage area to ungrazeable woodland.

5.2.3. Could new native woodlands be grazed?

Once an area is removed from the forage area it is gone for ever. Or is it? It is conceivable that some woodlands, at some stage, could be grazed with benefit to both the livestock and the woodland. In certain circumstances grazing can help to promote natural regeneration, can encourage a diverse moss flora, or reduce the shrub layer so as to make a wood more attractive to Redstarts and Pied Flycatchers. Or some woodlands might be allowed to develop, in later years, into "wood pasture" where light grazing is essential to maintain their character. These are long term considerations which are perhaps hard for a farmer - whose livelihood depends on annual profits - to take into account. But in the context of long-term land use policies they are important aspects.

3.Based on the exchange rate at 1.1.98 these were £40.34 and £27.93 respectively.

5.3 The effect on ESA Agreements

The creation of new woodland on land subject to ESA payments is yet another area of uncertainty and confusion. In neither the Clun nor the Shropshire Hills is there a Tier for woodland creation. This is because the WGS/FWPS are available. The problem is that if an area receiving ESA payments is converted from, say, Reversion Grassland to woodland the payments would cease. Worse still, past payments could, in theory if not in practice, be clawed back. The net effect would depend on the particular circumstances. The problem is that this is yet another financial and administrative complication to be taken into account before a prudent decision can be made.

These sorts of economic considerations are made even worse by the fact the schemes, the rules and the levels of payment all tend to change unpredictably.

5.4 So why plant at all?

So long as these vital incentives are so closely geared to production (of livestock), most farmers will be understandably reluctant to voluntarily reduce their forage area or their livestock numbers. This seriously limits the amount of new woodland that will be created, of any type, and particularly inhibits the planting of native woodland because the potential for realistic financial return is so low. Hence the finding of this study that all the potential planting schemes were for altruistic reasons.

Unfortunately, the study throws no light on how widespread such altruistic attitudes are among Shropshire hill farmers in general. But the fact that rather few new native woodlands are being created speaks for itself. Even within the ten cases examined - all of which were keen to plant native woodland - those willing to plant the most were either part-time, pensioned or absentee owners. Each of the full-time farmers, irrespective of size, was being more cautious. Indeed there is some evidence (but not from the ten samples) that non-farming purchasers of redundant farmhouses, sold off with a paddock or two as a result of farm rationalisation, are much more likely to plant woodland than farmers themselves. Despite the limitations of this present study it is quite clear that if farmers are expected to contribute towards the Biodiversity targets for new native woodland creation there must be better incentives, fewer complications and a switch from production payments to land management incentives. This implies a drastic revision and extension of the ESA concept.

5.5 The role of the Local Authority

No mention has yet been made of local authority involvement despite the fact that the study area is an AONB. In fact the Shropshire County Council is very concerned with countryside policy and management in the hills. It puts Objective 5b money into a variety of projects including Rural Action, a Free Trees Scheme and the encouragement of nursery-production of trees and shrubs of local provenance. It is also involved with Countryside Stewardship. However none of those activities appear to contribute significantly to new woodland planting, though the trees of local provenance scheme is very important and deserves encouragement. Unfortunately the SCC's Draft Woodland Guidelines are still in draft and their proposed Indicative Woodland Strategy has been abandoned. SCC is actively seeking funds from the

Heritage Lottery Fund for AONB management but has not applied for Millennium Funding. It remains to be seen whether the impending merger of the Countryside Commission and the Development Commission will affect these issues.

5.6 Demonstration sites

Lastly there is the question of whether any of the proposed new woodlands might be used as demonstration sites. This was not specifically discussed with all of the owners but it is a possibility. Several of the sites would be unsuitable on account of access problems but others might be easier and there are two that would be particularly suitable.

6. Conclusions and recommendations.

6.1 The greatest obstacles to new woodland creation are reluctance to reduce the forage area, and fear of loss of Area Aid payments including Extensification. If any areas that are taken out for woodland creation could be kept in the"forage area" for, say, 15 years, this would avoid the need to reduce stock and avoid the need for recalculations. However, the fundamental problem would remain i.e. that payments are linked to production.

- **Recommendation: Government should seek to switch from production-based payments to management incentives. These should be sufficiently attractive to encourage all farm businesses to apply, thereby avoiding the need for compulsion.**

6.2 Similarly, where a farm has entered an ESA scheme, there is concern over loss of payments and the possible claw-back of past payments if land is converted to woodland.

- **Recommendation: ESA rules should be reviewed to make sure that there is sufficient encouragement to create new woodland <u>where this does not conflict with other environmentally important features or habitats.</u>**

6.3 Despite the financial help that is available the net cost of planting is too high for most farm businesses, especially when hill-farming is suffering financially.

- **Recommendation: WGS/FWPS payments should be significantly increased**

6.4 In order to meet the Biodiversity targets for new native woodland planting the financial incentives should be better targeted.

- **Recommendation: The <u>Locational Supplement</u> should be made available in the Shropshire hills and the <u>Challenge</u> scheme should be amended to include new planting.**

6.5 The cost of creating new woodland varies considerably from site to site. Although the smaller numbers of trees/ha which are usually acceptable for planting native woodland helps to reduce costs, planting is still often more expensive in difficult terrain. Grants should more closely reflect the costs.

- **Recommendation: Grants should be paid on the costs rather than on the area.**

6.6 Many farmers obtain firewood for their own use off the farm - often by felling old hedgerow trees. To meet their needs, to encourage the planting of woods for commercial firewood production, and to help to reduce the loss of old trees which are important for wildlife and landscape, schemes should encourage the planting of native woodlands for firewood production by rotational coppicing. At present FWPS payments are not given for coppiced woods (unless managed for "conservation" objectives).

- **Recommendation: Modify the FWPS rules to allow payments for woods managed wholly or partly by coppicing for firewood production and other coppice products (but not "energy coppice").**

6.7 More farmers might be encouraged to plant new woodland if they thought that the woodland might possibly be grazeable in future years. EN has published a booklet which describes the circumstances in which upland woods can benefit from occasional or low-level grazing but few farmers seem aware of the possibility. Although the FWPS rules do admit the possibility that new woods might, after harvesting, be returned to agriculture, the possibility of grazing is not mentioned.

- **Recommendation: The FWPS rules should be amended to indicate the possibility of grazing new woods and MAFF/FC/EN should make greater efforts to inform owners of the circumstances in which grazing can be beneficial to woodlands. The possibility that some new woods might, in the long term, be managed as "wood pasture" should be included.**

6.8 The success of the Marches Woodland Initiative has shown that there is still a considerable latent demand for affordable help and advice on the part of farmers and other owners in the Welsh borders notwithstanding the various agencies and organisations [See Appendix 2] which already operate there. These all give excellent advice in their respective fields but the owner is left to assimilate information that is frequently confusing and conflicting.

- **Recommendation: An advisory service should be provided to give clear, authoritative advice on all aspects of farm woodland creation and management including all the financial implications vis-à-vis the grant schemes, farm subsidies and ESA payments.**

6.9 There is still considerable ignorance about the value and benefit of native woodland.

- **Recommendation: FC and MAFF, with the support of EN, should mount a campaign to publicise the needs and opportunities for native woodland creation, stressing the environmental benefits, the long-term production potential and the financial help that is available.**

Acknowledgments

The Project Team is very grateful to all the owners and occupiers who spared the time to be interviewed and especially to those who agreed to planting schemes being prepared.

Particular thanks are also due to Lucy Roberts and Tony Phillips (FRCA Officers for the Shropshire Hills and Clun ESAs); to Steve Scott and Steve Cresswell (Forestry Authority); John Kerr (Marches Woodland Initiative); John Hughes and John Blessington (Shropshire County Council); Alison Jones (Shropshire Farming and Wildlife Advisory Group); and Andrew Hearle(English Nature).

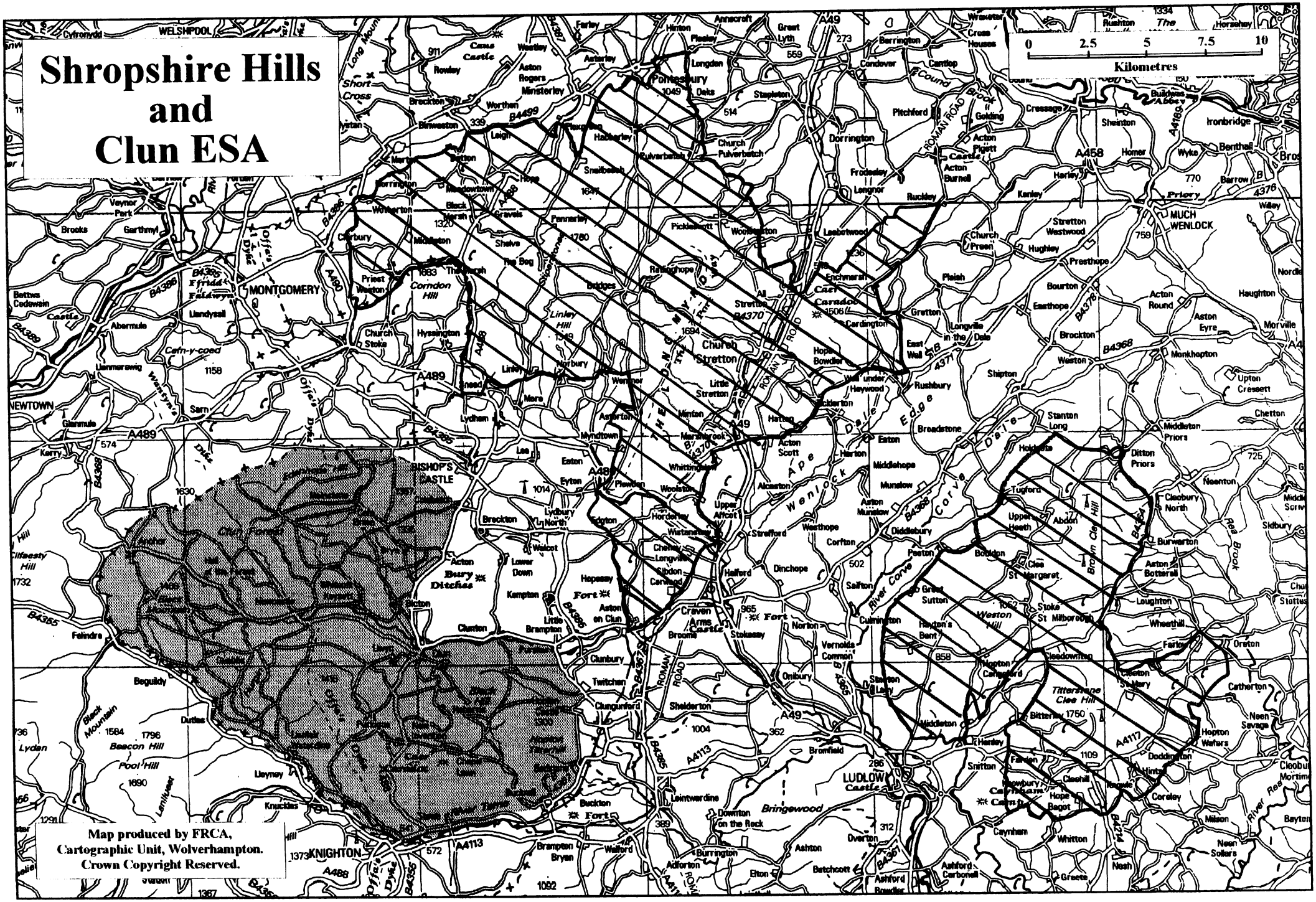
Shropshire Hills
and
Clun ESA
0 2.5 5 7.5 10
Kilometres
Map produced by FRCA,
Cartographic Unit, Wolverhampton.
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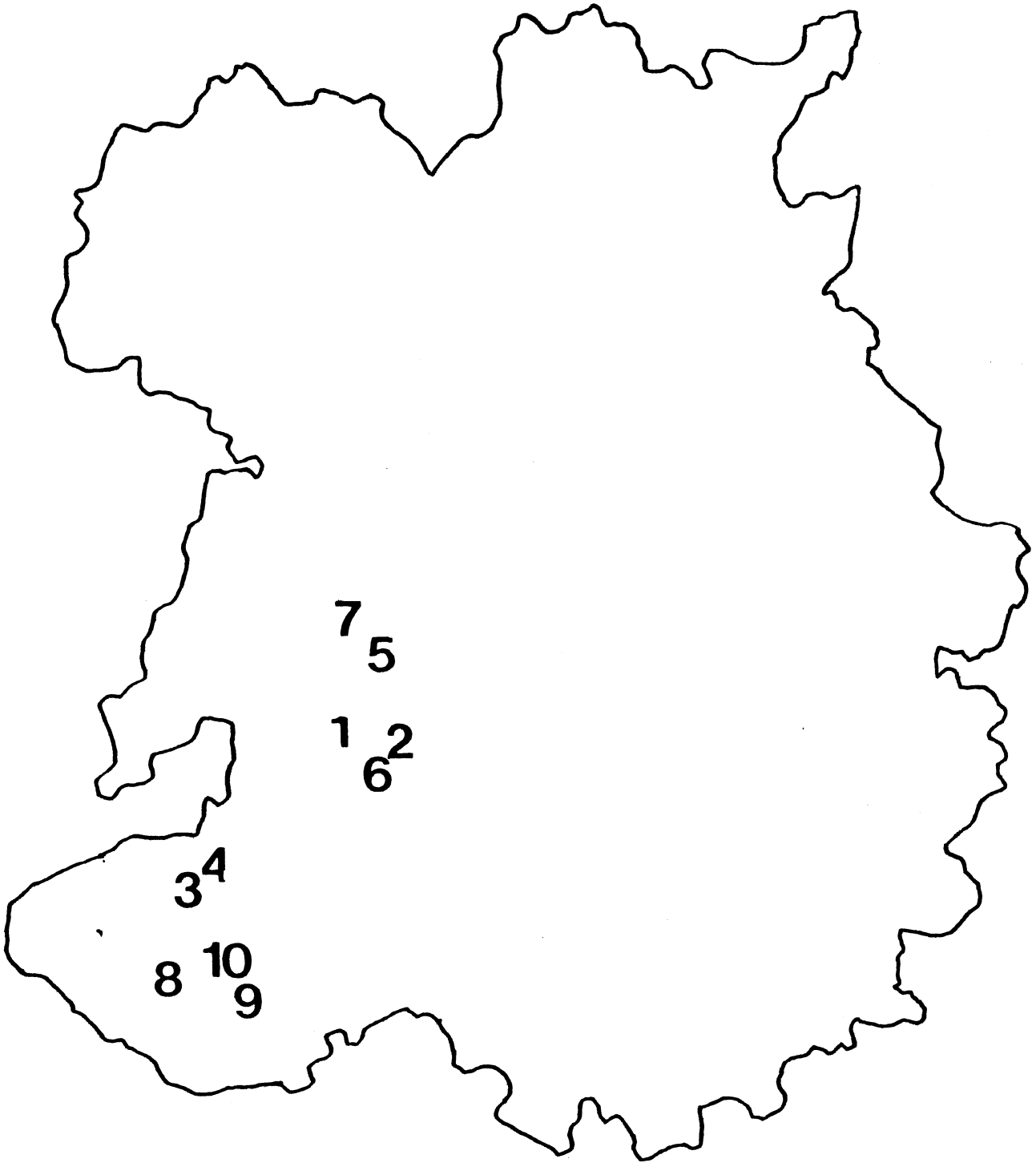
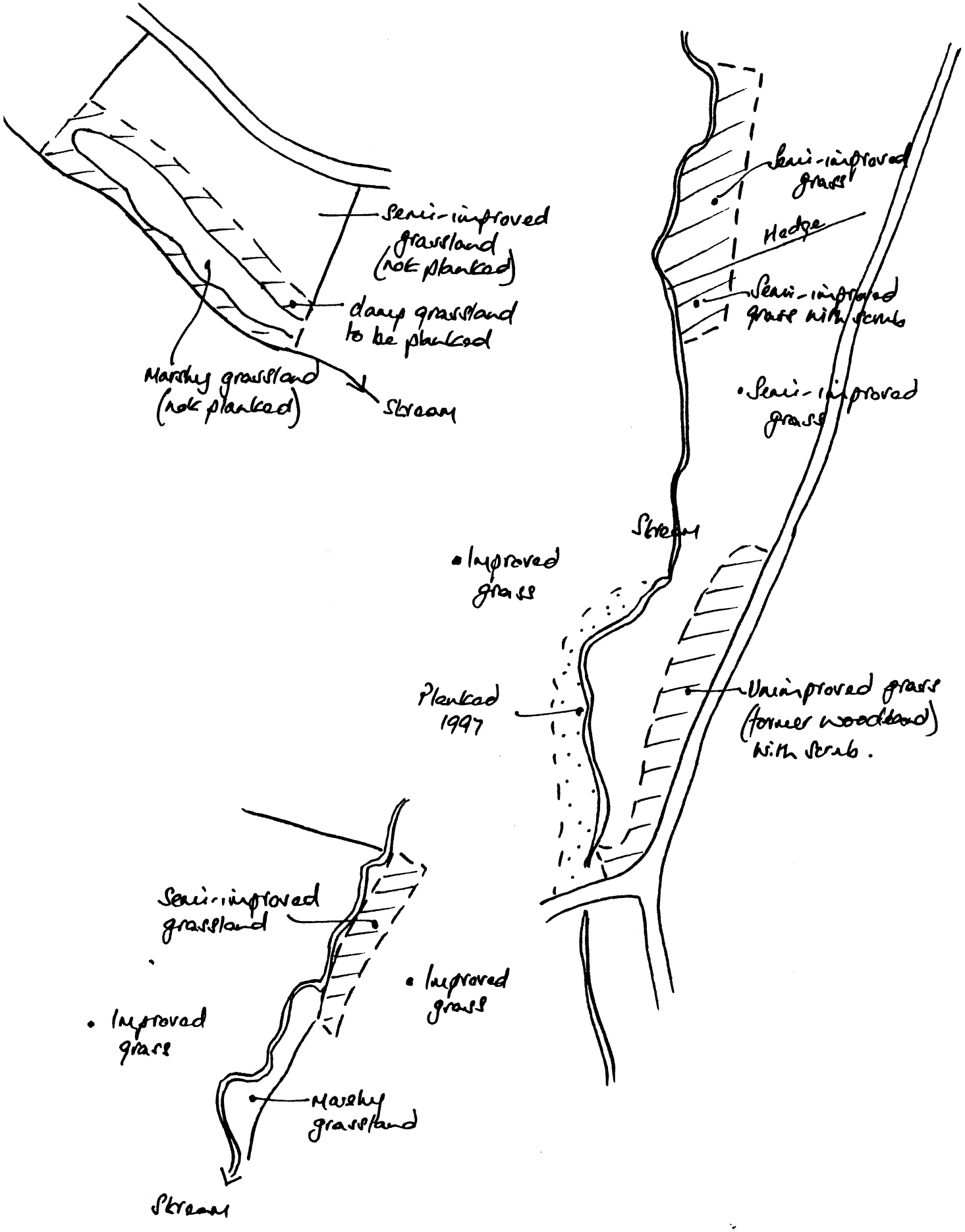
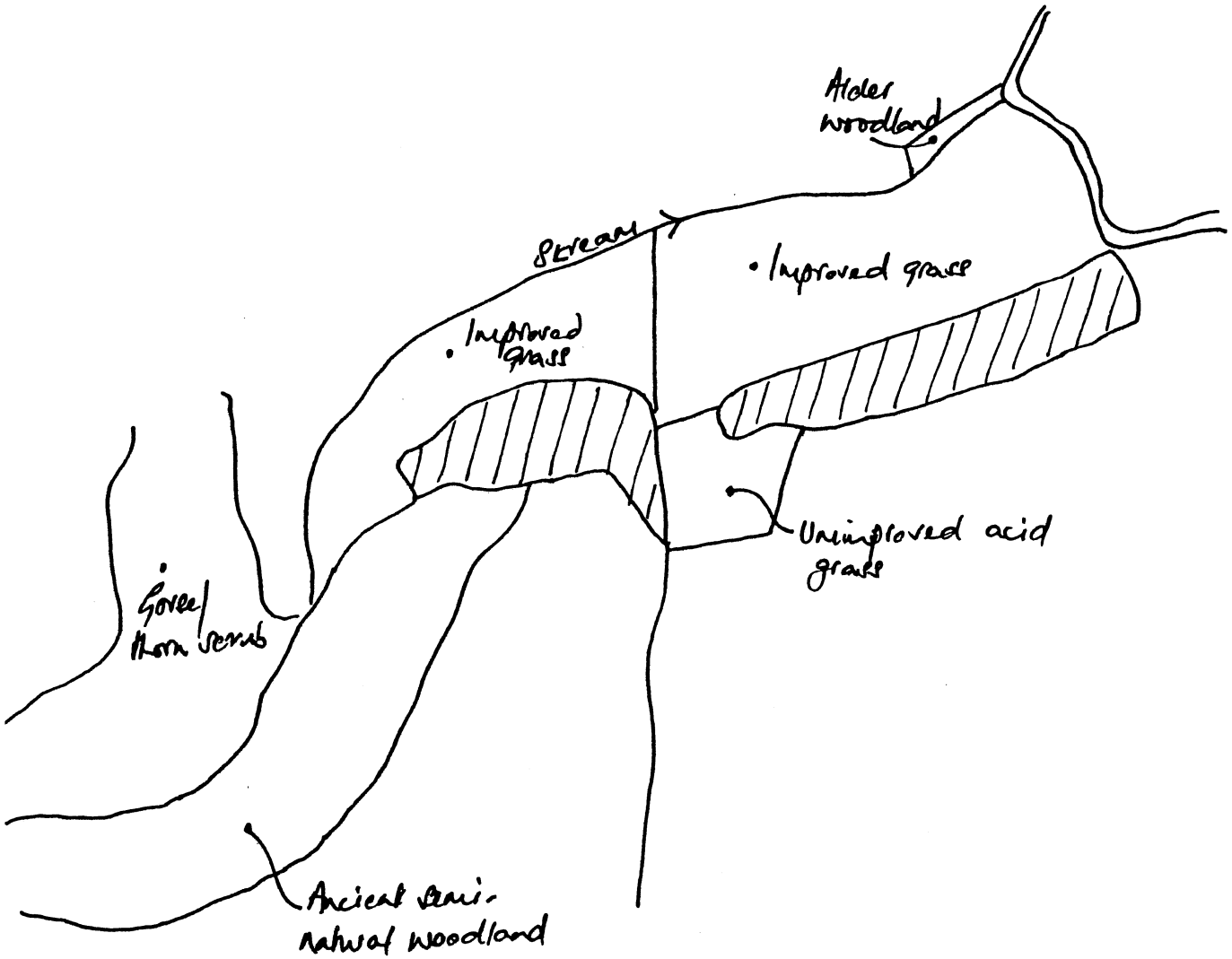
Figure 1

Distribution of sites

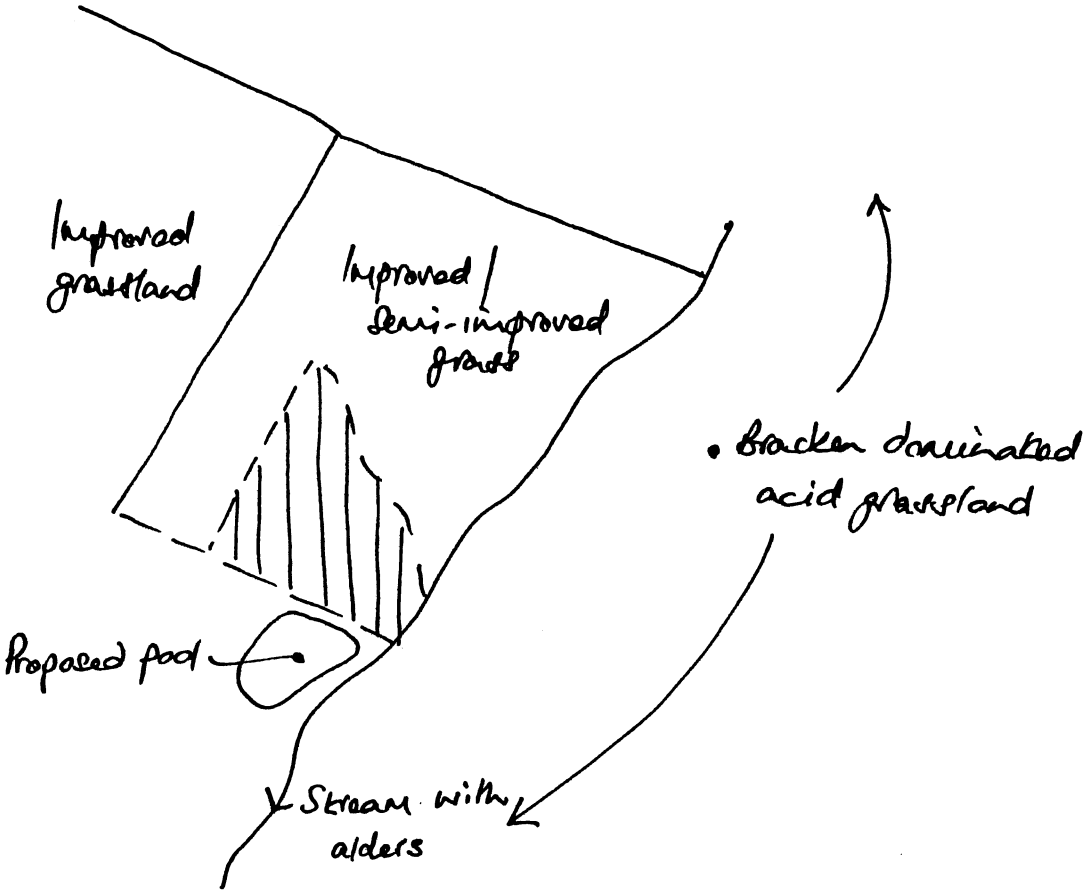



Semi-improved grassland (not planted)
damp grassland to be planted
Marshy grassland (not planted)
Stream
Semi-improved grass
Hedge
Semi-improved grass with scrub
Semi-improved grass
Stream
Improved grass
Planted 1997
Unimproved grass (former woodland) with scrub.
Semi-improved grassland
Improved grass
Improved grass
Marshy grassland
Stream

SITE 1a-d

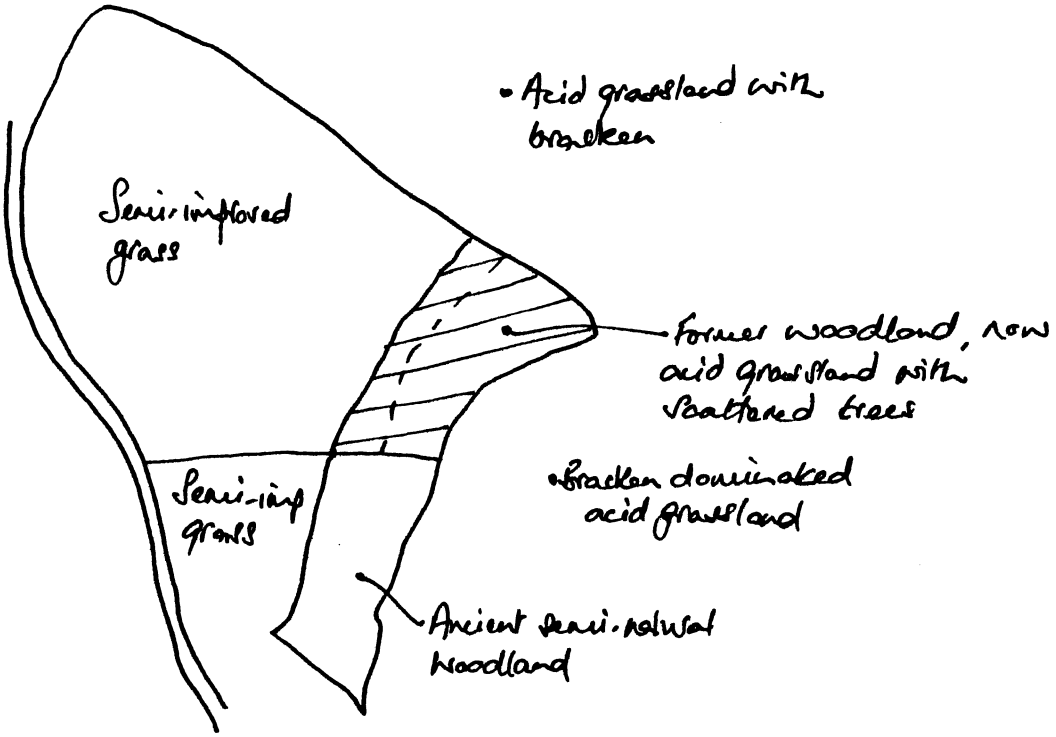

Alder woodland
Stream
Improved grass
Improved grass
Unimproved acid grass
Gorse/ thorn scrub
Ancient semi-natural woodland

SITE 2a,b

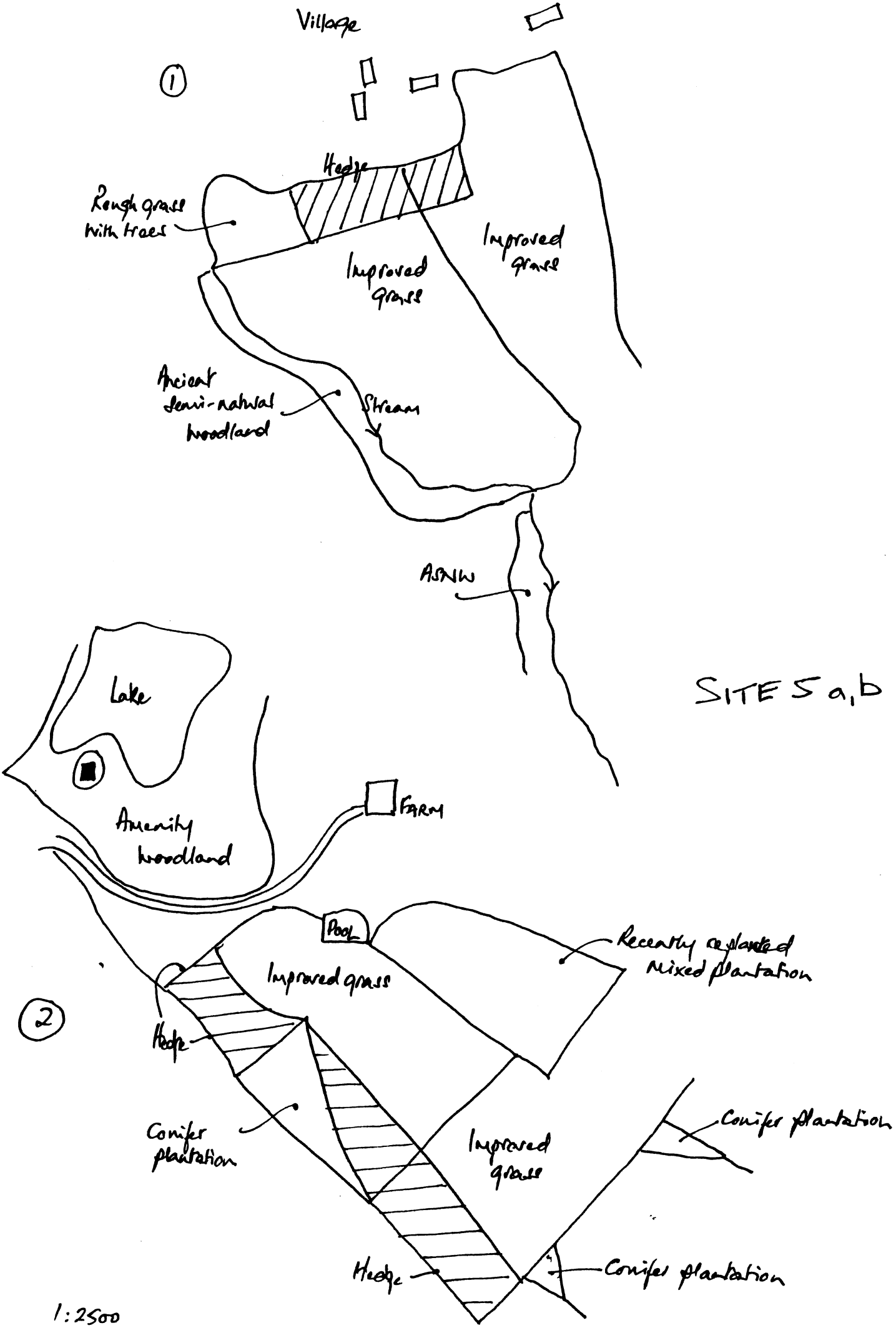

Improved grassland
Improved / Semi-improved grass
Bracken dominated acid grassland
Proposed pad
Stream with alders

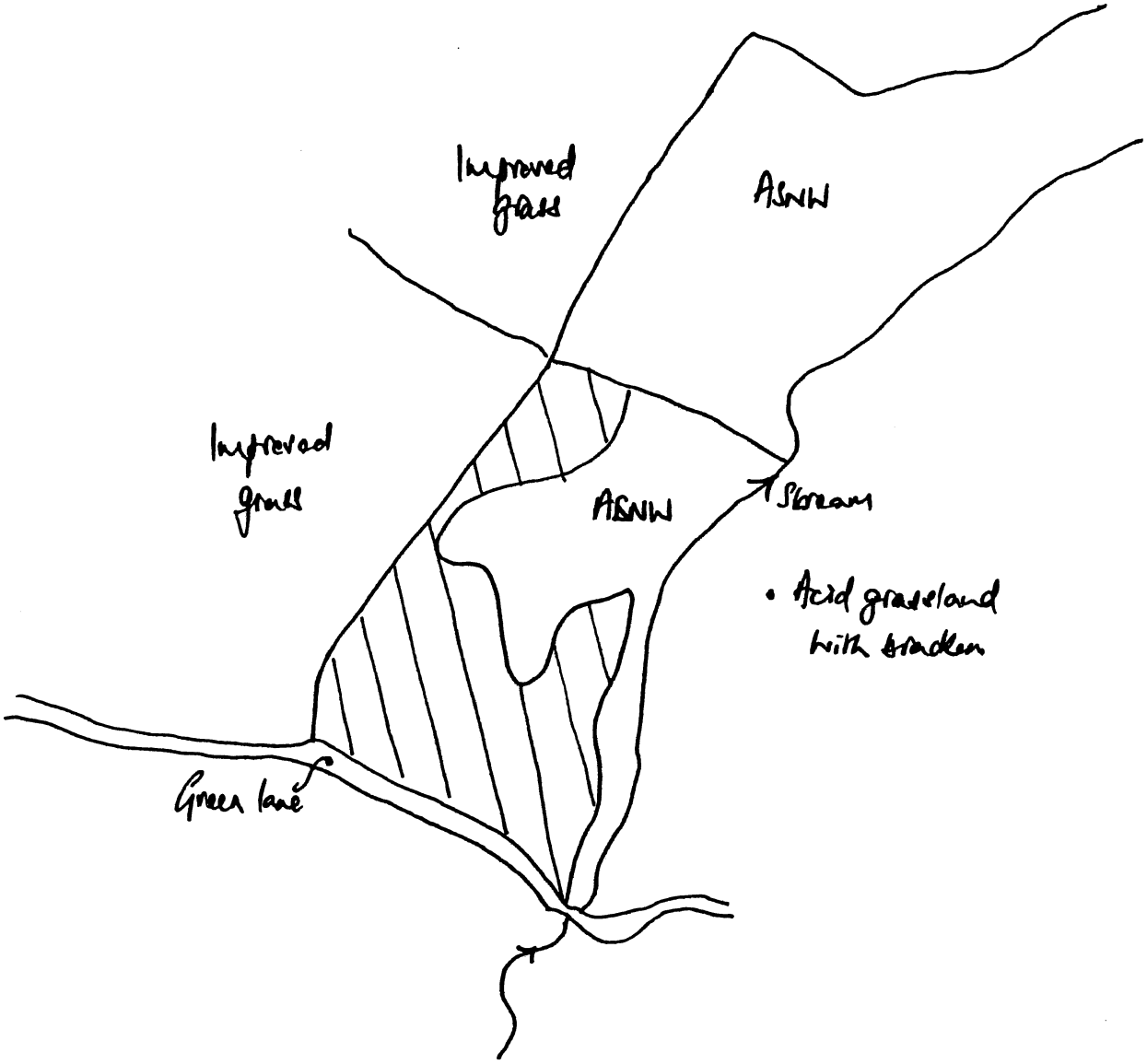
N.T.S.

SITE 3


Acid grassland with bracken
Semi-improved grass
Former woodland, now acid grassland with scattered trees
Bracken dominated acid grassland
Semi-imp grass
Ancient semi-natural woodland

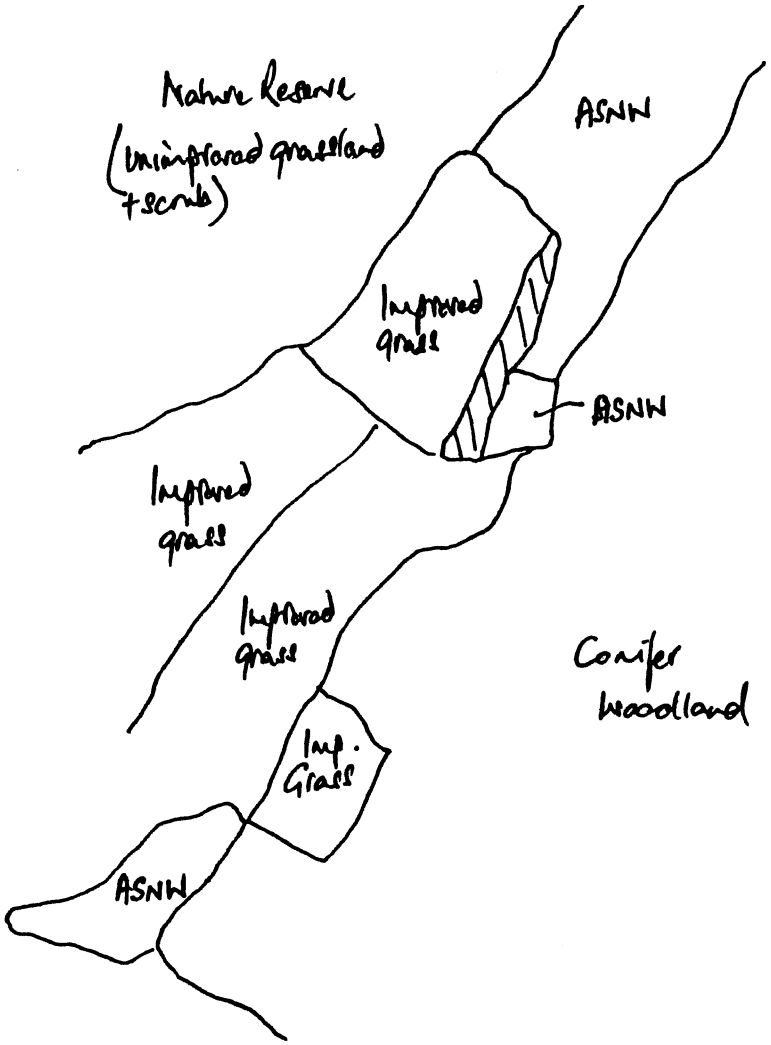
SITE 4


Village
1
Hedge
Rough grass with trees
Improved grass
Improved grass
Ancient semi-natural woodland
Stream
ASNW
SITE 5 a, b
Lake
Amenity woodland
FARM
Pool
Recently replanted Mixed plantation
Improved grass
2
Hedge
Conifer plantation
Improved grass
Conifer plantation
Hedge
Conifer plantation
1:2500



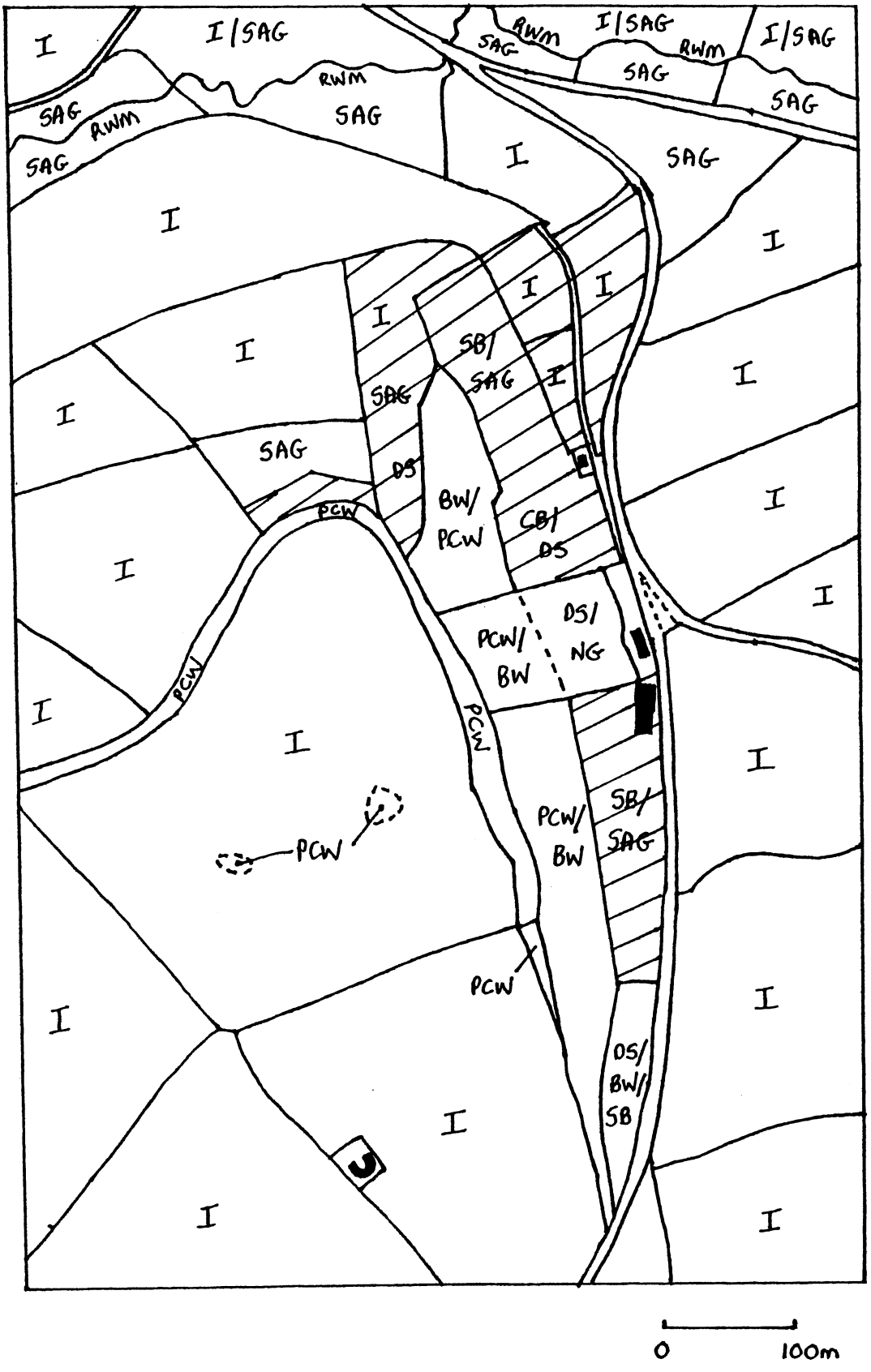
1:2500

SITE 6a


Nature Reserve
(unimproved grassland + scrub)
ASNW
Improved grass
ASNW
Improved grass
Improved grass
Conifer Woodland
Imp. Grass
ASNW

1 : 5000

SITE 7



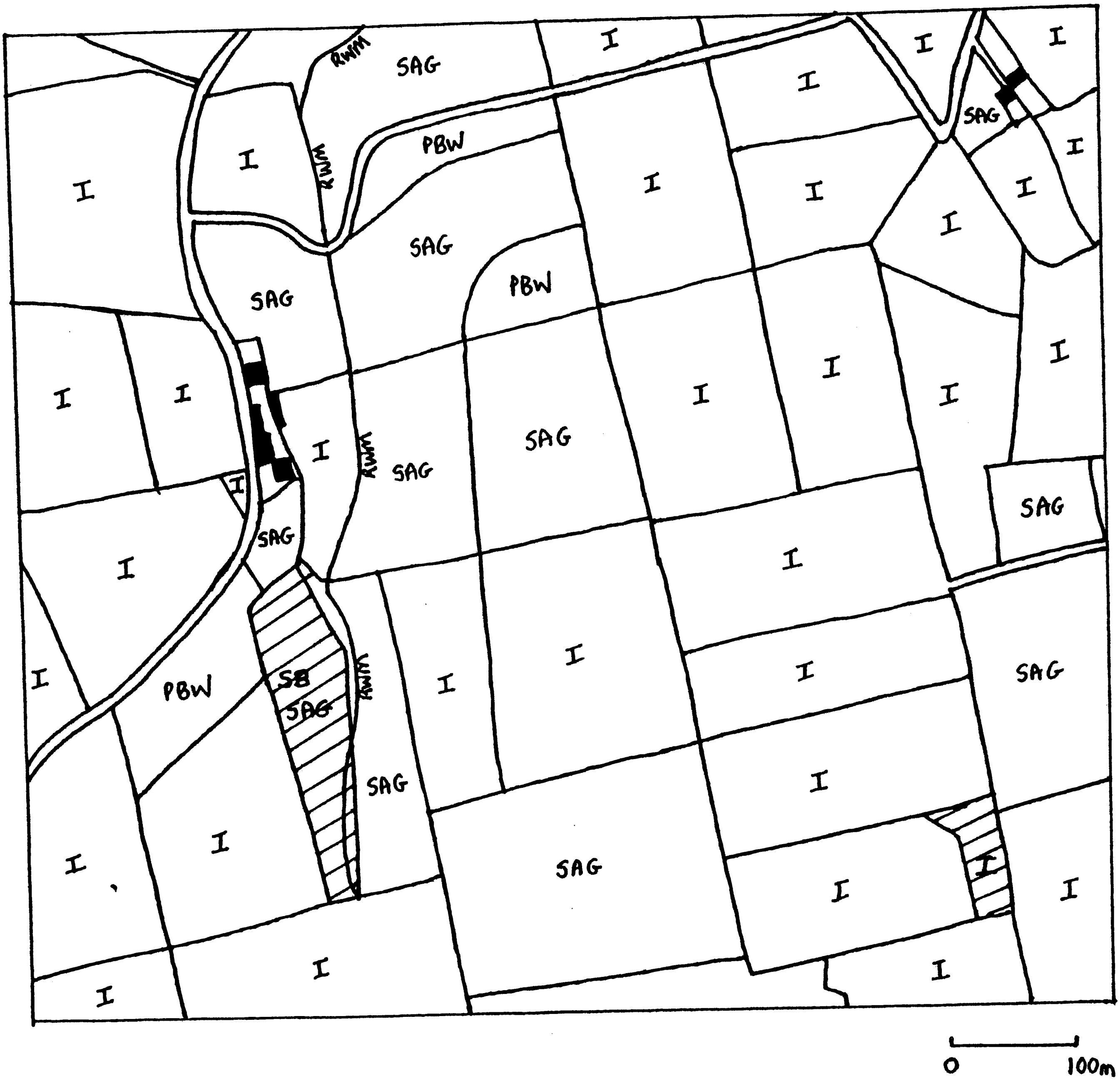
ROADSIDE HEDGES = RH / RHT

INTERNAL BOUNDARIES MAINLY = PH / PH- / PHT

HATCHED AREAS PROPOSED NEW WOODLAND

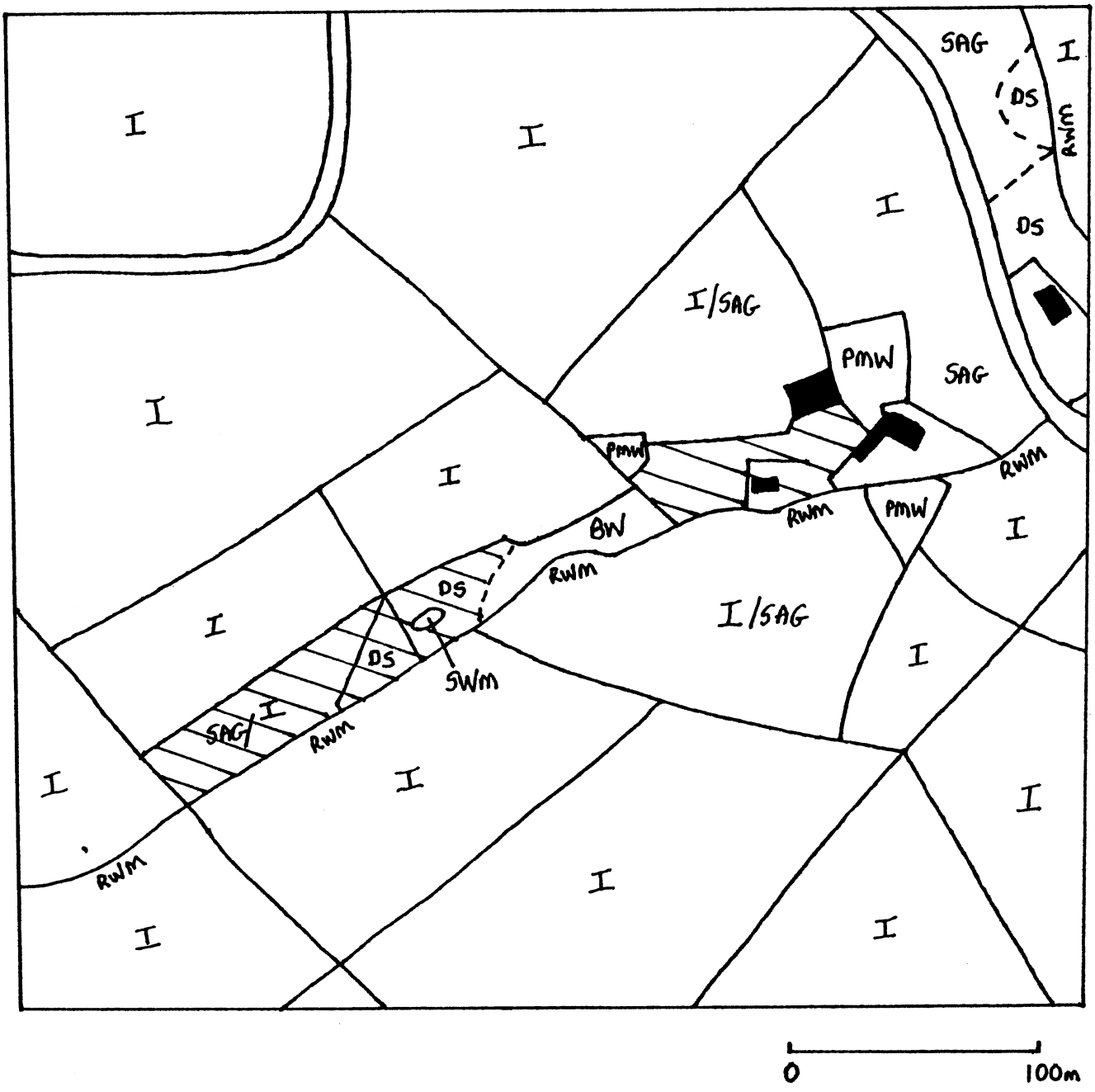
LARCH SHELTER BELT = LONG NARROW STRETCH OF PCW

SITE 8



ROADSIDES HEDGES = RH | RH- | RHT
INTERNAL HEDGES = PH | PH- | PHT
HATCH AREAS PROPOSED AREAS FOR NEW WOODLAND
PBW = EXISTING NEW PLANTINGS

SITE 9a,b



ROADSIDE HEDGES = RH/RHT

INTERNAL HEDGES = PH/PH-/PHT

YOUNG PLANTATIONS = PMW

HATCHED AREAS · PROPOSED NEW WOODLAND

SITE 10

Appendix 1

Your name: *Your phone number:* *Your organisation*

New native woodland in the Shropshire uplands

Selection of possible sites

Please give the following information about potential sites for woodland expansion that you are aware of:

1. Location of site: *(six fig grid reference) (must be within the Clun or Shropshire Hills ESA)*

Approximate altitude if known: Map attached? YES/ NO

'OWNER'* INFORMATION

2. 'Owner' details: *(name and contact details)*

*Is this person the *(circle)* owner/ manager/ tenant/ other.....?

3. Previous contact with owner/ manager made by: *(circle if YES, underline if DON'T KNOW)*

FRCA, FA, Marches Woodland Initiative, other.....?

4. Is the owner involved with existing land management schemes? (Eg CSS, ESA, WGS)

YES NO DON'T KNOW *Give details:*

5. Has woodland expansion been discussed with the owner? *(circle)*

YES NO DON'T KNOW *Notes:*

6. How interested is the owner/ manager in creating native woodland on their land? *(circle)*

Very interested Moderately interested Not interested but might be persuaded

Not interested Don't know *Notes:*

7. Are there any major constraints to land-use management or change that you know of?
Eg existing planning permission, unco-operative landlord etc

YES NO DON'T KNOW *Give details:*

SITE INFORMATION

1. What is the likely potential for new native woodland at this site?

- Area:*(Circle)*
  <2ha 2-5ha 5-10ha >10ha Other..... DON'T KNOW

Please indicate *(circle)* whether this might be in small parcels or in one or a few larger blocks.

- Is the land on which the wood could be created...? *(circle)*

unimproved pasture/ arable/ semi-natural heath or moor/ former or degraded woodland/ replanted woodland/ other.....
Notes:

- Adjacent land uses: *(circle relevant categories/ give details where known)*

directly adjacent to possible creation sites:

native woodland (<5ha/ >5ha)/ other woodland/ hedgerows/ unimproved pasture/ arable/ heath or moor/ water features/ other...../ don't know
Notes:

within 500m of possible creation sites:

native woodland (<5ha/ >5ha)/ other woodland/ hedgerows/ unimproved pasture/ arable/ heath or moor/ water features/ other...../ don't know
Notes:

- Could the new woodland help address woodland fragmentation by joining existing woodland blocks?

YES NO POSSIBLY DON'T KNOW *Notes:*

2. Is any part of the site a Site of Special Scientific Interest/ Historic Monument/ other designation?

YES NO DON'T KNOW *Give details:*

Many thanks for completing this form. Please return to: John Thompson, Shotton Cottage, Godings Lane, Harmer Hill, Shrewsbury SY4 3HB by July 31st at latest.

Appendix 2

Incentives for Creating New Native Woodland in the Shropshire Hills: Site Questionnaire

*(this part to be completed by **site owner/ manager**)*

Your name and contact details:	Date: Site name: Advisor's name:
SOME OF THE INFORMATION YOU PROVIDE MAY BE USED TO COMPILE A REPORT. YOUR NAME AND ADDRESS WILL BE TREATED IN STRICT CONFIDENCE AND NOT REVEALED WITHOUT PRIOR CONSULTATION WITH YOU.	

Map - Please draw a sketch map of the holding, and mark on features as indicated by the questionnaire.

This questionnaire is about your existing farm business and interest in woodland.

Your existing farm business

1. Are you the: *(Circle all appropriate terms)*

owner	manager	tenant	agent	other

2. Area of land holding: *(Circle catagory, and give accurate area if known)*

<50ha	50-100ha	100-250ha	>250ha

3. Type of farm business: *(Circle catagory and give further details, if possible)*

Livestock	Arable	Mixed	Other (eg forestry)

4. What is your main source of income? *(Circle & give additional information if possible)*

Farm business	Other job or business

5. Have you had previous contact with: *(Circle all appropraite terms and give date if known)*

	FRCA	FA	FWAG	MWI	EN	Wildlife Trust	Other
Date:							

6. Are you involved with existing environmental land management schemes (including for woodland creation/ management)? *(Circle all appropraite terms, and give further info. if known)*

	CSS	ESA	WGS	FWPS	Local Authority	Other
Date started:						
Area (ha):						
Work done (brief):						
(Outline which areas are covered on sketch map)						

7. What is your opinion of these schemes? *(Circle and give more info where possible)*

Which scheme? *(Repeat section overleaf if > 1 scheme)*.....

Applications: **straightforward** **complex** **help given** **not enough help given**

Advisory and follow-up services: **very good** **adequate** **poor**

Payment rates: **covers costs** **inadequate** Reasons:

Would you enter a similar scheme again? **Yes** **No** **Why?**.....

Any suggestions to improve the scheme?

(Continue overleaf if necessary..)

Your present woodland and its management

8. Existing woodlands (including copses) on the holding: *(Outline on sketch map)*

Total area(ha) of woodland:	**<1ha**	**1-5ha**	**6-10ha**	**11-20ha**	**over 20ha** .....?
Number of individual woodlands:	**1-5**		**6-10**	**over 10**.....**?**	

9. Existing woodland types: *(Outline on sketch map)*

What proportion are:	**broadleaved**	**conifer**	**mixed**
Are any woods on the ancient woodland inventory?	**Yes**	**No**	**Don't know** *(Circle and Give details, if known)*
Have any new woods been created in last: **5**	**10**	**20** years *(Circle and give 'type' if known)*	
Type:			

10. Are the woods valued for: *(Circle and give further details, where possible)*

game shooting	**hunting**	**amenity**	**landscape**	**stock grazing/ shelter**	**wood products**

11. Woodland management: *(Circle)*

How many of the woods are actively managed?	**All**		**Some**	**None**
What are the wood products?	**Timber**	**Firewood**	**Coppice**	**Other**.....
Is management by:	**Own labour**	**contractors**		**other**.....

12. What are the main reasons that some woods are not managed? *(✔ all appropriate answers)*

- Too small to produce marketable products
- No markets for products
- Not enough woodland management experience/ advice not available
- Deliberate non-intervention for wildlife or other reasons
- Too expensive
- No spare labour
- Deer/ livestock cause problems for regeneration
- Lack of interest
- Other.....

13. Would you like to be sent a copy of any report arising from this information? *(Circle)* **Yes/ No.**

Thank you very much for taking the time to complete this questionnaire. Please return it to the woodland advisor who contacted you.

Incentives for Creating New Native Woodland in the Shropshire Hills: Site Questionnaire

*(this part to be completed by **advisor** in discussion with site owner/ manager)*

Site name:	Date:
Owner/ manager:	
Advisor name:	

Note: Part A of the questionnaire relates to the existing farm business and interest in woodland, and should have been completed by the land owner/ manager.

Part B Reasons for investing in new woodland

Section B1 Reasons for creating woodland

B.1.1 Why is the interviewee considering new woodland? *(✔ all appropriate answers, give further details if known)*

- Farm business diversification
- Wood products
- Livestock shelter
- Game shooting
- Amenity use
- Landscape improvement
- Wildlife habitat
- Rationalisation of fields
- Other

B.1.2 Having explained what new ***native*** woodland is (*cf* plantations of native species), does the interviewee consider that new ***native*** woodland can meet their needs? *(Circle / explain)*

Yes	No	Why?

B.1.3 What are main factors limiting *native* woodland expansion at this site? *(✔ and give details)*

- tenancy status
- availability / amount of grants
- owners wishes/ lack of management knowledge
- physical / ecological factors
- lack of markets for products
- conflicting land uses

Section B 2 Details of the potential new native woodland site/s

B.2.1 Location and description *(complete for all new native woodland sites on land holding)*

Grid reference of centre (Including 10 km sq):		Location: (eg valley side, hill top etc)
Proposed area (ha):	Angle of slope:	Altitude(m):
Geology, soils, drainage:		

B.2.2 What is the existing vegetation/ ecological interest on the site like?

Phase 1 survey type:

NVC type:

Are scare, rare or vulnerable species (especially BAP-listed species) known from this site, or likely to be here? (Plants, mammals, birds, reptiles etc). If so which ones:

Description: ie principle species, vegetation communities, the structure of the vegetation, and any obvious impacts (eg grazing levels, artificial drainage effects, etc).

An additional, more detailed, sketch map/ plan may be useful

B.2.3 What are the current land uses/ values of the potential site(s)? *(Circle and give details)*

	arable crops	**meadow**	**pasture**	**game shooting**	**amenity**	**other**
details:						

B.2.4 Designations - is the proposed new woodland site a: *(Circle relevent desigs.)*

SSSI	**Scheduled Ancient Monument**	**AONB**	**ESA**	**Local Nature Reserve**
SNCI (local authority)	**ancient woodland (semi-natural/ replanted)**		**former ancient woodland**	
other?				

B.2.5 Other considerations - to what extent might the following affect any proposed new woodland?

	Give details
Landscape considerations:	
Public access:	

B.2.5 Landscape ecology context.

Outline on the map the proposed site(s) in relation to other woodlands (distinguish between s/n and non-native) and areas of semi-natural vegetation (s/n grassland, moor, heath, wetland etc) and linear semi-natural connections (eg hedges, streams etc). Give approximate distances between the site and these features.

B.2.6 Vision.

Describe what you/ the owner hope the site will look like in 10 years time (draw a sketch if necessary) [eg woodland NVC type, structure (coppice/ high forest/ scrub edge etc)], and how it will contribute to nature conservation and socio economy of the area:

Section B3 How you propose to create the new woodland and manage it

B.3.1 Would the new native woodland be created by?: *(Circle)*

planting	**natural regeneration**	**mixture of both**

B.3.2 New woodland design- What would be appropriate woodland design for this site, including:

(Please give brief details ie following guidance in FC Bulletin 112)

Appropriate for site?

- ground preparation requirements
- species mixture
- source of any planting material
- spacing and planting design
- tree protection etc?

B.3.3 If the manager has a design plan/ ideas already, how closely do they relate to above? *(Circle / give further information as necessary)*

Very closely	**Quite closely**	**Not at all closely**	**Not applicable**
AND	**Willing to amend in line with above**	**Not willing to amend**	

B.3.4 Who will do the establishment work? *(Circle all relevent sources)*

own labour	**agricultural contractors**	**forestry contractors**	**volunteers**	**other..**

Part C Socio-Economics of woodland creation

Section C1 Costs and funding

C.1.1 Provide an estimate of the likely direct costs of the scheme over first 5 years: *(state whether cost per ha or m, or total cost)*

	materials	**labour**
ground prep		
planting		
weeding		
protection/fencing		
other		

C.1.2 Would the interviewee be interested in applying for financial assistance? *(Circle and say why)*

Yes	**No**	**Don't know**	**Why?**

C.1.3 What financial assiatance likely to be available from: *(✗ if not available)*

	% of costs covered?
WGS	
FWPS	
FA Challenge	
LEAP	
ESA	
MWI	
local authority	
other?....	

C.1.4 Is income anticipated from

	Yes/ No	**When?**	**How much?**
Timber, coppice, firewood			
Game and sporting			
Other.....			

Section C2 Effects on existing farm business

C.2.1 If the scheme proceeds, will there be a change in any existing agricultural payments?

		Details if known:		
Hill livestock compensatory allowance	**Yes**		**No**	**Don't know**
Suckler cow premium	**Yes**		**No**	**Don't know**
Sheep annual premium scheme	**Yes**		**No**	**Don't know**
Beef special premium	**Yes**		**No**	**Don't know**
Extensification payment	**Yes**		**No**	**Don't know**
Other....				

C.2.2 Would there be a change in the production of crops or livestock?

		Details if known:		
Short-term (next 5 years):	**Yes**		**No**	**Dont Know**
Long-term:	**Yes**		**No**	**Dont Know**

Section C3 What are the chances of the scheme progressing?

C.3.1 Please give your impression based on the circumstances and your interview, of whether the scheme is likely to proceed, and when. If so, why? If not why not?

Thank you for completing this questionnaire. Please return to John Thompson.

Sketch map of holding (by advisor)

Appendix 3

Agencies and organisations advising farmers and landowners on the creation and management of woodland in the Shropshire Hills:

Forestry Commission/Forestry Authority

Marches Woodland Initiative

MAFF/FRCA

English Nature

Shropshire County Council

Farming and Wildlife Advisory Group

Shropshire Wildlife Trust

South Shropshire Countryside Project

Woodland Trust

Independent advisers and consultants

NEW NATIVE WOODLAND IN CUMBRIA:

LAKESHORE TO MOUNTAIN TOP

(CONTRACT NO: VT981)

FINAL REPORT

Edward Mills
Cumbria Broadleaves
January 1999

New Native Woodland in Cumbria:
Lakeshore to Mountain Top

Preface

This contract is being carried out by Cumbria Broadleaves (CBL) and was started on its award in late April 1998. The contract is funded by English Nature. The contractor would like to acknowledge the help of the following organisations and individuals:-
The landowners in the project area
English Nature HQ and Kendal office, (Chris Reid and Karen Sampson)
Forestry Commission (Kit Brown and Jim O'Neil)
FRCA (Tony Graham)
Lake District National Park Authority (Bob Cartwright, Alan Fishwick, John Hodgson, Iona McDonald, Phil Taylor, Guy Weller)
National Trust (Judith Derbyshire and Fiona Southern)

1. Contents

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2. Introduction

2.1 The strategic framework.

To encourage appropriate native woodland creation the Forestry Commission have developed a Challenge Fund for establishment of New Native Woodlands in National Parks in England. The fund can provide up to 100% funding for native woodland establishment schemes in the National Parks. This has built upon the national Accord on Native Woodland in National Parks which was pioneered in Cumbria with the Local Accord on Native Woodland in the Lake District National Park. This was agreed in 1995 by the Forestry Authority, English Nature, Lake District National Park Authority, Ministry of Agriculture, Environment Agency, Forest Enterprise, The National Trust and North West Water. Work for English Nature has indicated the potential scope for woodland creation in the English uplands and the kind of locations where it would be most appropriate.

2.2 The Good report

This work was published as Good et al in 1997, entitled "*Developing New Native Woodland in the English Uplands*", English Nature Research Report No. 230. One of the areas of study included in this work was the south west Ullswater area of the lake District, located between Ullswater and Helvellyn, concentrating on the valley of Glenridding. The Good report recommends that creation of new woodland might be possible on a total of 76 ha stretching from Ullswater to the cliffs below Helvellyn without any net conservation loss, with much of the woodland being created on areas of bracken.

There are a number of quite specific suggestions for woodland expansion. These include an extension to Great Close Wood on the slopes of Glenridding Dodd, encouragement of hawthorn scrub below Heron Pike and a flat area near Red Tarn at an altitude of well over 600m (2,000ft). The report did not however take into consideration the practical difficulties of being able to establish any new woodland in Glenridding .

This area has also been studied in detail during the mid 1990s as part of the Helvellyn Management Plan (LDNPA 1997). This report made a number of woodland related recommendations, including the regeneration of Juniper woodland near Greenside mine, conservation of downy willow on the cliffs of Helvellyn, softening of hard plantation edges (probably referring to Glenridding and Grisedale), establishment of small scale woods and enhancement of woodland in Glenamara Park. There was no recommendation to create large scale new native woodlands.

2.3 The Lakeshore to Mountain Top Project - Location

The contract area covers the three valleys (from north to south) of Glenridding, Grisedale and Deepdale; the area totals about 3000ha. The valleys run mainly SW to NE resulting in slopes which face predominantly NW and SE; part of Glenridding runs E to W. Each of these valleys carries one or more farm steadings with improved pasture on the better land in the valley bottom. There are smaller unimproved pastures with mainly small areas of woodland within this lower area too. Above the improved pasture lie the intakes. These are areas which have been enclosed from the open fell and are mostly unimproved; they carry some woodland and scrub with bracken beds. Above the fell wall is the open fell with extensive areas of scree, crags, gills and moorland. The area above 2,000ft altitude amounts to approximately 900 ha.

The remnant ancient semi-natural woodland is dominated by ash (*Fraxinus excelsior*), rowan (*Sorbus aucuparia*), silver birch (*Betula pendula*), downy birch (*Betula pubescens*), holly (*Ilex europaeus*), hazel (*Corylus avellana*) and common alder (*Alnus glutinosa*). Other species represented include oak (*Quercus* sp.- some planted), bird cherry (*Prunus padus*), crab apple (*malus sylvestris*), willows (*Salix* sp.), elm (*Ulmus* sp.) and juniper (Juniperus communis). Introduced species include scattered sycamore (Acer pseudoplatanus) and plantations with scots pine (*Pinus sylvestris*), Sitka spruce (*Picea sitchensis*), larch (*Larix* sp.) and beech (*Fagus sylvatica*).

2.4 The key landowners and organisations

There are nine main landowners within the project area, one of which is a public owner, the Lake District National Park Authority. The area is covered by three commons. There are nine properties with rights of common, two of which are unused. There are three farms which lease rights of common or intake.

The key organisations with an interest in the area are as follows:
The Lake District National Park Authority - the whole area falls within the National Park.
English Nature - Almost all the fell land is designated as a Site of Special Scientific Interest.
FRCA - The project area is within the ESA and most of the land area is covered by ESA agreements.
Forestry Commission -The contract proposes to utilise the Forestry Commission's New Native Woodlands in National Parks Challenge Fund to create the new woodlands.

3. The project objectives

The aims of the project are to develop plans for new native woodland and to initiate its creation within the defined area. A further aim is to examine factors limiting woodland expansion and where the best opportunities lie.

A vision for new native woodland is to be developed in conjunction with stakeholders and encouragement given to landowners to apply for grant aid for the establishment of the new woodland and in particular to take advantage of the Forestry Commission's New Native Woodland in National Parks Challenge Fund. It is also hoped that this project would "develop and refine the principles and methodologies of Good *et al* through the practical experience gained from putting forward schemes...".

Ideally, a complete range of woodland types would be created (given the location of the project) "from Lakeshore to mountain top". Different establishment techniques should be used, ranging from use of various techniques for establishing natural regeneration through to planting with protection.

The outcomes will depend on the landowners and the influence of the many constraints to new woodland in the project area. The major public landowner in the project area is the Lake District National Park Authority, and it was hoped that they would take the lead in setting an example to the private landowners by making plans for a major new native wood. The contract brief stated that there should be at least 4 different schemes put forward for funding of a minimum of 5-10 hectares each.

Following discussion with the local English Nature office, a decision was made to exclude the issue of downy willow (*Salix lapponum*) from the project brief. This species grows on ungrazed north-easterly facing crags at high altitude on Helvellyn. A survey in 1997 showed that there were only a maximum of 13 individuals remaining, revealing a decline in the vigour of this population which is the only one in England. The issues are complex and important enough to require a separate report which brings these to the fore.

4. Methods

4.1 The familiarisation process

Although the contractor had previous experience of working in the project area, there was insufficient detailed knowledge about the area, the farming system and the landowners involved. It was felt that a better knowledge of the landowners is essential as these people are the key to the success of the project.

Telephone calls were made to those who were known to possess knowledge of the contract area. These included the ESA project officer, the National Trust property manager, English Nature local office, the Lake District National Park Authority (Assistant Chief Planning Officer, Landscape Architect, LDNPA Land Manager, Ecologist and Park Ranger). Subsequent visits were made to these offices to obtain maps and enter into further discussions. Every contact was helpful and useful.

The information obtained varied from maps, names, addresses and telephone numbers, biological and habitat information and assistance with general planning, ideas and thought processes. The maps ranged from base maps to a number of constraint maps which included such information as archaeological sites, wildlife sites and ESA landscape information.

All the preliminary contacts were supportive and encouraging although most were aware of some of the potential difficulties for the project.

4.2 Visiting the Area.

Visiting the area was delayed by approximately three weeks due to poor weather. The terrain and altitude of the project area meant that rainy weather with a low cloud base was not conducive to producing accurate maps or assessing the habitat, woodland potential and general geography of the area.

The contractor visited Glenridding, Grisedale and Deepdale in turn, walking mostly on public footpaths and well known walking routes. Using well used footpaths is important to gain an understanding of the most important vistas. Information gathered on these visits included the condition of walls, extent and species composition of existing woodland and scrub including gills, mapping the most well used walking routes, considering the potential for woodland by noting habitat, type and intensity of farming and considering where woodland would not necessarily be appropriate.

This familiarisation work was carried out with the "constraints maps" in mind which the LDNPA had provided. The maps cover information on ESA agreements, land covered by SSSI notification, common land, archaeological records, and current land use, landscape and habitat types. There are a variety of other "constraints" in the project area, some of which are very significant indeed. These include the farming system, the financial incentives available and their rules, physical constraints such as altitude and landscape issues.

4.3 Visiting the landowners

There are nine landowners within the project area. Meetings on each farm were set up over a period of several weeks. The contractor made it quite clear to the landowners on each visit that he was making the visit on an impartial basis, on contract to English Nature but not representing them; he also made it clear that he was independent from both the LDNPA and the FRCA, as both these organisations had been involved in sometimes contentious land management issues in the recent past.

The contractor arrived at each farm with a blank map and it is felt that this was important. The landowners should not feel that they are having a plan forced upon them and that they can contribute to the ideas coming together. The support of landowners is the most integral part of changing the use of farmland into woodland. Any proposals must fit with the present farming system and farmer's short term plans, and be workable by the farmer. Finally, the contractor made it clear to the landowners that he was going to encourage them to put forward their own ideas and to participate in the scheme.

One absentee landowner could only be contacted towards the end of the contract and at its completion, a reply had not been received. One owner could not meet in the timescale involved but there was an exchange of correspondence. All the landowners met gave the contractor a polite and cordial audience; obviously, some were more positive than others about the suggestions.

5. Results

The new native woodland feasibility map.

A "new native woodland feasibility map" was compiled. This map initially deliberately ignored the majority of constraints and simply included land which could support trees and may produce a net conservation benefit. Maps 3 and 4 indicate the major constraints including altitudinal tree limit, location of water bodies, urban areas, scheduled ancient monuments, improved pasture and existing woodland. Improved pasture was included because all the farmers indicated that they would be unwilling to commit improved land to woodland; some of the farms have only just sufficient land to make winter feed such as silage to be viable.

After on-farm discussions and additional site visits, a further map was compiled, making allowances for the constraints and the responses from the landowners. This "woodland potential map" is included as Map 5. This exercise resulted in six areas of potential new native woodland being proposed, totalling about 100 hectares, included as Map 6.

This map was circulated to the members of the Local Native Woodland Accord Group and discussed at a meeting in August (see section 5.3). The map, with a covering letter requesting views, was also sent to all the private landowners in the project area. None replied.

6. Results and Discussion

6.1 The opportunities

a) The New Native Woodland Challenge Fund provides 100% grant for successful, approved applications. The guidance given for this grant states that the following may be funded:- survey, design and management plan preparation, ground preparation, fencing, planting, work to encourage natural regeneration, protection and other similar work; all this work must take place within the first year following approval. Any other work such as on-going maintenance or re-planting may be assisted by other Forestry Commission grant aid but not by the challenge fund. This is the first time this type of grant has been available for significant new woodlands and presents a major opportunity.

b) English Nature through the contractor, Cumbria Broadleaves has provided free assistance to landowners in assessing suitable areas for new native woodland, designing the new woods in consultation with the statutory agencies and authorities and putting together challenge bid applications. a) and b) together result in a scheme which is completely free to the landowner.

c) The timing of the challenge fund's existence coincides very well with a ground swell of "green" issues making it more likely that proposals will receive a favourable hearing by farmers and other stakeholders. Many farmers want to be seen to be doing their bit.

d) Farmers in middle age and approaching retirement (and there are two in the project area) find it less easy to gather sheep over steep and rugged terrain, often in poor weather. There may be children who are not interested in carrying on the farming business. This results in the farmer being more predisposed to consider establishing woodland in those steep and difficult areas, or on land where the farmer has noticed a decline in trees over his lifetime. There is a feeling of wanting to "put something back" and this should not be underestimated as an incentive in this type of situation.

e) The currently poor farming prospects can sometimes act as a disincentive in situations where an investment is required to get a scheme established. However, new woodland can aid livestock gathering (through well designed fences), result in fewer stock to look after and look for on difficult ground and can provide more shelter for livestock; if these views are taken on board then farmers may be more predisposed towards new woodland creation than they would be if farming prospects were very healthy. Where the grant pays 100% of the woodland establishment costs such a situation is an incentive to down-size the livestock business. This is particularly so where compensatory payments such as Farm Woodland Premium Scheme are available i.e. currently on non-common land.

f) The ESA rules appear to have become more flexible since the scheme was inaugurated with an allowance for some lateral thinking in some cases. For example, it may be possible to continue ESA payments where FWPS payments are not eligible i.e. in the case of small new woods under 1 ha in size. Also, in some circumstances, it may be possible to obtain Tier II Heather Fell payments for the remainder of an ESA agreement by grazing an area with a number of sheep which would not prevent natural regeneration of trees taking place (i.e. very few for a very short period of time). This has yet to be put into practice by implementation of such a proposal.

g) The involvement of the LDNPA as a landowner in the contract area could be an opportunity to set an example to the private landowners in the contract area. However circumstances meant that although proposals are being developed, there has been no challenge bid application within the life of this contract.

6.2 Factors limiting expansion of native woodland

a) Altitude. The project area runs from the shores of Ullswater at 145m (450 ft) to the top of Helvellyn, England's second highest mountain at 950m (3120 ft). There is no discernible tree line in the contract area but altitude and exposure will certainly not allow tree growth above about 670 m (2200 ft); in places the effective tree line will be lower, although species such as prostrate juniper and downy willow do grow at higher altitudes.

b) Other physical constraints. The terrain in the contract area is frequently rough. Continuous woodland cover could not be expected to form over parts of the area due to rock outcrops, scree and thin soils. In places, there will be enough soil or shelter for woody species to grow on the most difficult terrain but snow accumulation could be a limiting factor in certain places.

c) Browsing. Almost all of the project area is currently grazed by sheep almost continuously at a density sufficiently high to prevent natural regeneration of tree species. Although sheep numbers have fallen over the past five years due to ESA farming practices, the numbers continue to prevent regeneration. This means that all new woodland proposals will require strong stock-proof fencing.

Currently the deer population is not regarded as a problem for woodland regeneration in the project area although nearby there are relatively high numbers of red deer and some roe deer. However, if the woodland cover in the area increases significantly or deer management practices change on surrounding land, deer numbers could increase and there is the potential for both damage to young trees or prevention of natural regeneration if remedial measures are not taken.

There are few rabbits in the project area but the brown hare population could cause some browsing damage.

d) Sites of Special Scientific Interest and other conservation designations (see Map 1). SSSIs necessitate consultation with English Nature over establishment proposals. Proactive woodland establishment on areas of high nature conservation would in any case not be recommended by a competent advisor but English Nature would be able to give greater detail about the parts of the SSSI where trees would not be preferred and where they may be beneficial. There is also one Cumbria Wildlife Trust site in the area and a Regionally Important Geological Site (RIGS) on the southern boundary although these are not considered to be constraints.

e) Archaeological sites. There are a considerable number of Scheduled Ancient Monuments (SAM) in the area as well as Sites and Monuments Records (SMR). Consultation would be required with the National Park Archaeologist and in the case of SMRs, permission for work would be required from English Heritage. The large Scheduled Ancient Monument at the Greenside Lead Mines covers 80 hectares and it is unlikely that any planting would be approved here.

In Glenamara Park, Patterdale, the contractor made a visit with the National Park Archaeologist who had recently spent some time there. There had been a SMR for this site, but details had been very sketchy indeed. The archaeologist found several interesting features worthy of note including a prehistoric settlement which is it thought could be a feature of sufficient importance to be notified as a Scheduled Ancient Monument; it falls a few metres outside the proposed fence line. Other features included an old adit mine, trackways, a small stone structure (possibly a woodsman's or a shepherds hut) and many charcoal making pitsteads. The proposed fence line was amended to exclude some of the pitsteads to comply with the recommendation that these features generally are better preserved outside a woodland area than within it.

f) Common Land (see Map 1). Much of the contract area is common land and initial investigations indicated that the commons situation was quite simple. However, as the contract progressed, it became increasingly clear that the issues surrounding common land would create some of the most difficult obstacles to be overcome if any significant new native woodland is to be established.

There are three commons, all of which are privately owned except for the northern side of the valley in Glenridding amounting to about a third of Glenridding Common (LDNPA); the National Trust is a co-owner of part of this common. Grisedale Common and Deepdale Common both have only one owner - Dalemain Estate and Mr A.C. Brown respectively.

Each common has several commoners; some commoners have rights on more than one common and some rights are leased to third parties; some rights are unused. Although a commoner may have rights over the whole of a particular common, in practice, those sheep are limited to grazing a particular valley side. This is a traditional system covering much of the Lake District dating back centuries; each grazed area is known as a "heft" - generally a valley side from the fell wall (which usually separates the improved land from the unimproved land) to the watershed above. Sheep do drift from time to time from one heft to another but over the year, sheep are gathered occasionally and re-distributed to the correct heft.

This system creates the unusual situation of a farmer owning an area of land but it being used by his neighbour with no financial transaction taking place. This could present a problem where a new woodland proposal is put forward for land which is owned by one person but the flock of sheep hefted to that land belong to another person. It also creates major tensions where compensatory payments are being made in lieu of grazing - who receives the payments, the landowner, the commoner(s) or both? The obvious answer is that the payment should be divided but this then raises the issue of how to make the division fairly, particularly when each commoner has rights for a different number of a variety of animals.

In addition, there are two further issues arising on common land. There is a presumption against permanent fencing on common land and consent is required from the Secretary of State for the Environment, Transport and the Regions (DETR) under Section 194 of the Law of Property Act 1925. This process usually takes about eight months to complete. With the current stocking levels of sheep, it is unlikely that woodland could be established successfully in any part of the contract area without new stockproof fencing.

Secondly, an issue has arisen which very few people in the area seem to have been aware of before detailed examination of proposals took place under this contract. The Farm Woodland Premium Scheme (FWPS) is an annual compensatory payment made to landowners by the Ministry of Agriculture (MAFF) for taking land out of production by creating new woodland. The eligibility guidelines state that the payment is not allowable on common land in England. This has been confirmed in writing by MAFF to the contractor although a test case has yet to be proposed. This makes persuading farmers to put land into woodland and therefore lose productive capacity extremely difficult.

g) Fencing. The issue of fencing on common land is outlined above. The complexity of the farming system is such that there needs to be agreement between a number of parties on the line of any new fence, including the Minister of State of the DETR, the landowner, the commoners, the grant giving body and the statutory consultees. There are other difficulties involving fencing too.

Firstly, gathering the sheep off the fells for clipping or sending to market for example, is a fairly major undertaking. It is important that there are no bottlenecks created by new boundaries as this can lead to sheep becoming exhausted and/or injured. This situation can also be very difficult and tiring for the farmer or shepherd and his dogs. Therefore, any fences need to take this into account and be designed accordingly.

The third issue is the problem of fences in the landscape. The landscape in the contract area is typical of the central Lake District. It is very rugged and mountainous with a wild feel, and many people regard it as being "natural", despite the general lack of tree cover or woodland. It is one of the most popular parts of the Lake District with many public rights of way and open access across much of the contract area. Helvellyn is one of the most famous mountains in England and the most popular route, via Striding Edge, runs above Glenridding and Grisedale through the contract area (see Map 2 for main footpaths).

Some view new woodland and associated fences as unacceptable in such a "natural" setting. They see woodland as being a good idea in general, but not in this area. This applies to some local people who have been brought up with the current landscape unchanged for many years as well as tourists or incomers; one landowner said that ".....planting areas in the 5-10 ha bracket are inappropriate in the open fell areas.....".

Those statutory agencies with a landscape remit perceive that fencelines in particular are intrusive landscape features. There is no doubt that a fence whose line has not been thoughtfully designed or which is poorly constructed and is clearly visible, for example, adjacent to a public footpath, is not desirable. However, the current livestock numbers and those in the foreseeable future dictate that if projects such as this are to succeed, fencing will be required.

It is possible to ameliorate new fencelines by creating new woods of the correct scale for the landscape and designing them so they use existing boundaries as much as possible. As fence materials weather, they can become difficult to see when looking across a valley and even straight lines can be absorbed into the right landscape; some fences can be hidden in bracken beds, existing scrub and behind crags and boulders to a certain extent. Existing fences in Grisedale are far less obtrusive than footpath surfacing, big bale silage or the exotic conifer plantations, for example.

h) ESA payments. The contract area is wholly within the Lake District Environmentally Sensitive Area (ESA) and all the major landowners have current ESA agreements. The process of obtaining these agreements on what is mostly common land was a lengthy and contentious process which produced much animosity between neighbouring landowners who had previously farmed together in harmony.

If new woodlands were to be created it would mean in some circumstances that a re-negotiation of the ESA payments may be required. Given the previous difficulties, it would be folly for this project to undermine the achievements of these ESA agreements. If all the commoners were in agreement about a new woodland proposal, there is still the issue of stocking levels on the remaining ESA land. Because land is taken out of production by putting it into woodland, the farmer whose stock are grazing that land would need to make a reduction in the number of stock being kept (to avoid the stocking level rising) as a condition of an ESA agreement.

i) Farming uncertainty. The farming industry at the time of this contract is in a state of deep crisis with dwindling income levels and the beef and sheep sector under threat of continual health scares. This results in decision making being very difficult and the level of money available for investment by the farmer into a woodland scheme negligible. The unavailability of FWPS availability on common land compounds this.

j) Woodland Grant Scheme constraints. The high standards which are expected for Woodland Grant Scheme applications would be adhered to for all schemes. This inevitably has a high financial cost (due to expenditure on high stocking rates, rigorous weeding, proper and effective protection from browsing animals for example). Many of these difficulties will add to the costs of establishing a new wood. The Challenge fund requires value for money and this needs to be borne in mind when making an application; some challenge bids may not be approved if they are considered not to offer value for money.

k) Local felling of trees. Just before the contract began a small area of mature trees were felled in Patterdale. Located in a prominent position on a bend in the road, the trees were felled to make way for a new Mountain Rescue base for the area. Two of the farmers visited remarked that it was rather ironic that they had been approached to consider establishing new woodland when at the same time, existing woodland was being felled. This was a rather unfortunate timing but did not help when discussing the project with the two landowners who mentioned it; others may also been aware of this apparent conflict.

6.3 The potential new woodlands

Six areas, totalling about 100 ha were discussed at the Local Native Woodland Accord Group in August 1998. This group is made up of representatives from English Nature, The Forestry Authority, Forest Enterprise, FRCA (ESA senior project officer), The Lake District National Park Authority, MAFF, The National Trust and North West Water. The discussion which resulted was centred mainly around the type of woodland which could be expected in each area, the landscape implications and the grant aid situation. Some details on these outline proposals are given below. These were all ideas worked up by visiting and discussion with the landowners.

Some schemes progressed more quickly than others, mostly due to the enthusiasm of the landowners and one landowner in particular was very keen to progress a scheme. Lengthy discussions were held with the LDNPA regarding the proposed sites on their land but since the proposals would have to go to LDNPA committee for approval, it was decided that WGS applications would be made for the following challenge bid year i.e. 1999/2000. It proved difficult to arrange a second round of meetings with the other landowners; this was partly because the weather had been consistently poor over the summer and autumn and they did not want to spend time discussing native woodland plans if there was a weather window for silage making and partly because the other owners were more reluctant to discuss ideas which they were obviously reticent about.

Of the six areas, much would result, if successful, in new W17 upland oak/birch woodland with bilberry. Some areas, especially the very wet zones would result in W7 upland ash alder woodland with yellow pimpernel. There is one area which consists of juniper regeneration and juniper could be expected to come in on small parts of several of the sites. The type of land involved with the schemes is mostly some of the roughest in the valleys with areas of scree and thin soils. Some bracken areas indicate slightly better soils. There is only one potential gill wood.

a) Glenamara Park.
This scheme would create 14 ha of new native woodland on private land which is not part of a common. The scheme also includes 10.5 ha of existing ancient semi-natural woodland adjoining the area proposed for new woodland creation. The existing woodland is mainly W7 ash alder woodland but the new extensions to this would be on steeper, drier land resulting in W17 upland oak birch woodland with pockets of W7 ash alder. See Appendix 3.

b) Greenside Juniper woodland.
This 5 ha of moribund juniper woodland (W19) lies on LDNPA land on Glenridding Common close to the Greenside leadmine. The future of this area of woodland has been the subject of many discussions over the last few years and just before this contract begun, a fence line was tentatively agreed between the LDNPA and English Nature. In the light of these discussions, two site visits under the auspices of this contract and the fact that so little is known about the dynamics of the juniper and succession stages, the proposed fenceline has subsequently been revised to enclose a smaller area. A report will be submitted to the LDNPA land management committee in May 1999 and if recommended the scheme will be formerly proposed for challenge funding for 1999/2000.

c) Glenridding Dodd
This area is also owned by the LDNPA (with a small section owned by the National Trust) and is also on Glenridding Common just above the village of Glenridding. A relatively short new fence of 400 m would effectively de-stock about 25 ha (the whole of the Dodd). There is existing birch regeneration with some larch; a W17 upland oak birch wood would probably result.

If agreement can be reached with the commoner and tenant on this land, it will also be submitted to the LDNPA land management committee in May 1999 and if recommended the scheme will be formerly proposed for challenge funding for 1999/2000.

d) New woodland in Grisedale

Two new woods were originally proposed, one of about 11 ha and one of about 7 ha. One area adjoins an existing plantation of larch, Scots pine and beech and there is some existing hawthorn scrub. The area is privately owned and is not common land. Mostly W17 upland oak birch woodland could be expected but with pockets of W7 alder ash woodland. However, discussions with the farm manager revealed that these proposals could cause problems with gathering sheep. The proposals have not been completely discounted but further discussions are required before formal submission as a challenge bid.

Subsequent to the above area being postponed, a third potential area of 16.8 ha was put forward. This is an area much higher in altitude than any other proposals and is so high (500 - 710m) that only part is included on the new native woodland feasibility map. This proposal had a good reception despite the obvious difficulties with the high altitude and has been submitted as a Challenge Bid. Making this area stockproof will, it is thought, result in "tree-line" habitat and might include juniper, rowan and birch. See Appendix 4.

e) Coldcove gill / Aiken Crag

This is the only proposal which includes a true gill habitat. The gill has some remnant tree cover. The screes of Aiken Crag have scattered juniper, birch and rowan. The area which is about 20 ha in size would need to be divided into two woods to aid the gathering of sheep. The area is privately owned but would need the agreement of three commoners. If de-stocked, W17 upland oak birch woodland will result.

f) Noran Bank / Oxford Crag

This proposal is similar to Glenridding Dodd where a relatively short new fence would de-stock a 20 ha corner of Deepdale Common. There is some existing juniper, birch and rowan mostly on areas of scree and the result would probably be upland oak birch woodland.

6.4 Follow up Discussion with Landowners

Most landowners felt that there was potential for new woodland to be created but that the current incentives set within the background of the current farming situation and the history of previous negotiations causing difficulties would result in lengthy discussions to come to agreement with such a large number of organisations and individuals with differing agendas.

The contractor will continue to work with those landowners who consider that challenge bid applications may be considered if other difficulties can be resolved. This principally depends on whether compensatory payments can be found to remove livestock from the areas concerned. It also depends on how the LDNPA applications are viewed and whether they receive a favourable response from LDNPA committee members and the Secretary of State for the Environment.

7. Prospects for Further Development

The proposals on LDNPA land will be taken to the relevant committee for discussion and approval during spring 1999. If the response is favourable, these will then be taken to the Secretary of State for approval of the fencing proposals on common land. It is hoped that a decision will be made in good time so that the Challenge Bid can be drawn together for submission to the Forestry Commission before the closing date in Autumn 1999.

The other landowners should be kept in touch with these developments and assuming the proposals are viewed positively and that fencing is allowed on common land, they should be encouraged to enter their own bids. Experience has shown that compiling bids is time-consuming. It is estimated that each WGS Challenge bid can take up to 30 hours to compile and if there are a further three bids which become a reality in 1999, this could require 10 days work. This does not include the work entailed in applying for permission for fencing on common land nor does it include a commitment for time to be spent negotiating any division of compensatory payments (FWPS or ESA payments) or reduction of stocking levels on remaining land. The challenge bids already submitted did not involve these issues and so the time required for this work can only be estimated at around an additional five days per challenge bid.

Therefore, a minimum of a further 20 days could be required if the landowners are positive about entering further challenge bids.

The above proposals are dependent on the landowners being keen enough to put forward land for creation of new native woodland. However, it is at least a possibility that the landowners are not prepared to do this due to one or more of the constraints detailed earlier in this report. If this turns out to be the case, future work may entail different priorities. These could include such strategic work as working together with agencies including MAFF, FRCA, FC, EN and LDNPA to iron out some of the problems such as the lack of compensatory payments available on the common land.

8. Monitoring

Creation of new native woodlands will cause substantial and poorly understood ecological changes. Monitoring these changes will provide significant information which can be used in the future to inform land managers of likely results of land use change.

The SSSI designated parts of the project area are covered by an NVC survey providing a basic baseline set of data. However, further detailed survey work would be desirable in the areas where challenge bids are approved. This will assist with assessing the changes which take place in the future.

It is important that any monitoring should be easily repeatable at reasonable cost. Monitoring will not be required on an annual basis due to the expected slow rate of habitat change. Five yearly intervals will be adequate for assessing vegetation change at these sites. However, during the first five year period, an assessment at year 3 may be desirable to review progress to tie in with grant scheme requirements and judge whether any further work is necessary.

Recommended monitoring includes the following in each approved challenge bid scheme :-

a) Woodland transect. A woodland transect should be set up to monitor vegetation change and natural regeneration of tree species. Where rare or uncommon species are recorded in these transects or in the quadrat sampling, particular note of these should be made. The change from precursor vegetation to desired habitat is the key feature to be monitored. Monitoring the building blocks of the new habitat is the essential element of being able to establish the progress from one habitat to another. These key species will include all tree species and especially the woody pioneer species. The natural regeneration which appears will depend on individual site features. Pioneer species likely to invade most sites in this area might include both birch species, rowan and in places ash. Other early pioneer species might include willow species, gorse and depending on the amount of bare ground preceding enclosure broom, foxgloves etc.

b) Fixed point photography. Permanent points should be marked to give complete coverage of each site. As well as photographic points being established within the sites, it would be useful to set up a system of photographing each site from a neighbouring fell to establish changes in landscape character.

c) Plant community monitoring. Permanent sampling quadrats should be marked out to record baseline data and monitor the vegetation change. Some quadrats should be set up close to but outside the enclosures as a control.

d) In the Glenamara Park scheme, monitoring of bird species by permanent transects may give an early indication of the impact of habitat changes resulting from removal of grazing and the type and amount of regeneration taking place.

e) Monitoring of browsing mammals should be carried out (red and roe deer, rabbits and hares). This could be carried out by assessing the amount and type of damage (if any) noted on regenerating trees.

Set up of the basic monitoring work on one site and its completion for one year is likely to cost in the region of £1800 (P Taylor, pers. comm.) Funding for this work could come from either the Lake District National Park Authority or English Nature.

The issue of funding monitoring work was discussed with the Forestry Commission. Where baseline data does not exist for an area, the FC may be willing to contribute funding if it is applied for within the challenge fund application and this could cover the cost of setting up monitoring for that particular site. However since most of the contract area is within an SSSI, baseline vegetation and habitat data is already available and in this circumstance the FC would not contribute. One factor to bear in mind is that monitoring costs added to a challenge bid will result in a higher net establishment cost per hectare which could mean that the proposals do not meet the FC's value for money criteria resulting in a rejection of the application.

9. Demonstration

Before embarking on open days or demonstration events, it should be decided what needs to be demonstrated and to whom. In 1998 only two challenge bids were submitted; one of these certainly is a very long term proposition and few trees are expected to appear quickly. There are other challenge bids which will hopefully be approved in the 1999 round but it is likely that these will also be rather slow in establishing. However, new fencelines will appear, and there is potential to take advantage of this to explain the function of these new fences to the general public.

Since natural regeneration was the most favoured method of establishing new areas of woodland, this contract was of a limited time span and at the time of writing, it is still not known whether either of the two challenge bids submitted were approved, it was not possible to establish new woodland using a variety of planting techniques. This might be possible in the future but the contract area is not necessarily the best place for this type of demonstration.

Perhaps a better type of educational event would be some kind of field trip to look at the value of existing woodland and the kind of management techniques which would benefit and expand existing woodland, the potential for natural regeneration to create new woodland and to raise the issue of opportunities of entering land into an ESA tier which would be more likely to produce new woodland over a long time period (such as Tier 2 heather).

Since it is important to attract landowners and commoners, as well as their advisers, to this kind of event, this immediately presents problems. The event should be held at a time of year which does not interfere with farming (i.e. avoiding lambing and hay/silage making), when the weather is likely to be fine and in a location which is easy to get to and does not involve a lengthy walk. A respected local person who has implemented such a scheme is an invaluable tool in these circumstances.

The issue of demonstration should lie with those bodies who are likely to be in existence for a long period of time. This remit lies principally with English Nature and the Lake District National Park Authority. MAFF through the FRCA and ESA project officers could play an important role as these individuals often have the confidence of the farming population.

The costs of running demonstrations such as a guided walk (for the general public, possibly carried out by the LDNPA area ranger within his normal range of duties) or a seminar (for farmers, although they usually prefer an outside field trip) are usually small. Leaflets and new signposts are not appropriate although inexpensive, small and unobtrusive interpretation for those who come across new fences would at least be able to explain the reason for such work.

Maps

Map 1 Project, common & SSSI boundaries

Map 2 Main footpaths

Map 3 The woodland feasibility map and existing woodlands

Map 4 Constraints map

Map 5 The woodland potential map

Map 6 The six potential new woods

Appendix 1 **Abbreviations**

CBL	Cumbria Broadleaves
DETR	Department of Transport, Environment and The Regions
ESA	Environmentally Sensitive Area
EN	English Nature
FC	Forestry Commission
FRCA	Farming and Rural Conservation Agency
LDNPA	Lake District National Park Authority
MAFF	Ministry of Agriculture, Fisheries and Food
SAM	Scheduled Ancient Monument
SMR	Sites and Monument Record
SSSI	Site of Special Scientific Interest
WGS	Woodland Grant Scheme

Appendix 2 Bibliography

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Appendix 3 Glenamara Park - Proposals for new native woodland.

(submitted with Challenge Fund WGS application)

Proposal

To establish areas of new native woodland which will extend the existing ancient semi-natural woodland in Glenamara Park. Existing woodland amounts to 10.48 ha and proposed new woodland totals 13.99 ha; the total area covered by the grant application and to be enclosed amounts to 24.47 ha.

Location

Grid Reference: NY 389 158

Glenamara Park is located in a valley in the central Lake District National Park, close to Patterdale at the southern end of Ullswater, Cumbria.

Description of existing woodland

Glenamara Park is privately owned.

The whole valley is marked in English Nature's Inventory of Ancient Woodland, although only parts of the Park are currently wooded.

The valley faces due north and is centrally divided by Hag Beck, resulting in a west facing and an east facing valley side. The top of the enclosed valley reaches 390m (1300 ft) in altitude with the highest trees at approximately

360m (1200 ft). The Park is often steep sided and well drained but lower down the angle of slope decreases and drainage becomes impeded in places. There are also minor becks running into Hag Beck.

The woodland has an open structure typical of W7 alder/ash with yellow pimpernel woodland. There are flushes, small becks and glades with some windblow which all contribute to the varied structure.

The wood is dominated by common alder (*Alnus glutinosa*) with ash (*Fraxinus excelsior*), downy birch (*Betula pubescens*) and silver birch (*Betula pendula*). Other species occurring frequently are hazel (*Corylus avellana*), rowan (*Sorbus aucuparia*), crab apple (*Malus sylvestris*) and hawthorn (*Crataegus monogyna*) with a few holly (*Ilex europaeus*).

The ground flora is again typical of this type of woodland and includes yellow pimpernel (*Lysimachia nemorum*), common dog violet (*Viola riviniana*), meadowsweet (*Filipendula ulmaria*), and marsh thistle (*Cirsium palustre*). Natural regeneration over two years of age is completely absent due to browsing by sheep. One year old ash seedlings covered the woodland floor in May 1998 and regeneration of hazel, alder, birch and rowan was also noted.

Many of the trees are ancient, particularly for their species. There are "veteran" alder, hazel, holly, rowan, crab apple and birch. There is evidence that the woodland covered a greater area in the valley in the past, despite the fact that this type of woodland often has an open structure. Over 20 pitsteads have been noted.

There are currently only a few passing deer seen in this valley and it is thought that deer fencing and use of large tree shelters is currently unnecessary.

Description of land proposed for new native woodland

The boundaries are currently in good condition with only minor repairs needed from time to time. However, much of the fell wall is not wall top netted and to erect this would be a prudent move to keep the agile fell sheep out of the areas. The fence line will inevitably turn out to be more complex than marked due to the terrain which changes from being rocky with thin soils to very wet and boggy in places. The fence will avoid all archaeological remains including the pitsteads.

Area B consists of steep, rocky ground located between the existing woodland and the fell wall. Formerly bracken covered, part has recently been sprayed under the owners ESA agreement. Further bracken spraying is recommended to control the areas of densest bracken cover as marked on one of the maps; bracken spraying will not take place close to the water courses.

There are scattered trees and shrubs located on the crags above the area which will provide a good seed source; these consist of rowan, holly, ash, juniper, birch and wild cherry (*Prunus avium*) (the latter is thought to be absent within the main woodland). The expected woodland here will be the

transition from W7 alder/ash woodland to W17 upland oak/birch with bilberry; the oak population is currently extremely small and may be of planted origin. With the bracken having already been sprayed and seed sources very close by, there is excellent potential for natural regeneration of silver birch, rowan, hawthorn and holly, with oak following in later years after the first flush of regeneration.

There is a large badger sett downslope of the fence and it will be necessary to install badger gates for their access. Pedestrian gates will be required and a good quality gate will be needed where the proposed fence line crosses the public right of way.

Area C also consists of land located between existing woodland and the fell wall which is steep and rocky in places. There are also wetter spots but the main emphasis here too will be on conversion to W17 upland oak/birch with bilberry. Again, there are seed sources very close by and the prospects for natural regeneration are good; regeneration here would probably consist mainly of silver birch, rowan, holly, hawthorn and ash.

There are a few well scattered sycamore (*Acer psuedoplatanus*) across the whole site and it is recommended that these are felled; one sycamore is in an inaccessible location on a crag.

Appendix 4 Braesteads Farm - Proposals for new native woodland.
(submitted with Challenge Fund WGS application).

Proposal
To establish an area of new native woodland on the northern valley side of Grisedale near Glenridding. The proposed new woodland totals approximately 16.8 ha.

This new wood will imitate some of the areas of crags in the Glenridding/Grisedale/Deepdale area which are steep and inaccessible enough to repel sheep and other browsing animals. These crags support a tree flora more diverse than many imagine, including birch, holly, rowan, ash, yew, willow, wild cherry, elm and hawthorn. This site is at a greater altitude than most Lake District woodlands and the proposal should be seen as one which is innovative and with an element of experiment. There will certainly be a change in habitat through removal of grazing and this scheme will test what woody species are capable of becoming established in this area given the conditions. This scheme is an important element of English Nature's "New Native Woodlands: Lakeshore to Mountain Top" Project.

Location
Grid Reference: NY 377 156
The area is located in Grisedale which lies in the central Lake District National Park, close to Patterdale at the southern end of Ullswater, Cumbria.

Description of land proposed for new native woodland
The area is rocky with crags and often quite steep. It varies in altitude between 500m (1650ft) and 710m (2320ft). The site's aspect is south east.

The existing boundaries are currently in good condition. These include the fell wall which runs along the watershed (the northern boundary of the site) and part of the existing fenceline on the eastern side of the site. The fence line will inevitably turn out to be more complex than as marked on the map due to the rough and rocky terrain. The existing fence is barely visible as a landscape feature and it is expected that with some weathering, the new fence will similarly be absorbed in the landscape.

Seed sources are not close to the site. However, there are various shrubs and small trees growing on crags in Grisedale. The North West Water spring which was apparently made stockproof about 25 years ago is about 400m south east of the site; this readily regenerated with silver birch (*Betula pendula*), common alder (*Alnus glutinosa*), willow (*Salix sp*) and rowan (*Sorbus aucuparia*); scots pine (*Pinus sylvestris*) and larch (*larix sp*) also colonised this small patch.

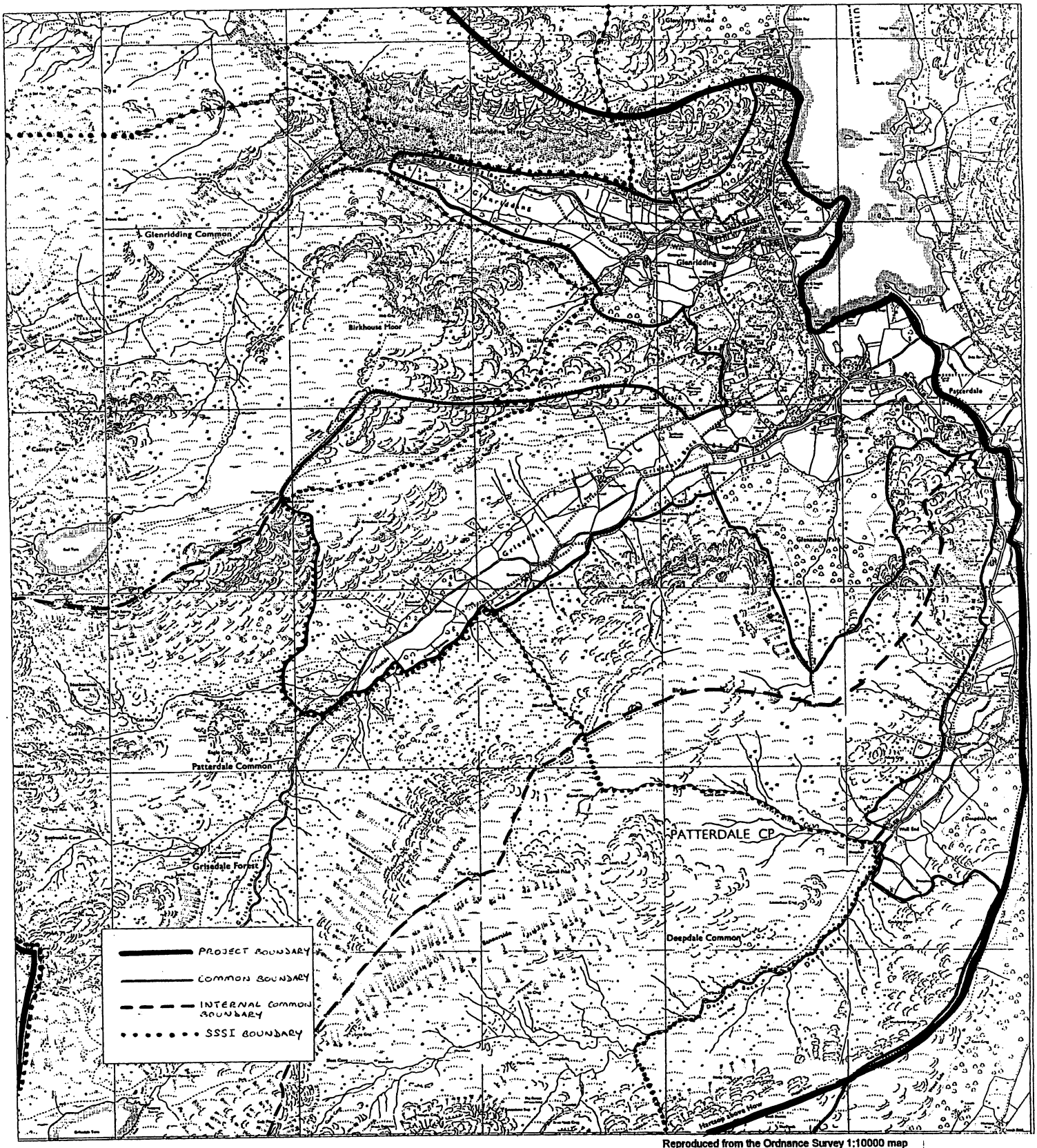
Likely outcome of work
The existing seed sources and this latter evidence suggests that natural regeneration will occur but that it will be modified due to the effect of the altitude. It is thought therefore that the site will be colonised by silver birch, rowan and juniper (*Juniperus communis*) with possibly holly (*Ilex europaeus*), downy birch (*betula pubescens*), ash (*Fraxinus excelsior*) and hawthorn (*Crataegus monogyna*) where any shelter exists and on some lower slopes. Where drainage is impeded, it is possible that willows may colonise the area. Larch may also invade to some extent given time.

The likely NVC woodland type is difficult to judge but it will probably result in W19 Juniper Woodland with fragments of W4 Birch Woodland depending on the drainage.

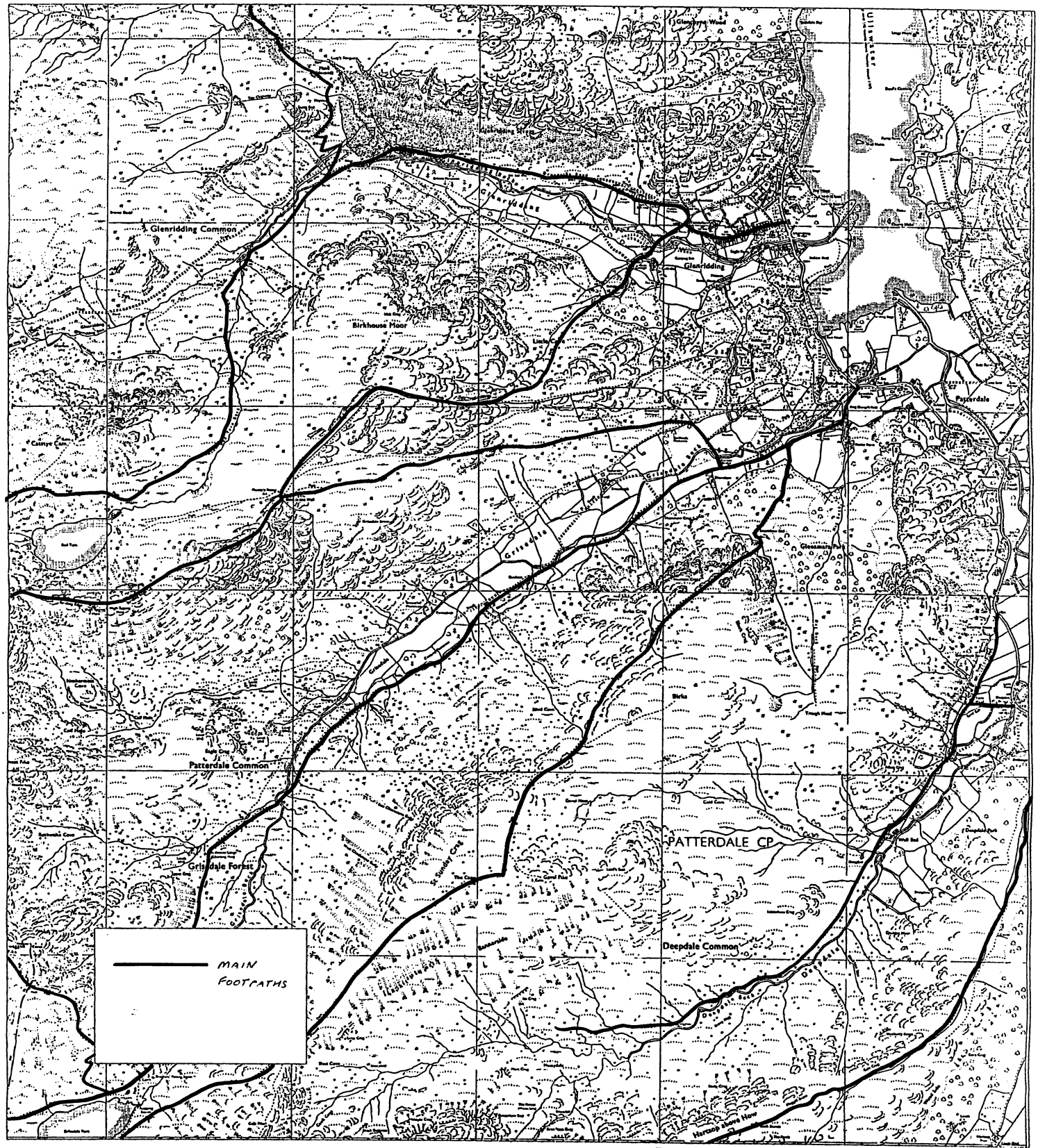
There are no public rights of way across this area. A path is shown on some maps to run within the site next to the existing wall, although not right through the site. A prudent move would be to erect ladder stiles over the fences.

Edward Mills
Cumbria Broadleaves Project Manager
January 1999

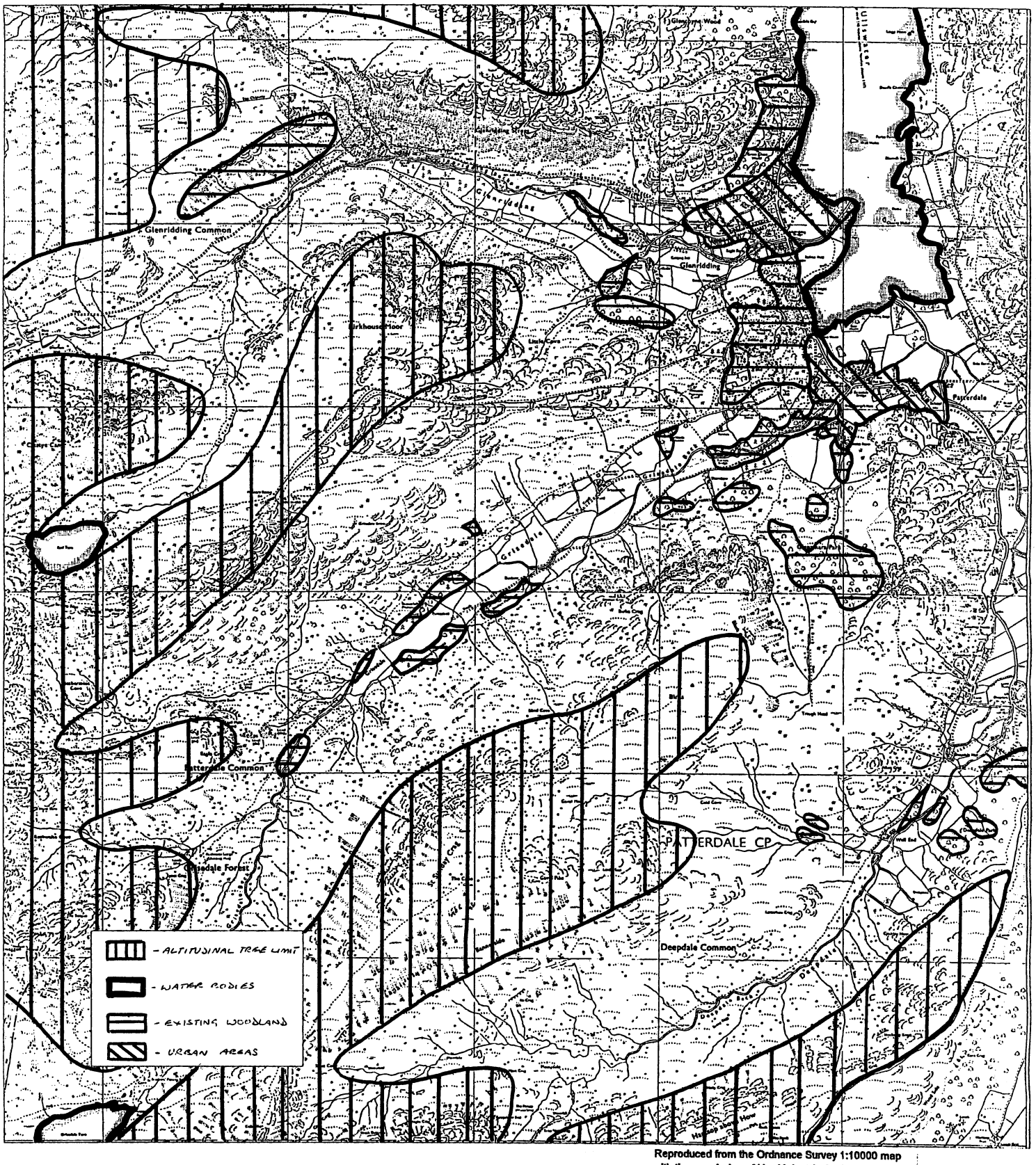
NEW NATIVE WOODLAND IN CUMBRIA - ULLSWATER: LAKE SHORE TO MOUNTAIN TOP - MAP 1



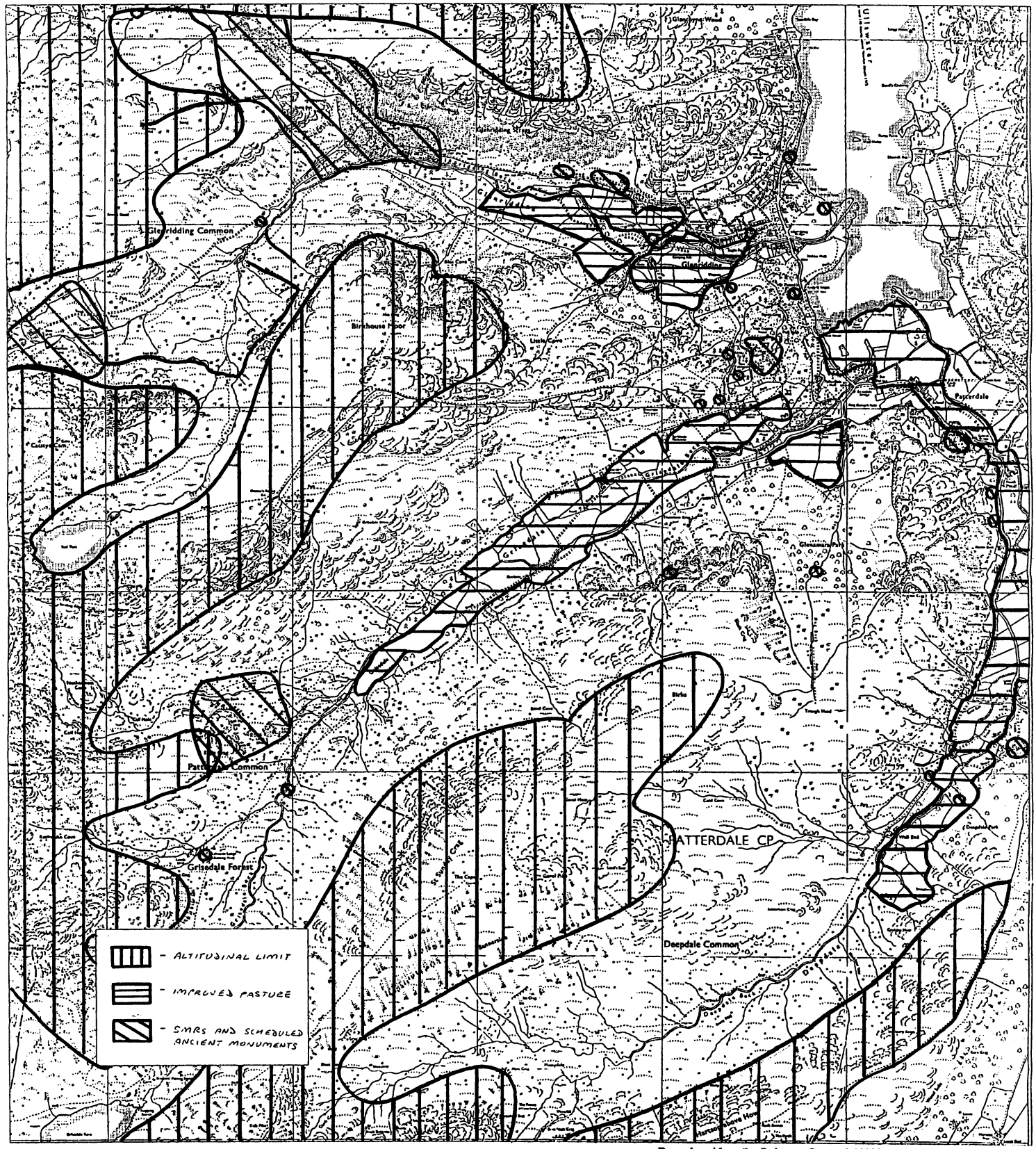
NEW NATIVE WOODLAND IN CUMBRIA - ULLSWATER: LAKE SHORE TO MOUNTAIN TOP - MAP 2



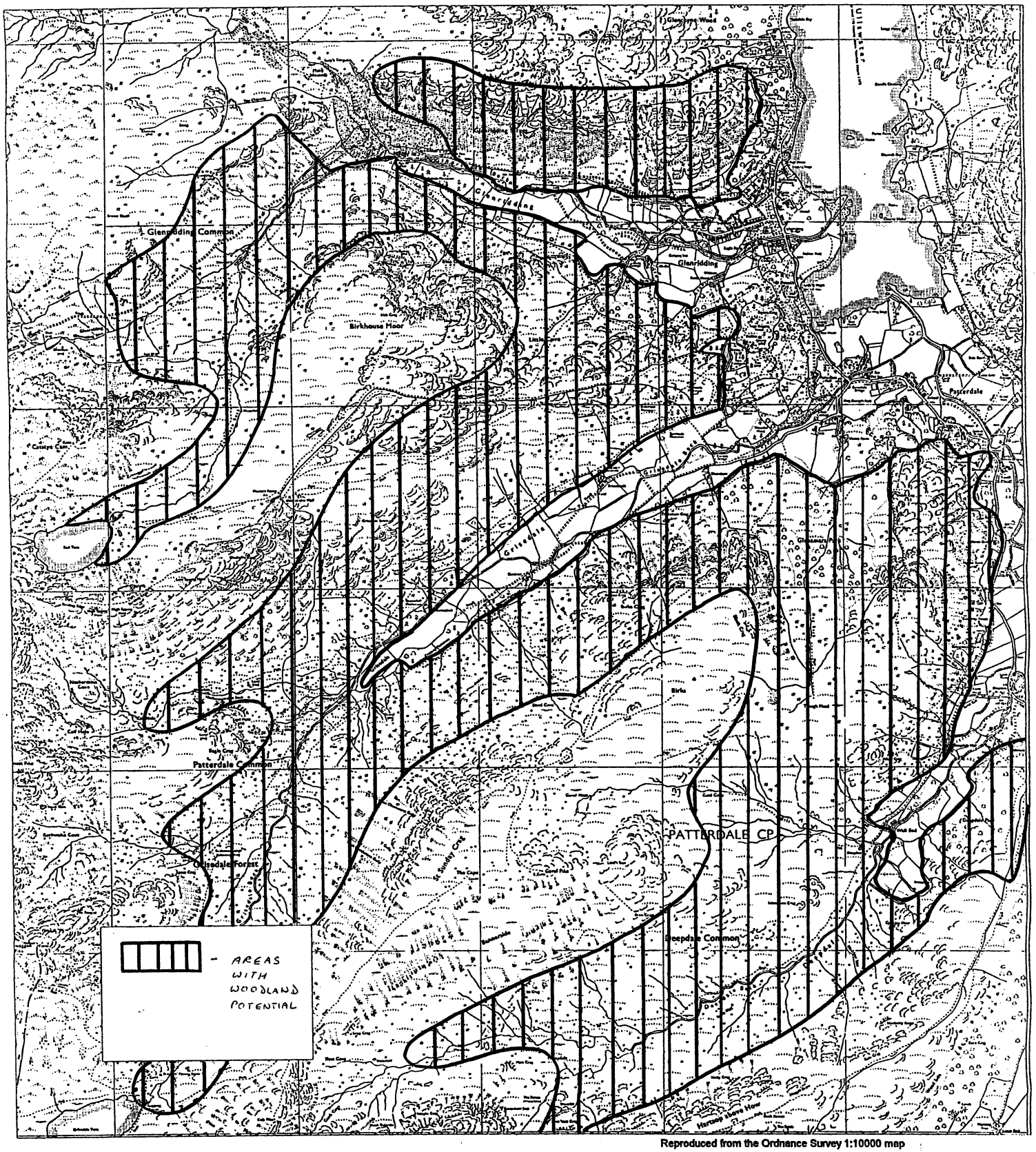
NEW NATIVE WOODLAND IN CUMBRIA - ULLSWATER: LAKE SHORE TO MOUNTAIN TOP - MAP 3



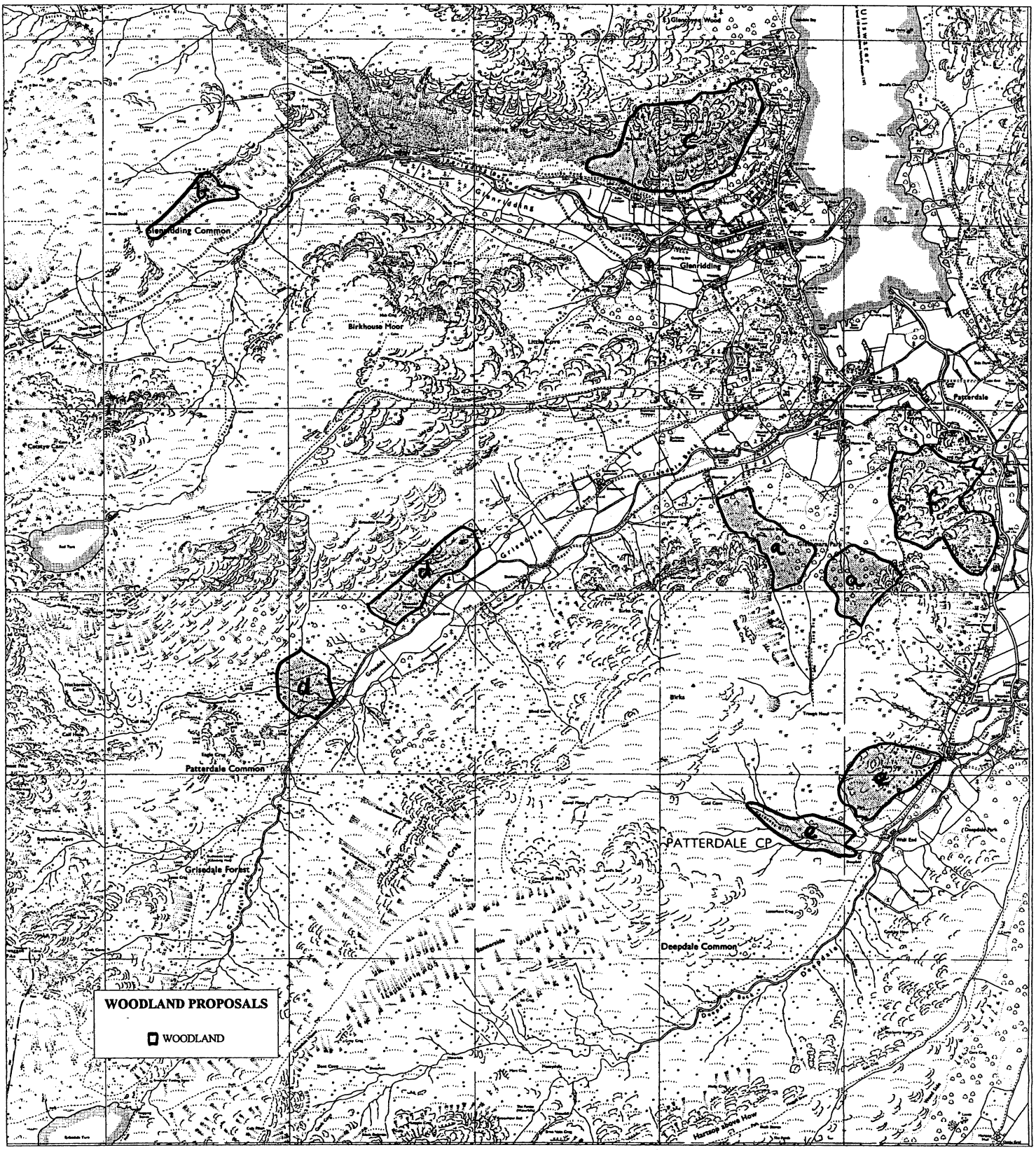
NEW NATIVE WOODLAND IN CUMBRIA - ULLSWATER: LAKE SHORE TO MOUNTAIN TOP - MAP 4



NEW NATIVE WOODLAND IN CUMBRIA - ULLSWATER: LAKE SHORE TO MOUNTAIN TOP - MAP 5



NEW NATIVE WOODLAND IN CUMBRIA - ULLSWATER: LAKE SHORE TO MOUNTAIN TOP - MAP 6



The Forest of Bowland

The potential for creating new native woodland

Rigby Jerram under contract to English Nature

February 1999

Rigby Jerram
Consultant Ecologist
21 Castle Garah
Kendal
Cumbria
LA9 7AT

Fax / Tel 01539 726618

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LIST OF MAPS

Editorial note: The original final contract report was produced in an A3 landscape format. This reproduction at A4 paper size has necessitated the maps being reduced from A3 to A4 size. This has reduced their clarity. Anyone interested in seeing the original A3 size maps should contact Jon Hickling at English Nature's North and West Team (Tel: 01942 820342).

INTRODUCTION

The Forest of Bowland was designated as an Area of Outstanding Natural Beauty (AONB) in 1964 in recognition of the outstanding quality of its upland landscape. The main purpose of this designation is the conservation and enhancement of natural beauty. This includes protecting the wildlife and geological features of the area as well as its landscape.

The Countryside Commission landscape assessment, *The Forest of Bowland landscape*, identified the wooded valleys of the Forest of Bowland as one of the principal landscape and wildlife features of the AONB. This assessment of their importance is reiterated in English Nature's *Forest of Bowland Natural Area nature conservation profile*, Lancashire County Council's *Forest of Bowland AONB management plan* and *Wild about the North West, a biodiversity audit of North West England.* The Natural Area Profile highlights the AONB as being important for two principal types of broadleaved woodland, *upland oak woodland* and *upland mixed ash woodland* and, to a lesser extent, a third, *wet woodlands*. All three woodland types feature as Key Habitats in the *UK Biodiversity Action Plan* and are listed as Habitats of Community Interest in the European Council *Habitats and Species Directive*, the latter two woodland types being listed as *priority habitats*.

The Natural Area Profile and AONB Management Plan both contain objectives for extending the area of native woodland in the Forest of Bowland with the aim of enhancing the nature conservation interest and landscape of the area. These objectives are in concordance with the UK Biodiversity Action Plan, which aims to extend the total area of native woodland types in the UK as a whole, and the *England Forestry Strategy*. These documents also emphasise that new woodland should only be planted in areas where there is no conflict with other nature conservation interests. Landscape issues and other constraints, including damage to archaeological features and potential conflicts with farming systems are also highlighted, giving rise to the Management Plan proposal to identify those sites where clough woodland could be beneficially extended.

This report aims to meet the requirements of that proposal and link the UK Biodiversity Action Plans for woodland habitats and their local counterparts, which have specific area targets for the creation of new native woodlands on the local (Forest of Bowland) and national scale. The report is intended to be a visionary and indicative tool for the delivery of Biodiversity Action Plan targets, but not a rigid dictate from government.

AN OVERVIEW OF THE EXISTING NATIVE WOODLAND IN THE FOREST OF BOWLAND

The name Forest of Bowland derives from the medieval hunting forests, which included the Royal Forest of Lancaster, of which the Forest of Bowland was a part. It does not allude to a former more wooded landscape. The prehistoric, post Ice Age "wildwood" which covered the Forest of Bowland and the rest of the UK below 600m some four to five thousand years ago was largely felled in the pre-Roman Iron Age, if not earlier.

Ancient semi-natural woodland within the Forest of Bowland is largely concentrated along the valley sides of the Rivers Hindburn, Roeburn, Wyre, Calder, Ribble and Hodder and their tributaries. These clough woodlands are one of the characteristic features of the Forest of Bowland landscape. Semi-natural woodland in non-clough situations is uncommon within the AONB. Another characteristic of woodland in Bowland is, that despite being a predominantly upland area, virtually all the woodland present is confined to the valleys and other low ground. The central upland core of the area is noticeably lacking in woodland cover. While this is a characteristic Bowland shares with most of the Pennine chain, it is not natural in origin, but is a product of land management practices over many centuries. Evidence of this can be seen in remnants of clough woodland, often in the form of scattered trees and unwooded areas with a relic woodland groundflora.

In the absence of management practices such as livestock grazing and grouse moor management, both of which produce open, unwooded habitat types, such as grassland and heathland, natural woodland cover

would be expected to extend to the summits of most of the hills within the AONB, though at altitudes of 400m or more the effects of exposure may result in the woodland cover being patchy or open, rather than a closed canopy. Indeed, if man had not intervened areas of blanket mire would be forest. Blanket mire developed on the hills of Bowland following woodland clearance by man and a change in climate to a cooler and wetter one some two to three thousand years ago. Soils became more acidic and podzolised and on higher ground they became waterlogged in the absence of the trees which had previously intercepted rain water, leading to the formation of blanket mires. High altitude woodland is one of the main woodland types which is under represented in Bowland.

Woodland communities

Four main woodland communities or types are found in the Forest of Bowland: *upland oak - birch woodland with bilberry, upland oak - birch with bluebell, upland mixed broadleaved woodland with dog's mercury* and *alder - ash woodland with yellow pimpernel.*

Upland oak - birch woodland with bilberry

This woodland type is found on the poorest soils, generally on north and west facing slopes. Sessile oak and downy birch are the main canopy species, with holly and rowan also characteristic. The field layer is heath-like with bilberry and wavy hair-grass and a diversity of mosses and liverworts predominating. The latter being particularly evident in humid and shady cloughs.

Upland oak - birch woodland with bluebell

This woodland community is common on base-poor brown earth soils and tends to have a canopy of sessile oak and downy birch, over a shrub layer of hazel and hawthorn and a field layer of ferns, including broad buckler-fern and bracken, plus abundant bluebells and, in grazed stands, grasses such as creeping soft-grass, common bent and sweet vernal-grass.

Upland mixed broadleaved woodland with dog's mercury

Often termed ash woodland or ash - rowan woodland, this community is found on richer brown earth soils, often where there is slight base-enrichment. Sessile oak and ash are the main canopy species, with frequent rowan and downy birch and occasional wych elm, small-leaved lime and bird cherry. Hazel is the principal shrub species, though hawthorn and elder can be frequent too. The field layer of these woods is often very diverse, with dog's mercury, bluebell, wood avens, enchanter's nightshade, wood sorrel, lords and ladies and a variety of ferns.

Alder - ash woodland with yellow pimpernel

Alder - ash woodland is generally found where there is localised flushing of the soil, generally on base-rich and mesotrophic surface water gleys and flushed brown earths on valley sides. It may also be present on ground-water gleys on alluvial terraces. Ash and alder are the main canopy species, with downy birch, goat willow, sessile oak and bird cherry present to a lesser extent. Shrubs include grey willow, hazel hawthorn, guelder rose and bay willow. The field layer can be diverse, with yellow pimpernel, creeping buttercup, meadowsweet, opposite-leaved golden saxifrage, lady fern, tufted hair-grass and soft rush.

Variation in woodland composition across the Forest of Bowland

The woodland types found in woods varies considerably across the AONB. In the south along the Ribble valley and its tributaries, including the Hodder, the woods lie on a layer of boulder clay which isolates the vegetation from the influence of the underlying rocks. These southern woods are composed largely of the upland mixed broadleaved woodland type. To the north, along the Lune and its tributaries, the woods are far more heterogeneous as they lie on soils derived directly from the millstone grit and shale bedrock. Here woodland types vary with geology. Oak - birch woodland is found on sandstones, while on shales mixed broadleaved woodlands occur, and on lime-rich drift stands of alder - ash woodland are also present. There can also be transitions in woodland type down the valley slope within these northern woods, with oak - birch

woodland on the leached steep upper slopes, mixed broadleaved woodland on the richer lower slopes and alder - ash woodland on level ground along watercourses. Map 1 shows the extent of these two broad woodland zones.

IDENTIFICATION OF POTENTIAL AREAS SUITABLE FOR CREATING NEW NATIVE WOODLAND

Background

The basis for selecting areas suitable for creating new native woodland are contained in a number of local and national policy documents. These are summarised below.

The **England Forestry Strategy** identifies the need to reverse the fragmentation of existing ancient

[1] semi-natural woodlands by linking remnant stands together with newly created woodland. This will create larger woodlands, which are more ecologically viable. It also recognises the importance of conserving areas of non-woodland habitat of high nature conservation interest in open space inside woodlands and ensuring that these areas and similar areas adjacent to existing woodlands are not damaged by woodland creation. The England Forestry Strategy is fully supportive of the Biodiversity Action Plans for woodland habitats and their targets.

The **Indicative Forestry Strategy for Lancashire** identifies the Forest of Bowland AONB as a sensitive area, where:

- there should be emphasis on renewal and enhancement of **existing** woodlands;
- where new woodland planting must be sympathetic to existing landscape character and be in accordance with management plans for the area; and
- where opportunities occur for tree planting above 300m and physical conditions allow, planting should be restricted to native species; the predominantly open area of the unenclosed uplands should be retained.

The strategy makes the following recommendations for forestry policy in the Bowland Fringes and Bowland and Pendle landscape areas:

Bowland and Pendle

- Regeneration of existing clough woodlands
- New planting of native species in the valleys

Bowland Fringes

- Management and extension of ancient woodlands by encouraging regeneration and new native woodland planting
- New mixed woodland planting

The Forest of Bowland Management Plan identifies broadleaved woodland as an important landscape and nature conservation feature of the AONB and seeks to:

- Promote and encourage indigenous woodland planting and conservation of existing woodland which will conserve or enhance the appearance of the landscape and will not conflict with nature conservation objectives.
- Extend small or fragmented semi-natural woodland by protective planting of appropriate native species

[1] Ancient woodland is woodland that is known or believed to have existed from at least 1600AD.

in the immediate vicinity.

- Protect scattered groups or individual old trees of conservation value and encourage their natural regeneration.
- Maximise the nature conservation benefits of new planting by linking with existing woodland, copses, shelter belts and hedgerows.

UK and Lancashire Biodiversity Action Plan Targets

- In addition to maintaining the existing extent of *upland oak woodland, upland mixed ashwoods* and *wet woodlands* and improving their habitat condition, the UK Biodiversity Action Plan seeks to expand the area of these habitats by 10%, avoiding other habitats of high nature conservation interest.
- Targets for woodland creation will be contained in the Lancashire Biodiversity Action Plan, which is currently in preparation. This will include the creation of 150ha of upland oak woodland by the year 2005, and 150ha of upland mixed ash woodland and 50ha of wet woodland by the year 2015 within the Forest of Bowland. This is to be achieved by some planting, but particularly by natural regeneration. This target reflects the Key Nature Conservation Objectives for broadleaved woodland contained in the Forest of Bowland Natural Area Profile (see Appendix).

The principles of selection

The following principles are based on the above, together with the criteria used in the English Nature publication *Developing new native woodland in the English uplands*.

Land to be targeted for creation of new native woodland:

- Open ground between existing semi-natural woods, particularly where newly created woodland will connect previously separate Ancient Woodland Inventory woodlands
- Areas with relic woodland groundflora (see Table 1), including areas mapped as felled or replanted ancient semi-natural woodland in the Ancient Woodland Inventory
- Areas of scrub/scattered trees
- Bracken stands
- Spawning rivers

Land unsuitable for locating new native woodland:

- Land above 400m
- Land on deep peat or with blanket mire vegetation
- Sites of ecological interest which would be damaged by woodland planting, e.g. species-rich grassland, mires/flushes, rushy pastures of importance for breeding waders
- Sites of archaeological interest
- Areas with historic interest - e.g. designed parkland

Table 1 Species suggestive of past woodland cover

bilberry	*Vaccinium myrtillus*	ivy	*Hedera helix*
bluebells	*Hyacinthoides non-scripta*	lesser celandine	*Ranunculus ficaria*
bracken	*Pteridium aquilinum*	male fern	*Dryopteris filix-mas*
bramble	*Rubus fruticosus*	primrose	*Primula vulgaris*
broad buckler fern	*Dryopteris dilatata*	red campion	*Silene dioica*
common dog violet	*Viola riviniana*	wood anemone	*Anemone nemorosa*
foxglove	*Digitalis purpurea*	wood sage	*Teucrium scorodonia*
great wood-rush	*Luzula sylvatica*	wood sorrel	*Oxalis acetosella*
herb robert	*Geranium robertianum*	woodruff	*Galium odoratum*

Areas identified

Map 2 shows the areas within the Forest of Bowland AONB where there would be significant biodiversity benefits from creating new native woodlands. The woodland types shown on these maps have been compiled from the Ancient Woodland Inventory, the Phase One Survey of Lancashire and Ordnance Survey 1:50,000 and 1:25,000 maps. The areas with potential for the creation of new native woodland have been selected using the above criteria in a desk study using the Lancashire Ancient Woodland Inventory and Phase One Survey as the principal sources of information. It should be noted that the boundaries shown are for illustrative purposes only and are by no means definitive.

METHODS OF ESTABLISHING NEW NATIVE WOODLAND

New native woodland can be created either through natural regeneration, by planting or a combination of the two. Both methods have their advantages and disadvantages and it is envisaged that both methods will be used to create new woodland in the Forest of Bowland. The suitability of each method for a particular location will depend on a number of local factors. The following is largely based on *Forestry Commission*

Natural regeneration/colonisation

This is the preferred method for extending existing natural broadleaved woodland of high nature conservation value. This is particularly true of sites adjacent to areas of ancient woodland where there will be a high seed fall from the adjacent woodland. Although the process can be slow, this is offset by the low financial and management input required and the high degree of naturalness that can result.

The principal requirements are for the area to be free from grazing livestock and deer, a seed source within 100m and patience. Results may take ten or more years to become evident. Initially species such as ash, birch, willows, hawthorn and rowan are likely to be the main colonisers. Other species, particularly oak, will take longer to colonise, possibly several decades. The natural colonisation process can be helped if light patch scarification is undertaken to provide niches for seedling establishment in closed swards. Extensive sward and soil disturbance is likely to be detrimental to the nature conservation interest of the woodland as it can favour aggressive weed species.

Natural colonisation is unlikely to be appropriate on sites where there is no nearby seed source; where woodland is required quickly; or where timber production is a major management objective.

Planting

Planting has the benefit of creating woodland quickly and of being capable of producing woodland suitable for timber production. It has the disadvantage of producing woods with a less natural appearance than those resulting from natural colonisation and higher levels of financial and man-power inputs. Planting however is likely to be the preferred option for sites where there is a limited seed source or where some timber production is required.

Prescriptions for planting native woodland

General principles

The following prescriptions aim to produce woodlands with structures and species composition closely resembling the native woodland types which would naturally occur in any given situation. As has already been described, a number of woodland types may be present in a single wood, the woodland type being determined largely by the soil conditions and, to a lesser extent, local climatic conditions. To create a woodland composition that mimics natural woodland as closely as possible it is necessary to identify the different soil conditions on the ground, plant the appropriate tree and shrub mix on the different soil types and to use trees grown from locally native stock. The former is not as difficult as it might at first seem as the soil type can usually be identified by the vegetation which is growing upon it. Table 2 summarises the relationships between soil type, existing vegetation type and the appropriate woodland type. Map 1 shows the two broad woodland zones which occur in the Forest of Bowland. Maps 4 and 5 demonstrate the way current vegetation cover can be used to determine the appropriate native woodland type for an area of ground. Obtaining saplings for planting which have been grown from seed obtained from trees which are from long established Forest of Bowland woodland may be more difficult. The use of trees native to the Forest of Bowland is important as these trees will be genetically adapted to the climate and soils of the area. English Nature and the Forestry Commission are currently considering the possibility of establishing a local tree nursery for this purpose.

Table 2 Which woodland type is appropriate in which situation							
Existing vegetation	**Soil type**	**Geology**	**Situation**	**Woodland type**	**National vegetation classification type**	**Species mix[1]**	**Planting details**
Mat-grass grassland, dry heath and scree [+ improved pastures]	Rankers, podzolic brown earths, podzols and drier surface-water gleys	Acid sandstones and millstone grit	Humid north and west facing hill slopes and valley sides	Upland oak - birch woodland with bilberry	W17 Quercus petraea - Betula pubescens - Dicranum majus	**sessile oak, downy birch,** rowan, holly, hazel, hawthorn	Hazel and hawthorn should only be planted in pockets of better soils
Bracken and bent - fescue grassland [+ improved pastures]	Acidic brown earths and podzolic brown earths	Sandstones, non-calcareous shales, lime-poor boulder clays, sand and gravel	Valley sides and hill slopes and well drained river terraces	Upland oak - birch woodland with bluebell	W11 Quercus petraea - Betula pubescens - Oxalis acetosella	**sessile oak, downy birch,** rowan, **hawthorn, hazel**, holly	
Coarse or damp grasslands, tall herb vegetation or ferns [+ improved pastures]	Calcareous brown earths, basic brown earths and base-rich surface-water gleys	Limestone and lime-rich boulder clay	Valley sides and river terraces	Upland mixed broadleaved woodland with dog's mercury	W9 Fraxinus excelsior - Sorbus aucuparia - Mercuralis perennis	**ash, downy birch, rowan,** sessile oak, wych elm, bird cherry, alder, **hazel,** elder, hawthorn	use wide spacing and a high proportion of unplanted ground in wetter areas
Rush and sedge dominated flushes and mires[2] [+ improved pastures with rushes]	Surface-water gleys, ground-water gleys and flushed brown earths	Various, including shales and boulder clays	Flushed hillsides and poorly drained valley bottoms, streamsides and alluvial terraces	Alder - ash woodland with yellow pimpernel	W7 Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum	**alder, ash,** sessile oak, goat willow, rowan, bird cherry, downy birch, **grey willow, hazel, hawthorn,** guelder rose, bay willow	natural stands tend to be open in nature

[1] Species in bold are principle tree and shrub species, which collectively should make up >50% of the canopy cover

[2] Species-rich flushes and other mire types of high nature conservation interest should be excluded from planting schemes

CASE STUDIES

North West Water Bowland Estate

Map 3 takes a more detailed look at one area of land ownership within the Forest of Bowland, that of North West Water. This shows that there is considerable scope for extending the area of native woodland on the estate using the principles outlined above.

Maps 4 and 5 take a closer look at the areas suggested for Sykes Farm in the Trough of Bowland.

Sykes Farm

Maps 4 and 5 demonstrate the way current vegetation cover can be used to determine the appropriate native woodland type for an area of ground. The vegetation of potential areas of new woodland on Sykes farm has been mapped (Map 4). Map 5 shows which woodland types would be appropriate to according to the vegetation cover using Table 2 as a guide. It will be seen that appropriate woodland type varies considerably across the farm. Around Holdron Castle upland oak - birch woodland with bilberry would suit the well drained soils dominated by bilberry and several areas of this woodland type are already present. In the Trough and up Swine Clough the better soils would support upland oak - birch woodland with bluebell, while the poorer, and generally higher, soils again would support upland oak - birch woodland with bilberry. Flushed ground with rushes and stream courses would support alder - ash woodland with yellow pimpernel. On the east side of the Trough the ground is wetter and the damp mat-grass grassland, which has frequent rushes, of Rams Clough and Penny Brook would support upland mixed broadleaved woodland with dog's mercury, while wetter areas, dominated by rushes would support alder - ash woodland. Drier areas of ground in this area are mainly suitable for upland oak - birch woodland with bluebells.

In terms of establishment strategy, both the lower part of Rams Clough and the slopes around Holden Castle hold well established areas of semi-natural woodland and would be suitable areas to consider expanding the area of woodland cover through natural regeneration. The Penny Brook, Bleashaw Clough, Sniddle Holes, Trough Bank and Swine Clough areas, however, have very few trees within or close to them and would probably need to be planted.

Downham Estate

The Downham Estate on the northern flank of Pendle Hill is five years into a 20 year woodland plan. This plan aims to increase woodland cover on the Estate, and increase the proportion of broadleaved species, while maintaining a commercial element. A comparison of Maps 6 and 7 shows how, since the inception of the plan the estate has planted broadleaved woodland along streams and cloughs and has diversified its conifer plantations by restocking them with a mix of broadleaves and conifers following harvesting. In addition a number of woods that were open to grazing livestock have been made stockproof. Map 8 shows how this process is intended to continue and how the area will look in 20 years time.

SUMMARY OF GRANTS AVAILABLE

Forestry Commission Woodland Grant Scheme and Farm Woodland Premium Scheme

The Forestry Commission runs two grants schemes for the creation of new woodland. The *Woodland Grant Scheme* (WGS) is open to all land owners or leaseholders, while the *Farm Woodland Premium Scheme* (FWPS) is a compensatory payment for loss of agricultural income where the land is being taken out of agricultural use. The FWPS is paid in addition to the WGS but applicants must be farmers at the time of application.

Planting

Grant is available for new woodlands which are greater than 0.25ha in area and have a mean width of at least 15m.

For new native woodlands planted on appropriate vegetation types, as described in this report, a minimum tree density of 1100 trees/ha is permitted and up to 20% of the area getting grant may be left as open ground. In addition 10% of the area may be planted with tall shrubs such as hazel.

For broadleaved trees the WGS rate of grant is £1350/ha for woods less than 10ha and 1050/ha for woods greater than 10ha.

Additional payments:

For woodland planted on arable land, improved grassland or cropped land a *Better Land Supplement* of £600/ha is payable.

On land that has been farmed for at least three years the FWPS is payable, rates vary according to type of land and whether the land is inside or outside the Less Favoured Area and which zone of the LFA it is in:

Land category	Outside LFA	LFA (disadvantaged areas)	LFA (severely disadvantaged areas)
Improved land	£260/ha	£200/ha	£140/ha
Unimproved land	Not eligible	£60/ha	£60/ha

Natural regeneration

Where there is potential for extending existing woodland or creating new woodland through natural regeneration a *Natural Regeneration Grant* is available. This has two parts:

- an initial Discretionary Payment of 50% of the agreed costs of the work required to encourage natural regeneration;
- a Fixed Payment equivalent to the restocking grant (£525/ha for broadleaves), which may be claimed once there is a tree density of at least 1100 trees/ha 0.5m high.

Areas where natural regeneration is to be used to create new woodland may also be eligible for the appropriate FWPS grant.

Livestock Exclusion Annual Premium

The *Livestock Exclusion Annual Premium* (LEAP) of £80/ha/year is payable in arrears for up to ten years to compensate for loss of revenue to the farmer from excluding livestock from existing woods to encourage natural regeneration or the development of a woodland field layer.

Taxation

WGS payments are tax free, while tax is payable on compensatory payments.

Other grants for woodland management are available. Details may be obtained from the Forestry Commission.

Countryside Stewardship

Grants for areas within the Forest of Bowland AONB will be available early in 1999 for new woodlands up to 1ha in area, provided they will be of wildlife value or will significantly enhance the landscape. At the time of writing details of payments have not been finalised. Contact the Forest of Bowland Initiative Office for details.

Forest of Bowland Initiative

As part of the MAFF Forest of Bowland Initiative 75% funding is available for any landscape enhancement or recreational improvement works within the Forest of Bowland AONB. This would include woodland creation projects. Full details are available from the Forest of Bowland Initiative Office.

English Nature

English Nature have limited amounts of money available for management works such as fencing and other capital projects.

CONTACTS

English Nature:	North West Team, Pier House, Wallgate, Wigan WN3 4AL 01942 820342
Farming and Wildlife Advisory Group:	Myerscough College, Bilsborough, Preston PR3 0RY 01995 640611
Forest of Bowland Initiative:	The Ribblesdale Centre, Lincoln Way, Clitheroe BB7 1QD 01200 426433
Forestry Commission:	North West England Conservancy, Peil Wyke, Bassenthwaite Lake, Cockermouth, Cumbria CA13 9YG 017687 76616
Lancashire County Council:	PO Box 160, East Cliff Offices, Preston PR1 3EX 01772 264140
LCC Environment Directorate:	PO Box 9, Guild House, Cross Street, Preston PR1 8RD 01772 264468
Lancashire Wildlife Trust	Cuerdon Park Wildlife Centre, Shady Lane, Bamber Bridge, Preston PR5 6AU 01772 324129

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APPENDIX

UK Biodiversity Action Plan Targets for the Forest of Bowland Natural Area

(to form part of the Lancashire Biodiversity Action Plan)

Upland oak woods

Maintain the existing area of the upland oakwood system and improve its condition, by a mixture of management for timber (predominantly as low intensity high forest), as sheltered grazing and minimum intervention.

- Replant and restore 50ha of woods within Artledale, Littledale, Roeburndale, Hindburndale and Wyresdale, as well as upland river valley systems of Brennand, Whitendale, Croasdale, Hareden and Langden Brooks by some planting but mainly through natural regeneration.
- Avoiding other habitats of high nature conservation value, expand the area of upland oakwood by 150ha, by some planting but mainly through natural regeneration by 2005.

Upland mixed ashwoods

Maintain the current extent and distribution of ancient/recent semi-natural upland mixed ashwoods within the Natural Area.

Within SSSIs, initiate rehabilitation management for all significant stands of upland mixed ashwoods in unfavourable condition by 2004. Aim to achieve favourable condition wherever feasible by 2010.

Identify and encourage the restoration and re-creation of at least 150ha of upland mixed ashwoods wherever possible extending or linking existing areas of woodland. Complete restoration/re-creation over half this area by 2010 and all of it by 2015.

For stands of upland mixed ashwoods outside of SSSIs, encourage appropriate management regimes intended to achieve favourable condition over 50% of the resource within the Natural Area, wherever feasible, by 2010.

Wet woodlands

Maintain the current extent and distribution of ancient/recent semi-natural wet woodland within the Natural Area.

Within SSSIs, initiate re-habilitation management for all significant stands of wet woods in unfavourable condition by 2004. Aim to achieve favourable condition wherever feasible by 2010.

Identify and encourage the restoration and re-creation of at least 50ha of wet woodland wherever possible extending or linking existing areas of woodland. Complete restoration/re-creation over half this area by 2010 and all of it by 2015.

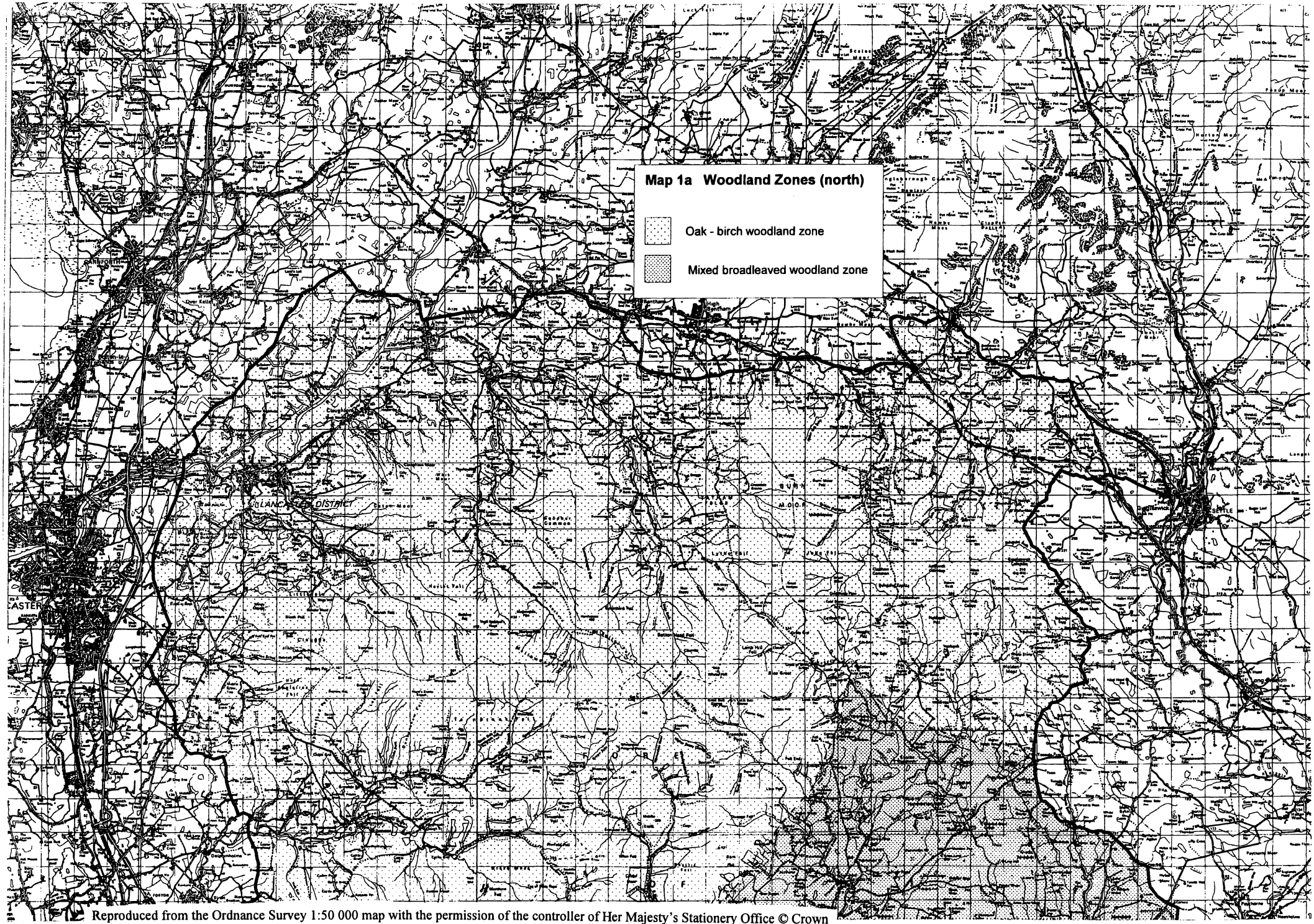
For stands of wet woodland outside of SSSIs, encourage appropriate management regimes intended to achieve favourable condition over 50% of the resource within the Natural Area, wherever feasible, by 2010.

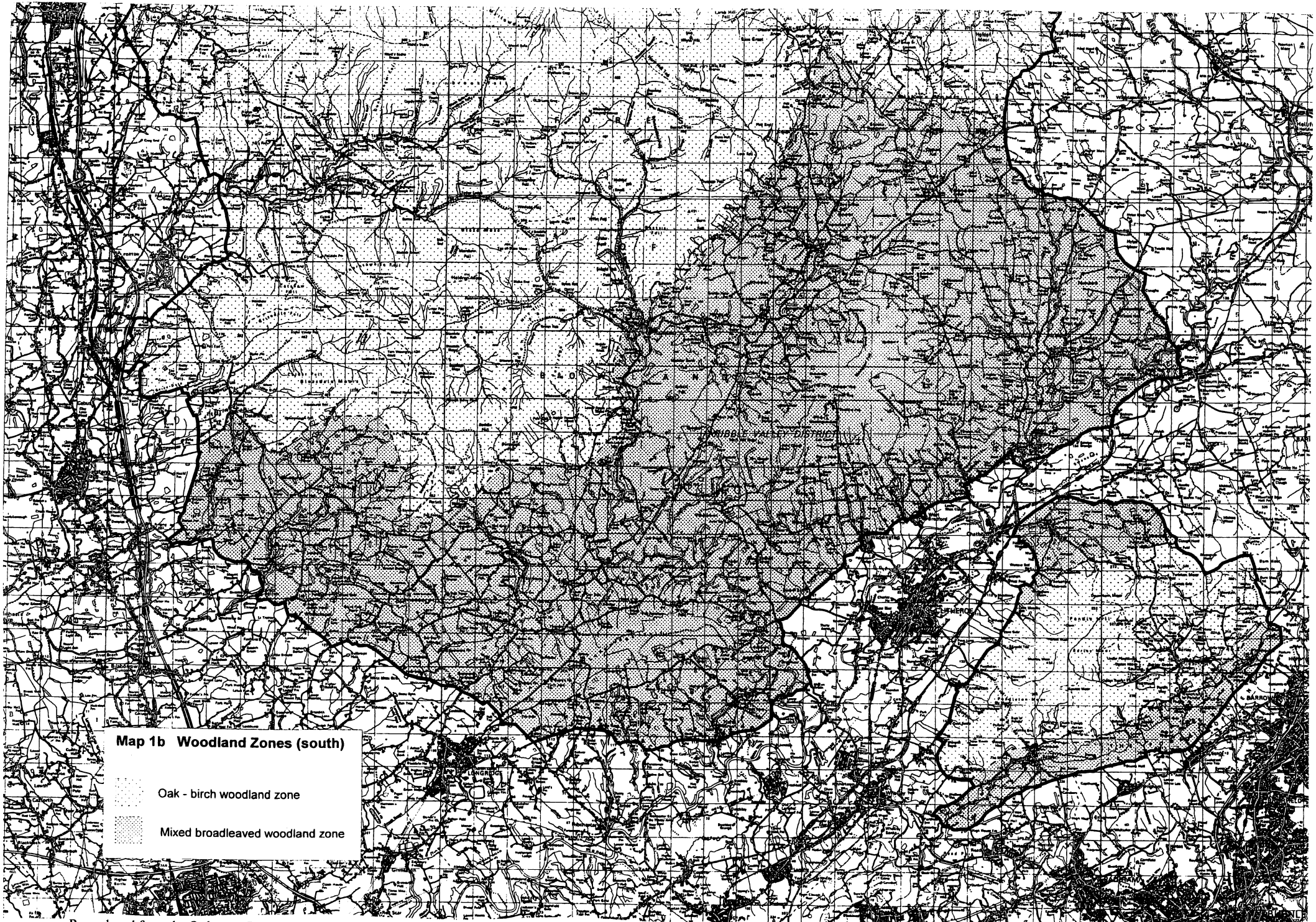
Forest of Bowland Natural Area Profile:
Key nature conservation objectives for semi-natural woodland

1. Encourage positive management of all woodlands; including the removal of exotic species and stock-proofing to allow natural regeneration where appropriate.

2. Encourage the linking and extension of existing semi-natural woodlands by natural regeneration and appropriate planting.

3. Plant new woodlands of maximum benefit to wildlife by :
   - using native species appropriate to the area (altitude, soil & geology);
   - avoiding damage to existing wildlife habitats, e.g. flushes, species-rich grasslands, wet/damp grasslands used by breeding waders;
   - taking care to enhance conditions for key species.

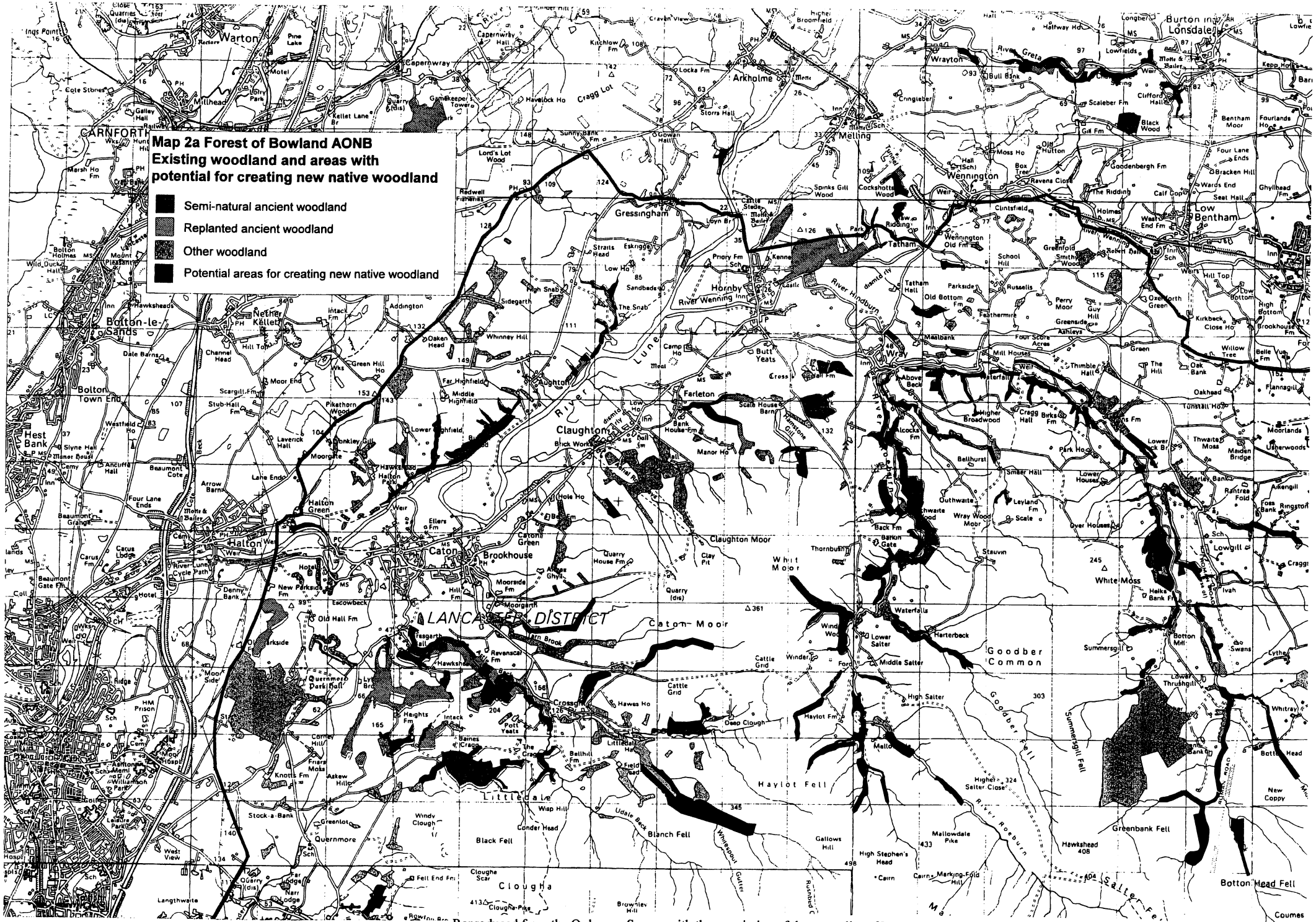


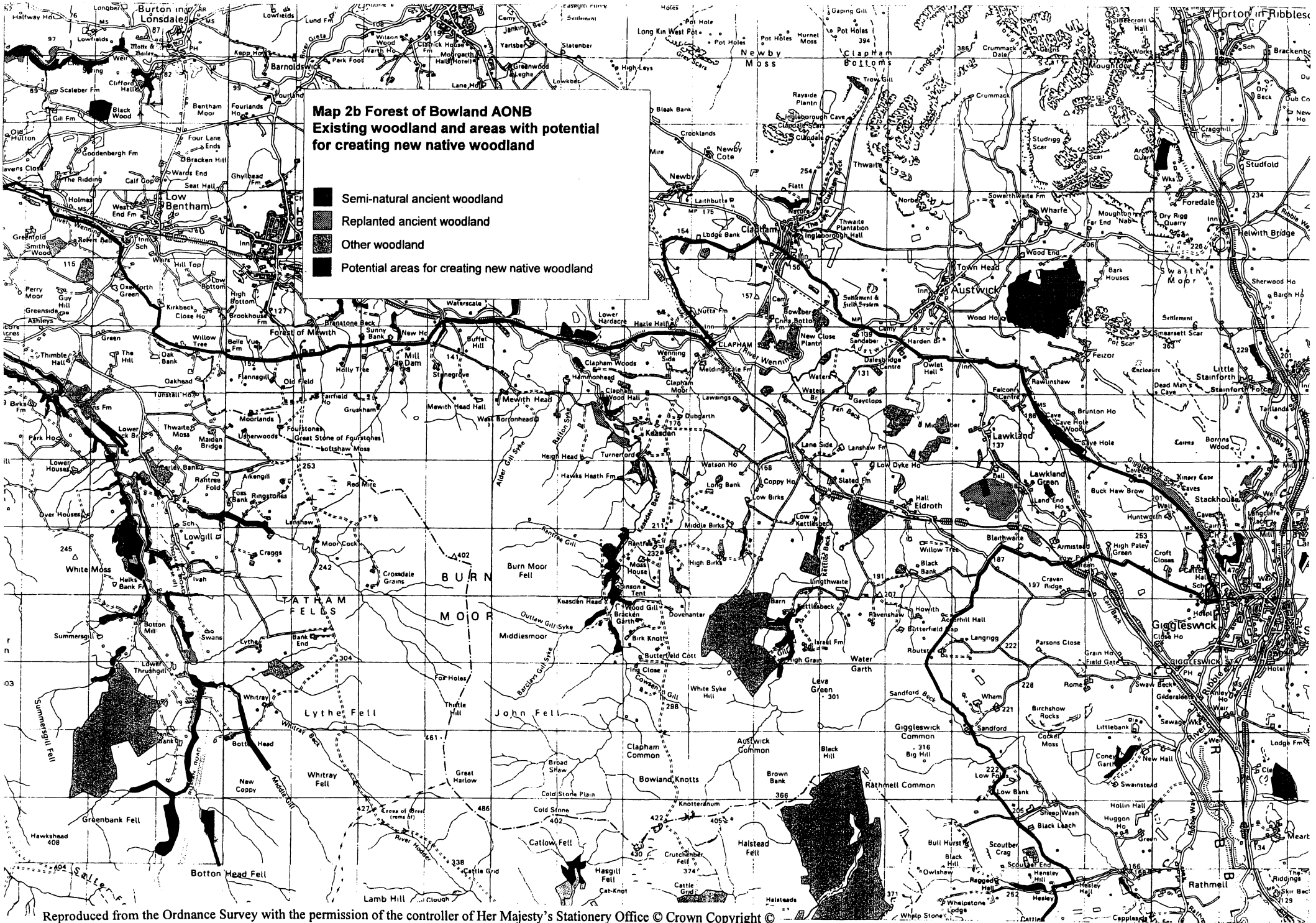


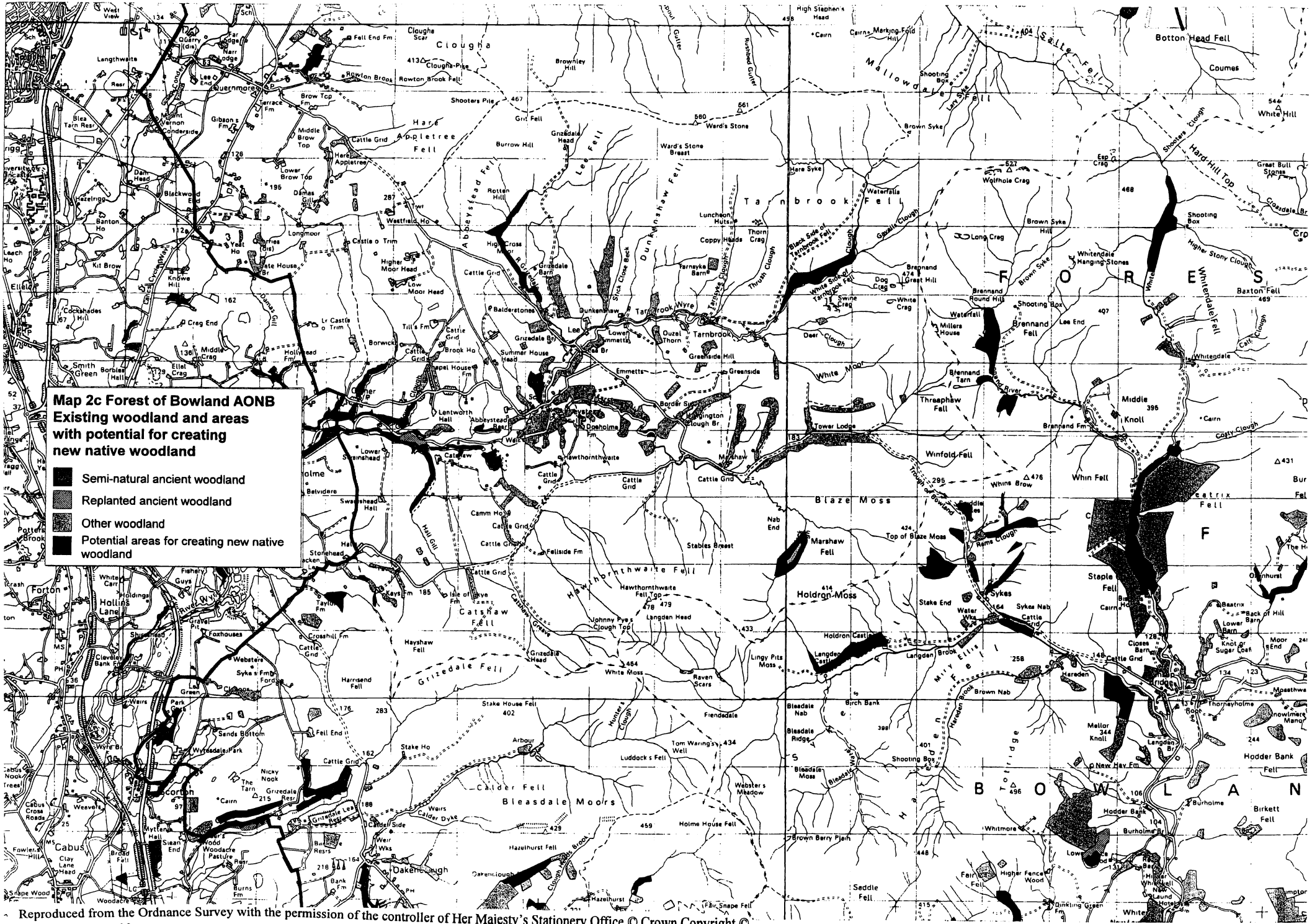
Map 1b Woodland Zones (south)

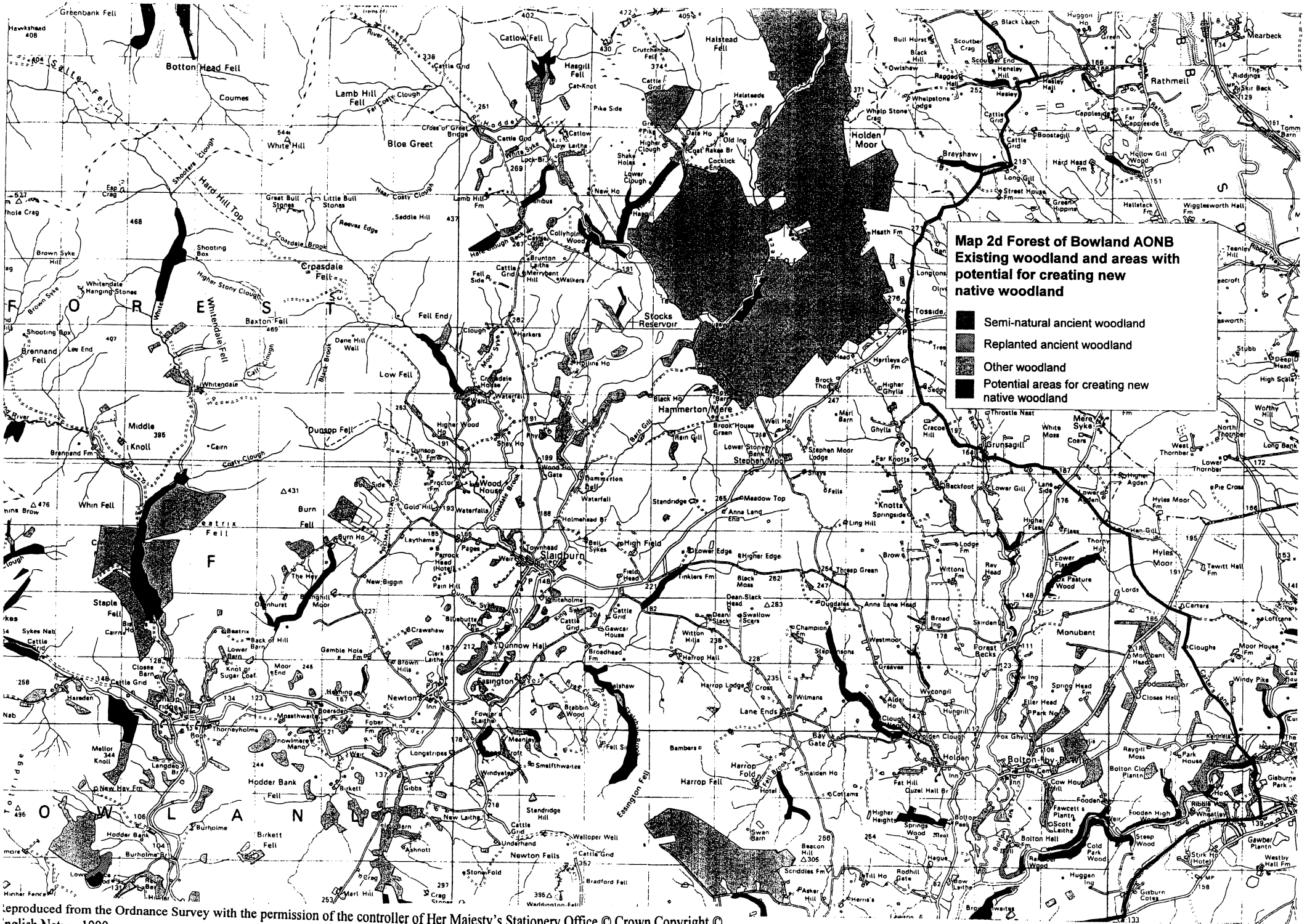
Oak - birch woodland zone

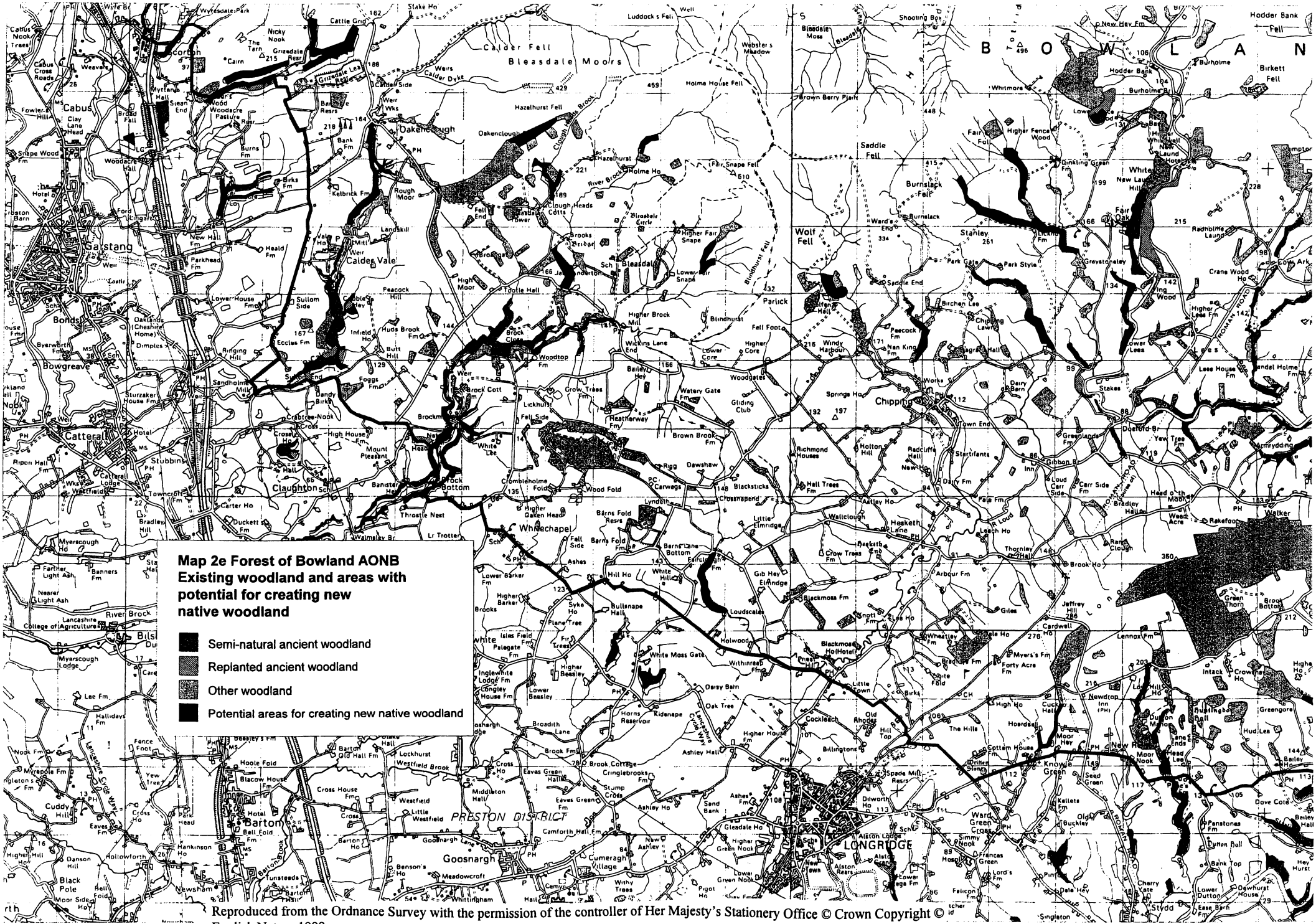
Mixed broadleaved woodland zone

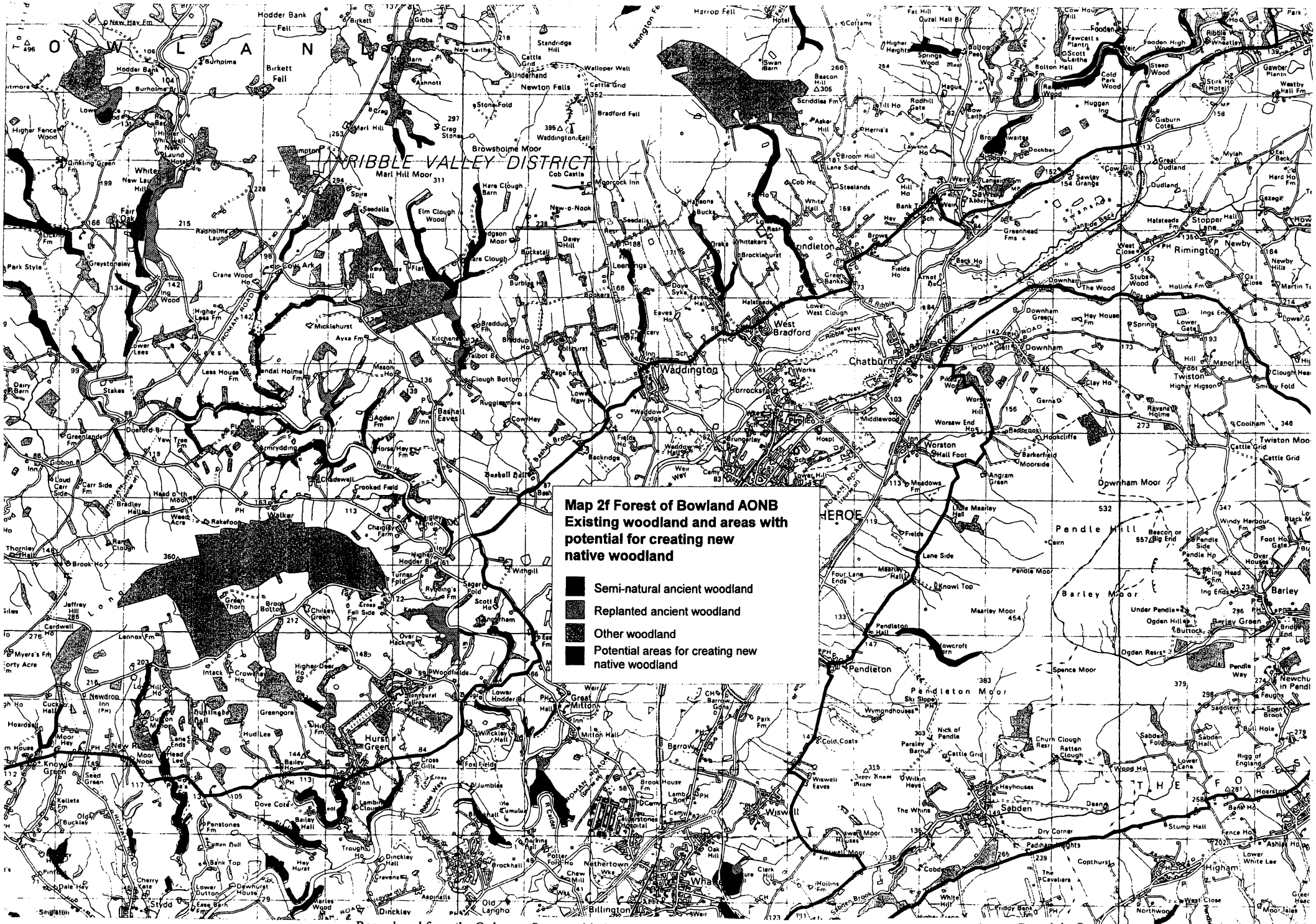


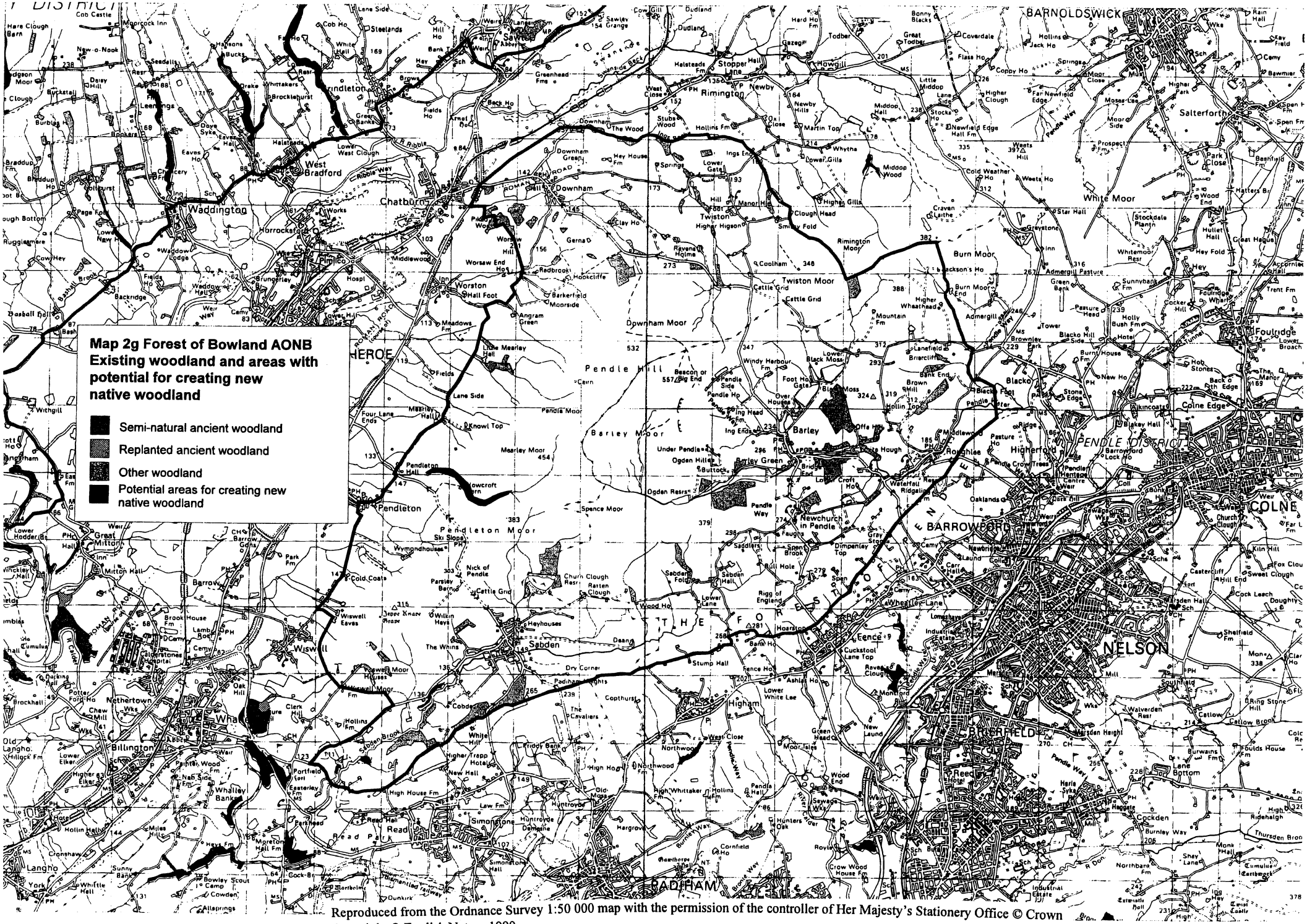











Map 2g Forest of Bowland AONB
Existing woodland and areas with potential for creating new native woodland
Semi-natural ancient woodland
Replanted ancient woodland
Other woodland
Potential areas for creating new native woodland
BARNOLDSWICK
Salterforth
White Moor
Burn Moor
Twiston Moor
Downham Moor
Pendle Hill
Barley Moor
Barley
Newchurch in Pendle
BARROWFORD
COLNE
NELSON
BRIERFIELD
Foulridge
Colne Edge
Higherford
Roughlee
Pendleton
Pendleton Moor
Sabden
Wiswell
Whalley
Read
Simonstone
Downham
Chatburn
Waddington
West Bradford
Clitheroe
Rimington
Newby
Stopper Lane
Halsteads
Worston
Pimlico
Barrowford
Foot
Lane Ends
Higham
Reedley Hallows
Cockden
Langho
Billington
Read Park
Simonstone Hall
Whalley Banks
Nethertown
Great Mitton
Mitton Hall
Wymondhouses
Ski Slope
Cold Coats
Wiswell Eaves
Sabden Brook
Churn Clough Rest
Rattan Clough
Nick of Pendle
Parsley Barn
Cattle Grid
Heyhouses
The Whins
Deane
Dry Corner
Padihams Lights
Copthurst
The Cavaliers
Stump Hall
Fence Ho
Cuckstool Lane Top
Lower White Lee
Ashlet Ho
Wheatley Lane
Lomeshaye
Industrial Estate
Reedley Hotel
Hapton
Burnley Way
Thursden Brook
Ridehalgh
Monk Hall
Cumulus
Earthworks
Roman Road
Pendle Way
Pendle Heritage Centre
Park Hill
Oaklands
Kiln Hill
Fox Clough
Sweet Clough
Castercliff
Hill End
Cock Leach
Doughty
Shelfield
Ring Stone Hill
Catlow
Catlow Brook
Walverden Reser
Marsden Height
Burwains
Foulds House
Lane Bottom
Haggate
Cockden
Burnley Way
Thursden Brook
Ridehalgh
Monk Hall
Shay Lane
Northbank
Industrial Estate
Extensive Hall
Castle
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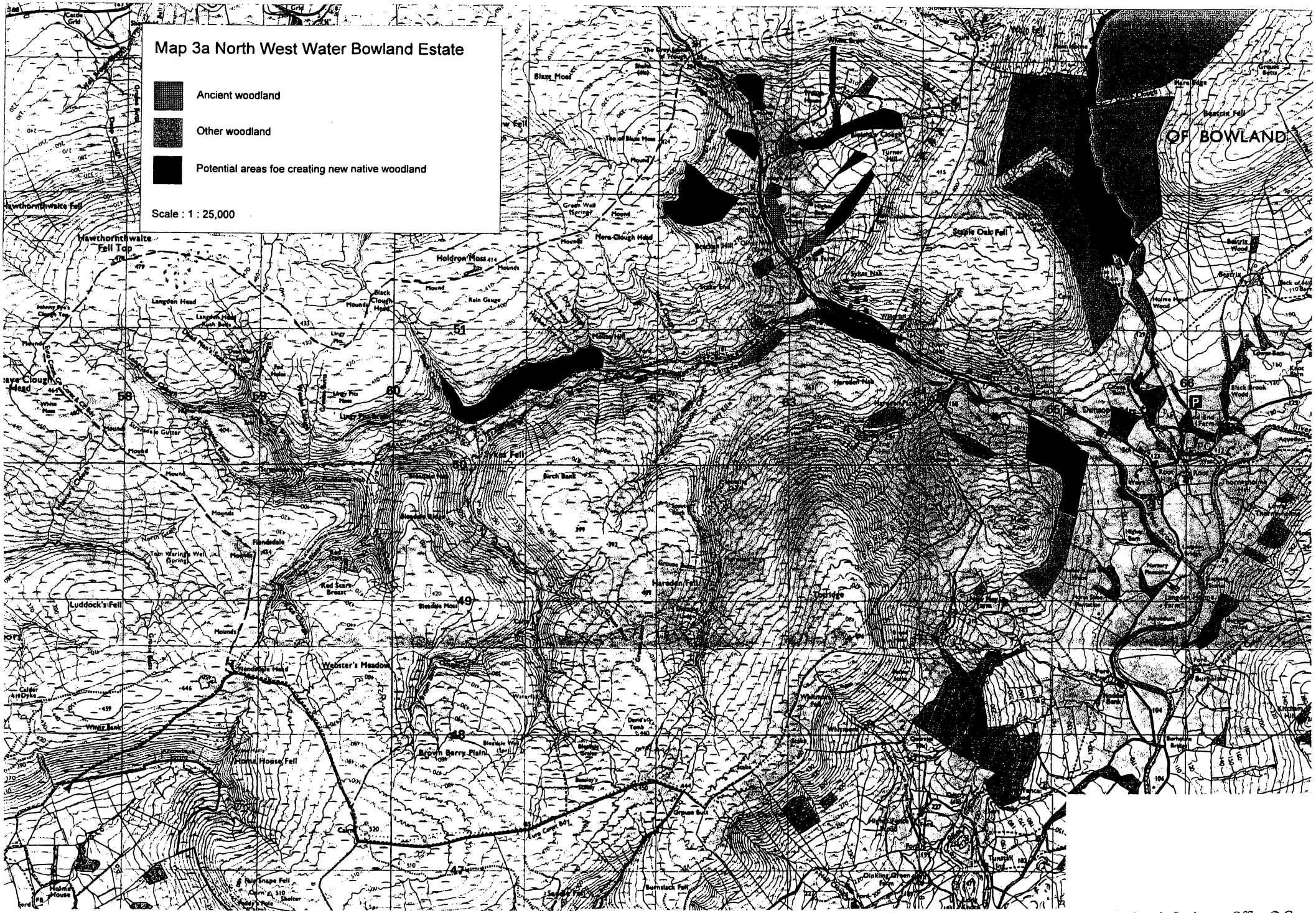

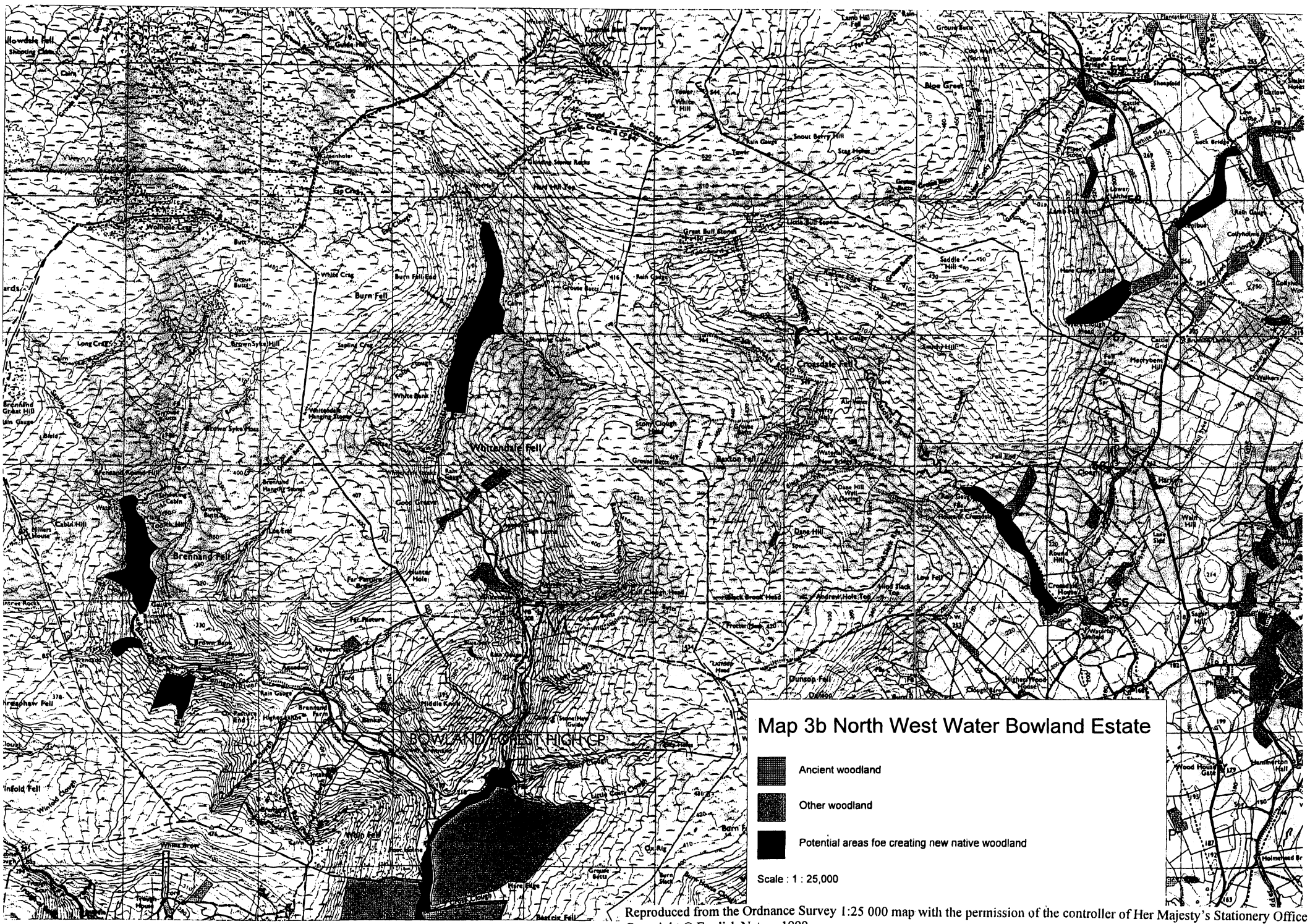

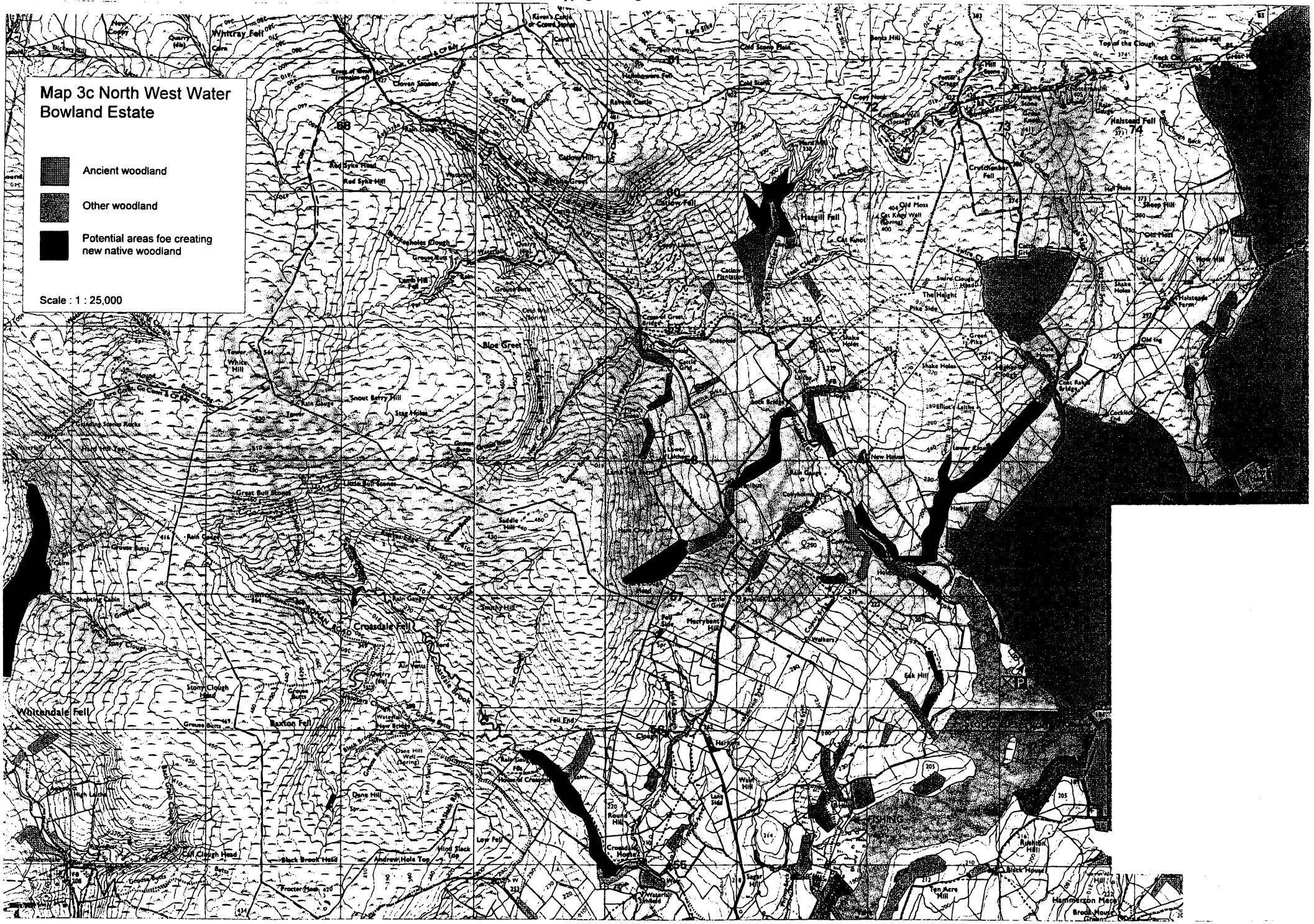

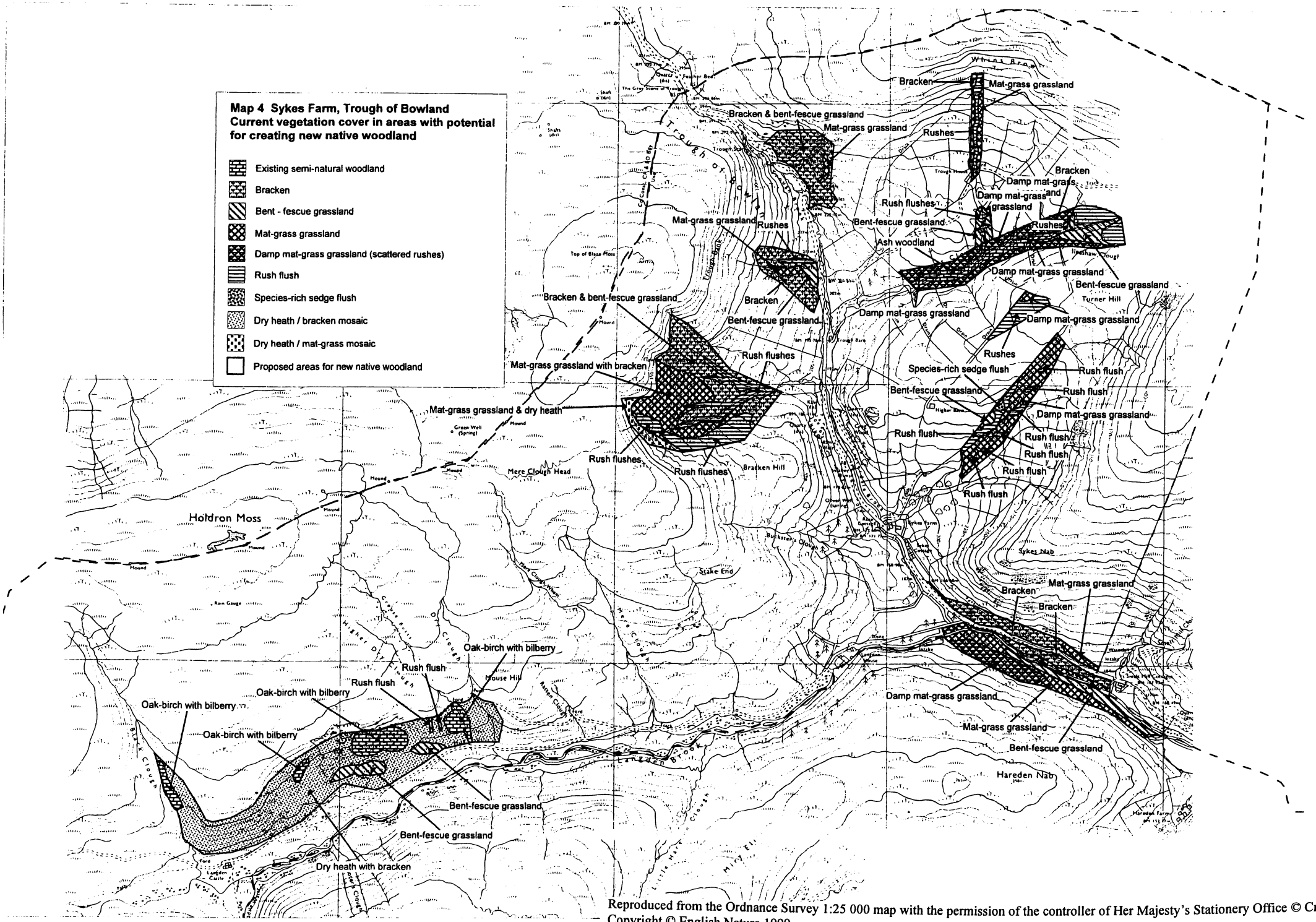
Map 4 Sykes Farm, Trough of Bowland
Current vegetation cover in areas with potential for creating new native woodland
Existing semi-natural woodland
Bracken
Bent - fescue grassland
Mat-grass grassland
Damp mat-grass grassland (scattered rushes)
Rush flush
Species-rich sedge flush
Dry heath / bracken mosaic
Dry heath / mat-grass mosaic
Proposed areas for new native woodland
Trough of Bowland
Holdron Moss
Mere Clough Head
Stake End
Bracken Hill
Sykes Farm
Sykes Nab
Hareden Nab
Mouse Hill
Bracken
Mat-grass grassland
Bracken & bent-fescue grassland
Rushes
Damp mat-grass and
Damp mat-grass grassland
Rush flushes
Bent-fescue grassland
Ash woodland
Bracken
Damp mat-grass grassland
Bent-fescue grassland
Turner Hill
Mat-grass grassland with bracken
Rush flushes
Species-rich sedge flush
Rush flush
Mat-grass grassland & dry heath
Damp mat-grass grassland
Oak-birch with bilberry
Dry heath with bracken
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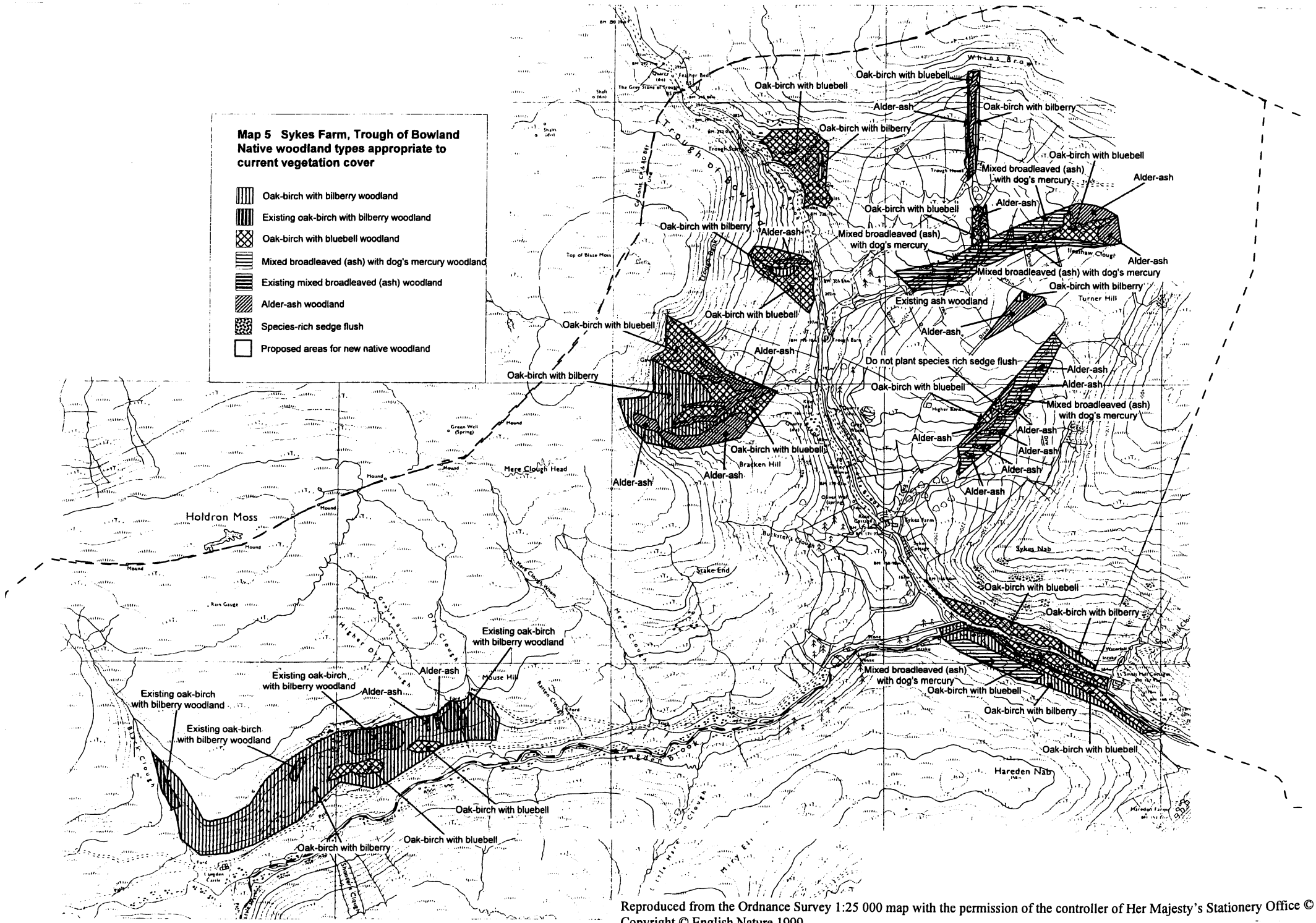
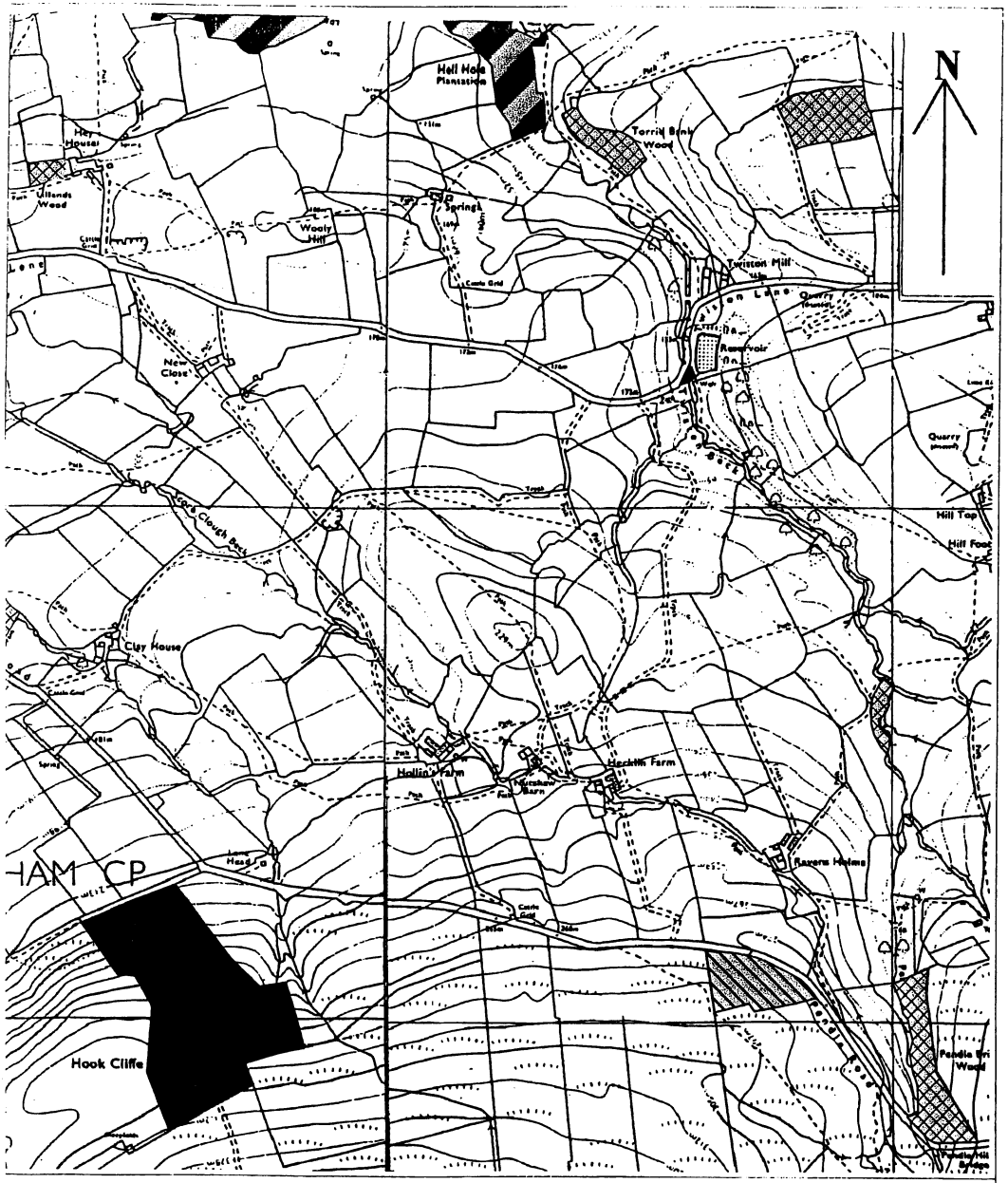
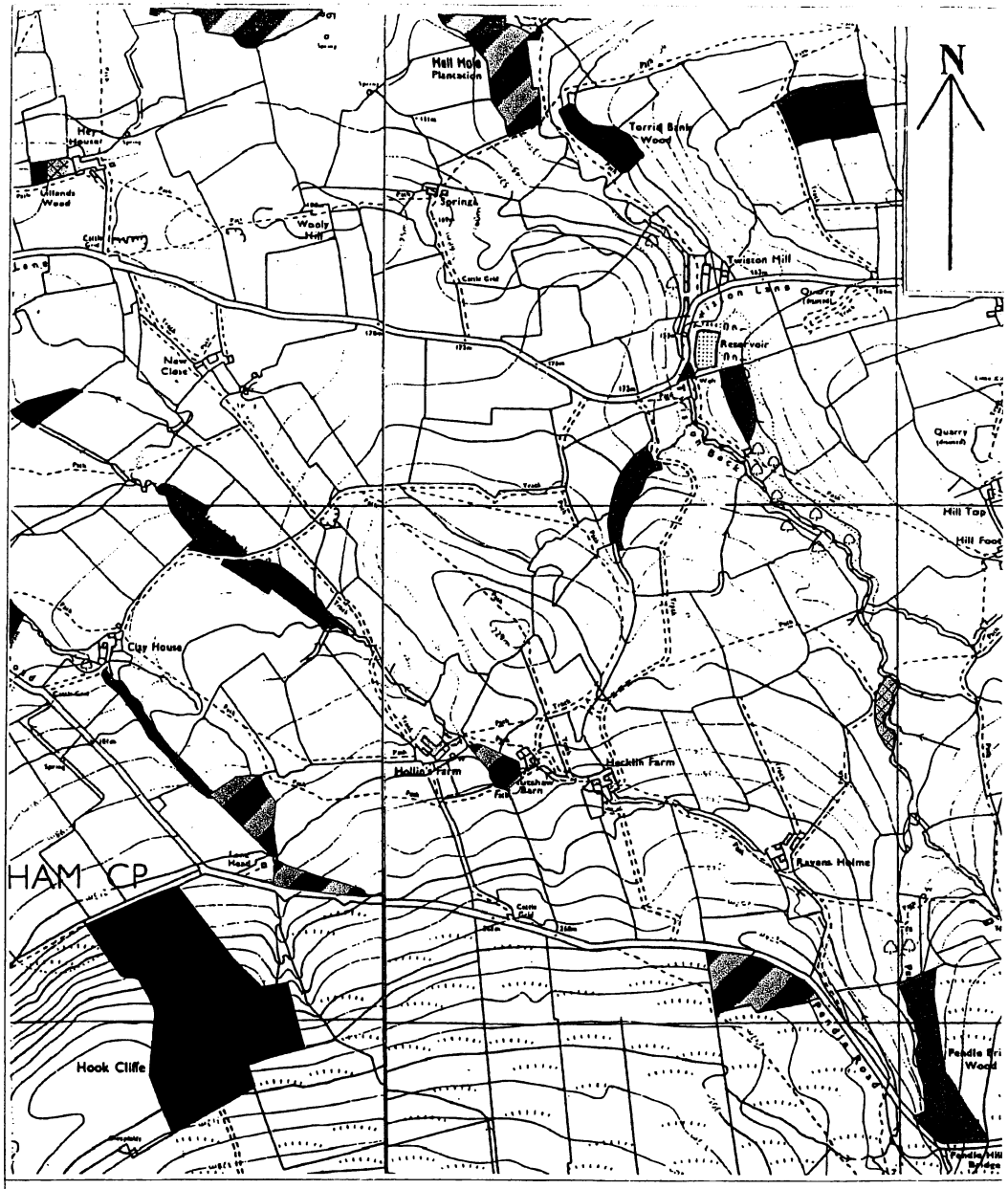




Map 6 Downham Estate (part)
Woodland cover in 1978

- Broadleaved woodland (fenced)
- Conifer woodland (fenced)
- Mixed woodland (fenced)
- Conifer woodland (unfenced)
- Broadleaved woodland (unfenced)

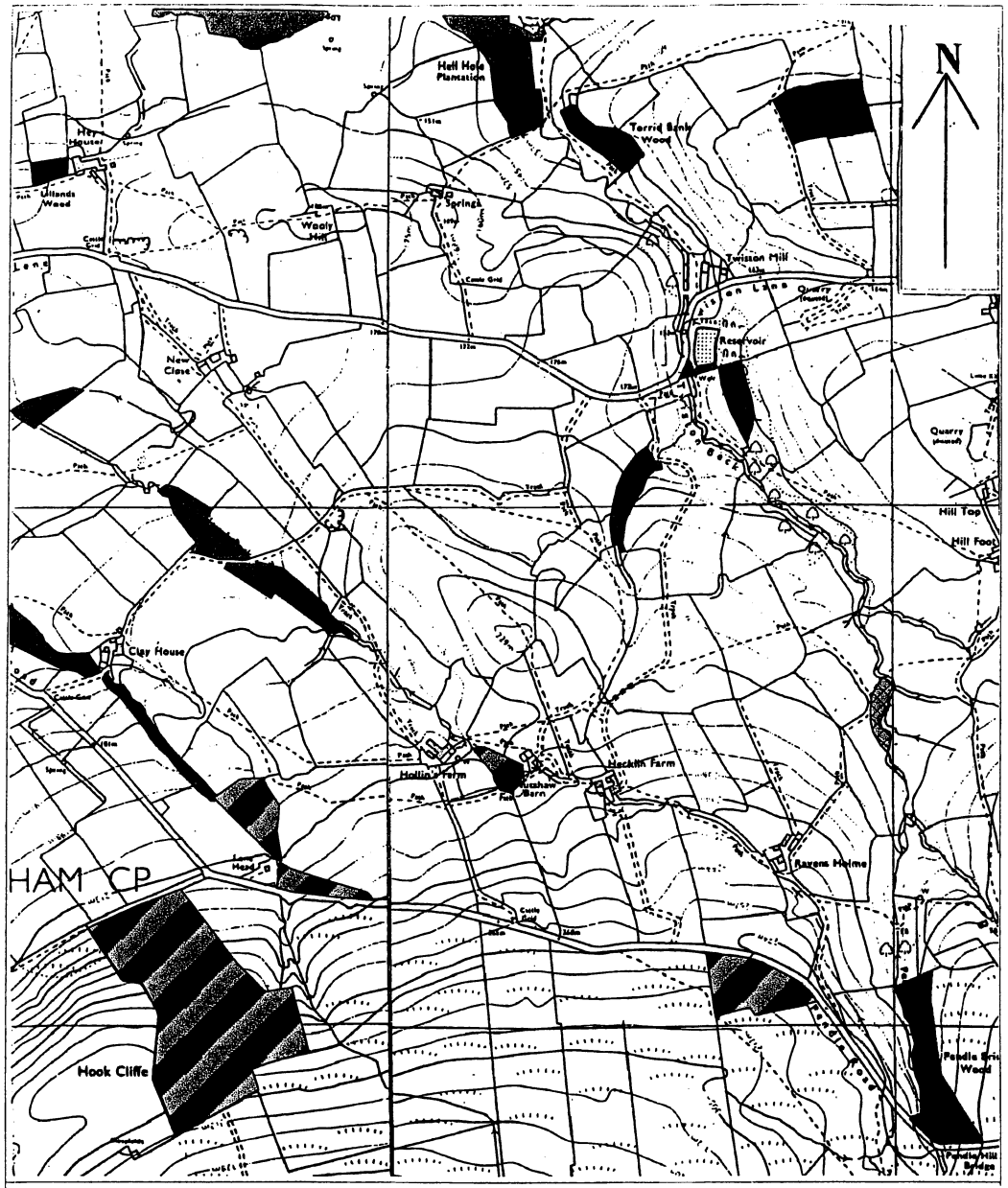
Scale : 1:10,000



Map 7 Downham Estate (part)
Woodland cover in 1998

- Broadleaved woodland (fenced)
- Conifer woodland (fenced)
- Mixed woodland (fenced)
- Conifer woodland (unfenced)
- Broadleaved woodland (unfenced)

Scale : 1:10,000



Map 8 Downham Estate (part)
Woodland cover in 2018

- Broadleaved woodland (fenced)
- Conifer woodland (fenced)
- Mixed woodland (fenced)
- Conifer woodland (unfenced)
- Broadleaved woodland (unfenced)

Scale : 1:10,000